

**CITY OF MIRAMAR
PROPOSED CITY COMMISSION AGENDA ITEM**

Meeting Date: November 4, 2020

Presenter's Name and Title: Kelvin L. Baker Sr., ICMA-CM, Assistant City Manager on behalf of the City Manager's Office, Alicia Ayum, Director of Procurement on behalf of the Procurement Department

Prepared By: Dr. Sophia Bryan, Ed.D., Kelvin Baker Sr., ICMA-CM, Assistant City Manager

Temp. Reso. Number: 7298

Item Description: Temp. Reso. #R7298, APPROVING THE RANKING FOR REQUEST FOR QUALIFICATIONS NO. 20-02-15 FOR GUARANTEED ENERGY WATER AND WASTEWATER PERFORMANCE SAVINGS CONTRACTING; AUTHORIZING THE CITY MANAGER TO BEGIN NEGOTIATIONS WITH THE HIGHEST RANKED PROPOSER SIEMENS INDUSTRY, INC. *(Kelvin L. Baker Sr., ICMA-CM, Assistant City Manager on behalf of the City Manager's Office, Alicia Ayum, Director of Procurement on behalf of the Procurement Department)*

Consent ☐ Resolution ☒ Ordinance ☐ Quasi-Judicial ☐ Public Hearing ☐

Instructions for the Office of the City Clerk: Execute Guaranteed Energy Approval to Negotiate on Dais

Public Notice – As required by the Sec. ____ of the City Code and/or Sec. ____, Florida Statutes, public notice for this item was provided as follows: on ____ in a ____ ad in the ____; by the posting the property on ____ and/or by sending mailed notice to property owners within ____ feet of the property on ____
(fill in all that apply)

Special Voting Requirement – As required by Sec. ____, of the City Code and/or Sec. ____, Florida Statutes, approval of this item requires a ____ (unanimous, 4/5ths etc.) vote by the City Commission.

Fiscal Impact: Yes ☒ No ☐

REMARKS: Approving the ranking for Request For Qualifications No. 20-02-15 for Guaranteed Energy Water and Wastewater Performance Savings Contracting to allow staff to begin negotiations with the highest ranked proposer Siemens Industry, Inc. Funds will be deposited in GL revenue account numbers 001-00-000-000-000-349017-05200 and/or 410-00-000-000-000-349017-05200-Guaranteed Energy Performance Savings respectively.

Content:


- **Agenda Item Memo from the City Manager to City Commission**
- **Resolution TR 7298**

- **Attachment(s)**
 - **Attachment 1: RFQ No. 20-02-15**
 - **Attachment 2: Score Sheet**
 - **Attachment 3. Proposal from Siemens**



**CITY OF MIRAMAR
INTEROFFICE MEMORANDUM**

TO: Mayor, Vice Mayor, and Commissioners

FROM: Vernon E. Hargray, City Manager 

BY: Kelvin L. Baker, Assistant City Manager

DATE: October 29, 2020

RE: Temp. Reso. No. 7298, approving the ranking for RFQ No. 20-02-15 for guaranteed energy, water and wastewater performance saving contracting services

RECOMMENDATION: The City Manager recommends approval of Temp. Reso. No. 7298, approving the ranking for RFQ No. 20-02-15 for guaranteed energy, water and wastewater performance saving contracting services and authorizing the City Manager to begin negotiations with the highest ranked proposer, Siemens Industry Inc. ("Siemens").

ISSUE: Pursuant to City Code, approval of the City Commission is required for the award of a contract with a value exceeding \$75,000 within a single fiscal year.

BACKGROUND: The City of Miramar launched the Comprehensive Assessment of Revenues and Expenses ("C.A.R.E.") Program on November 15, 2018, in an effort to maximize the City's efficiencies and effectiveness, C.A.R.E. will assist the City in maintaining success, as well as creating great sustainability of its assets. The C.A.R.E. Program is an initiative that includes strategic planning, goal setting, and implementation of viable smart initiatives while empowering our employees, residents, and business community to participate in the innovative advancement of the City. The Program embraces all areas that will ensure continued success in Workplace Efficiency, Reserves, Expenditures, Volunteer Program, Revenues, Energy Policy, Public/Private Partnerships, Conservation Policy, Grant Programs and Capital Improvement Plan.

As part of the C.A.R.E. revenue and public/private partnership initiatives, staff decided that Energy Savings Performance Contracting ("ESPC"), also referred to as Guaranteed Energy Savings Contracting ("GESC"), would be a significant asset to the City's overall resource portfolio. GESC is a partnership between the City and an Energy Service Company ("ESCO"). To have a thorough understanding of the City's energy needs, the ESCO will conduct a comprehensive energy audit of the City's facilities under consideration for energy savings and equipment replacement to identify improvements to

save energy. The ESCO will consult with the City to develop, design, propose and finance the necessary funding for an energy savings project; install and maintain energy-efficient equipment; measure, monitor, and verify the project's energy savings; and assume the risk that the project will save the guaranteed amount of energy to meet the City's needs. As mandated by the State of Florida, 2019 Florida Statute 489.145, the ESCO must guarantee that the improvements will generate energy cost savings sufficient to pay for the project over the term of a contract. If the guaranteed amount of energy savings is not met, the ESCO will write a check to the City for the difference. After the contract ends, the City will continue to accrue cost savings.

The City advertised Request for Qualifications No. 20-02-15 on Demandstar on April 20, 2020 to solicit a qualified contractor to perform Guaranteed Energy, Water and Wastewater Performance Savings Contracting Services in accordance with Florida Statutes 489.145 and 287.055. The RFQ was also advertised in a newspaper of general circulation on May 10, 2020. Staff conducted pre-proposal conferences and site visits on June 3 and 4, 2020 which were attended by nine firms. The RFQ closed on July 28, 2020 with a total of eight proposals.

A five-member selection committee was formed and met on August 13, 2020, to discuss the proposals. The selection committee agreed to hear oral presentations from all eight proposers. Oral presentations were conducted August 27 and 28, 2020. The selection committee also conducted a public meeting on August 28, 2020 to discuss and rank the proposals. The results were as follows:

Rank	Vendor Name	Total Score
1	Siemens Industry, Inc.	487.00
2	Honeywell International, Inc.	483.00
3	Energy Systems Group	482.00
4	Schneider Electric	480.00
5	Ameresco, Inc.	479.00
6	ABM Building Solutions, LLC	477.00
6	AECOM Technical Services	477.00
6	Trane U.S. Inc	477.00

The selection committee voted to move forward with the recommendation to begin negotiations with Siemens, the highest ranked responsive responsible proposer. The RFQ required a local/small business (SBE/CBE) participation goal of 10% which was agreed to by all eight proposers.

DISCUSSION: ESPC, also referred to as guaranteed energy savings contracting is a partnership between the City and an ESCO. To have a thorough understanding of the City's energy needs, the ESCO, Siemens, will conduct a comprehensive energy audit of the City's facilities under consideration for energy savings, and equipment replacement

to identify improvements to save energy. Siemens will consult with the City to develop, design, propose and finance the necessary funding for an energy savings project; install and maintain energy-efficient equipment; measure, monitor, and verify the project's energy savings; and assume the risk that the project will save the guaranteed amount of energy to meet the City's need. As mandated by the State of Florida, 2019 Florida Statute, Chapter 489.145, Siemens must guarantee that the improvements will generate energy cost saving that is sufficient to pay for the project over the term of a contract. If the guaranteed amount of energy savings is not met, Siemens will write a check to the City for the difference. After the term of the contract ends, the City will continue to accrue cost savings.

An excerpt of the 2019 Florida Statute states:

that a guaranteed energy, water, and wastewater performance savings contract must include a written guarantee that may include, but is not limited to the form of a letter of credit, insurance policy, or corporate guarantee by the guaranteed energy, water, and wastewater performance savings contractor that annual cost savings will meet or exceed the amortized cost of energy, water, and wastewater efficiency and conservation measures.

The statute also states that:

guaranteed energy, water, and wastewater performance saving contract or the loan agreement related thereto must provide that all repayments to the lender of the installation construction loan, except obligations on termination of the contract before its expiration, may be made over time, but may not exceed twenty (20) years from the date of complete installation and acceptance by the agency, and that the annual cost savings are guaranteed to the extent necessary to make annual payments to satisfy the guaranteed energy, water, and wastewater performance savings contract.

Due to the magnitude of this project, it is imperative that the City selects an ESCO firm with the necessary technical and financial staff to complete the project. Companies that desire to offer guaranteed energy savings contracting must be certified, licensed, and authorized as a "guarantee energy, water and wastewater performance savings contractor" in accordance with Florida Statute 489.145.

ANALYSIS: The City's position is to become an energy efficient organization and is committed to reduce its carbon footprint. In an effort to maximize the benefits of guaranteed energy savings, the City began the process to solicit an ESCO. On April 20, 2020, staff advertised on Demandstar, RFQ No. 20-02-15 to solicit a qualified contractor to perform Guaranteed Energy, Water and Wastewater Performance Savings Contracting Services in accordance with Florida Statutes, Sections 489.145 and 287.055. The RFQ was also advertised in a newspaper of general circulation on May 10, 2020 and closed on July 28, 2020 with eight proposals. An extensive selection committee process was undertaken to review the eight proposals that were submitted.

After the selection process was completed, Siemens was ranked the highest rated responsive and responsible proposer. The selection committee voted to move forward with the recommendation to begin negotiations with Siemens, the highest ranked responsive responsible proposer. The RFQ required a local/small business (SBE/CBE) participation goal of 10% which was agreed to by all eight proposers.

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10/8/20
10/21/20

**CITY OF MIRAMAR
MIRAMAR, FLORIDA**

RESOLUTION NO. _____

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF MIRAMAR, FLORIDA, APPROVING THE RANKING FOR REQUEST FOR QUALIFICATIONS NO. 20-02-15 FOR GUARANTEED ENERGY, WATER AND WASTEWATER PERFORMANCE SAVING CONTRACTING SERVICES; AUTHORIZING THE CITY MANAGER TO BEGIN NEGOTIATIONS WITH THE HIGHEST RANKED PROPOSER, SIEMENS INDUSTRY, INC; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City of Miramar launched the Comprehensive Assessment of Revenues and Expenses (“C.A.R.E.”) Program on November 15, 2018, in an effort to maximize the City’s efficiencies and effectiveness; and

WHEREAS, C.A.R.E. will assist the City in maintaining success as well as creating great sustainability of its assets; and

WHEREAS, the C.A.R.E. Program is an initiative that includes strategic planning, goal setting, and implementation of viable smart initiatives while empowering our employees, residents, and business community to participate in the innovative advancement of the City; and

WHEREAS, the C.A.R.E. Program embraces all of the City’s areas that will ensure continued success in Workplace Efficiency, Reserves, Expenditures, Volunteer Program, Revenues, Energy Policy, Public/Private Partnerships, Conservation Policy, Grant Programs and Capital Improvement Plan; and

Reso. No. _____

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10/21/20

WHEREAS, as part of the C.A.R.E. Program revenue and public/private partnership initiatives, staff decided that Energy Savings Performance Contracting (“ESPC”) also referred to as Guaranteed Energy Savings Contracting would be a significant asset to the City’s overall resource portfolio; and

WHEREAS, guaranteed Energy Savings Contracting is a partnership between the City and an Energy Service Company (“ESCO”); and

WHEREAS, to have a thorough understanding of the City’s energy needs, the ESCO, will conduct a comprehensive energy audit of the City’s facilities under consideration for energy savings, and equipment replacement to identify improvements to save energy; and

WHEREAS, the ESCO will consult with the City to develop, design, propose and finance the necessary funding for an energy savings project; install and maintain energy-efficient equipment; measure, monitor, and verify the project’s energy savings; and assume the risk that the project will save the guaranteed amount of energy to meet the City’s need; and

WHEREAS, as mandated by the State of Florida, 2019 Florida Statute, 489.145, the ESCO must guarantee that the improvements will generate energy cost savings sufficient to pay for the project over the term of a contract; and

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10/21/20

WHEREAS, if the guaranteed amount of energy savings is not met, the ESCO will write a check to the City for the difference. After the contract ends, the City will continue to accrue cost savings; and

WHEREAS, The City advertised Request for Qualifications No. 20-02-15 on Demandstar on April 20, 2020 to solicit a qualified contractor to perform Guaranteed Energy, Water and Wastewater Performance Savings Contracting Services in accordance with Florida Statutes 489.145 and 287.055.; and

WHEREAS, the RFQ was also advertised in a newspaper of general circulation on May 10, 2020; and

WHEREAS, Staff conducted pre-proposal conferences and site visits on June 3 & 4, 2020 which was attended by 9 firms; and

WHEREAS, the RFQ closed on July 28, 2020 with a total of eight proposals; and

WHEREAS, A five-member selection committee was formed and met on August 13, 2020 to discuss the proposals; and

WHEREAS, the selection committee agreed to conduct oral presentations from all eight proposers; and

WHEREAS, oral Presentations were conducted August 27 & 28, 2020; and

WHEREAS, the selection committee also conducted a public meeting on August 28, 2020 to discuss and rank the proposals; and

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10/21/20

WHEREAS, the selection committee's ranking of the proposers was as follows:

1. Siemens Industry, Inc.
2. Honeywell International, Inc.
3. Energy Systems Group
4. Schneider Electric
5. Ameresco, Inc.
6. ABM Building Solutions, LLC
6. AECOM Technical Services
6. Trane U.S. Inc; and

WHEREAS, the City Manager recommends approval of Temp. Reso. No. 7298 approving the ranking for RFQ No. 20-02-15 for guaranteed energy, water and wastewater performance saving contracting services and authorizing the City Manager to begin negotiations with the highest ranked proposer, Siemens Industry Inc. ("Siemens"); and

WHEREAS, the City Commission deems it to be in the best interest of the citizens and residents of the City of Miramar to approve Temp. Reso. No. 7298 approving the ranking for RFQ No. 20-02-15 for guaranteed energy, water and wastewater performance saving contracting services.

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**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF
MIRAMAR, FLORIDA AS FOLLOWS:**

Section 1: That the foregoing “**WHEREAS**” clauses are ratified and confirmed as being true and correct and are made a specific part of this Resolution

Section 2: That it approves the ranking for the request for qualifications no. 20-02-15 for guaranteed energy, water and wastewater performance saving contracting services authorizing the City Manager to begin negotiations with the highest ranked proposer Siemens Industry, Inc.

Section 3: That the appropriate City officials are authorized to do all things necessary and expedient to carry out the aims of this Resolution.

Section 4: That this Resolution shall take effect immediately upon adoption.

Temp. Reso. No. 7298
10/8/20
10/21/20

PASSED AND ADOPTED this _____ day of _____, _____.

Mayor, Wayne M. Messam

Vice Mayor, Maxwell B. Chambers

ATTEST:

City Clerk, Denise A. Gibbs

I HEREBY CERTIFY that I have approved
this RESOLUTION as to form:

City Attorney,
Austin Pamies Norris Weeks Powell, PLLC

Requested by Administration

Commissioner Winston F. Barnes
Vice Mayor Maxwell B. Chambers
Commissioner Yvette Colbourne
Commissioner Alexandra P. Davis
Mayor Wayne M. Messam

Voted

REQUEST FOR QUALIFICATIONS

**Guaranteed Energy, Water and Wastewater
Performance Savings Contracting Services**

RFQ # 20-02-15



The City of Miramar Commission:

**Wayne M. Messam
Maxwell B. Chambers
Winston F. Barnes
Alexandra P. Davis
Yvette Colbourne
Vernon E. Hargray**

**Mayor
Vice Mayor
Commissioner
Commissioner
Commissioner
City Manager**

**City of Miramar
2300 Civic Center Place
Miramar, FL 33025**

**DATE ISSUED: APRIL 30, 2020
DATE OPENS: JUNE 30, 2020 at 2:00 P.M**

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**IT IS THE SOLE RESPONSIBILITY OF EACH PROPOSER
TO SUBMIT PROPOSALS TO THE CITY OF MIRAMAR, OFFICE
OF THE CITY CLERK, ON OR BEFORE:**

PROPOSALS DUE: JUNE 30, 2020 AT 2:00 P.M.

**INSTRUCTIONS FOR SUBMITTING A PROPOSAL
IN RESPONSE TO A FORMAL
REQUEST FOR QUALIFICATIONS**

1. All Proposals must be submitted on 8 ½" by 11" paper, neatly typed with normal margins and spacing. The original document package must not be bound, but the document package copies should be individually bound.
2. Proposers must submit one unbound, one-sided original, and six two-sided bound copies (for a total of seven) and one USB containing an electronic version of the complete Proposal to the City of Miramar ("City") by the Proposal Due Date and Time.
3. All required forms must be notarized, where necessary, by a registered notary, and completed by the Proposer submitting the Proposal.
4. The Proposal must be signed by an authorized officer of the Proposer who is legally authorized to enter into a contractual relationship with the City.
5. The original and all copies of the Proposal must be packaged in an envelope or container and submitted to the City at the following address:

**OFFICE OF THE CITY CLERK
CITY OF MIRAMAR
2300 CIVIC CENTER PLACE
MIRAMAR, FL 33025**

6. Proposals must include the following information clearly marked on the face of the envelope or package:
 - a) Proposer's name, return address and telephone number;
 - b) Solicitation number;
 - c) The Solicitation Due Date and Time; and
 - d) Title of the Solicitation

7. Hand-carried Proposals may be delivered during the City's regular business hours, Mondays through Thursdays, excluding holidays observed by the City, but not beyond the Due Date and Time.
8. Proposals submitted at the same time for different solicitations shall be placed in separate envelopes or packages and each envelope or package shall contain the information required in the corresponding solicitation.
9. The submittal of a Proposal by a Proposer will be considered by the City as constituting an offer by the Proposer to perform the requested Services and/or provide the required Goods, at the stated price. No response by the City, however, shall be considered an acceptance unless and until a Contract is executed by the Successful Proposer and the City and approved and authorized by the City Commission, if applicable. Proposals shall be guaranteed to remain open for 180 days from the Due Date and Time.
10. Proposers are responsible for informing any commercial delivery service, if used, of all delivery requirements and for ensuring that the required, previously stated information appears on the package or envelope used by such service.

PROPOSERS WHO FAIL TO INCLUDE THE ABOVE INFORMATION ON THE FACE OF THEIR PROPOSALS MAY BE DEEMED "NON-RESPONSIVE," AND SUCH PROPOSERS SHALL HAVE NO GROUNDS OF PROTEST IN THE EVENT THEIR PROPOSALS ARE OPENED IN ERROR.

THE CITY IS NOT RESPONSIBLE FOR DELAYS CAUSED BY ANY MAIL, PACKAGE OR COURIER SERVICE, INCLUDING THE U.S. MAIL, OR CAUSED BY ANY OTHER OCCURRENCE. ANY PROPOSAL RECEIVED AFTER THE DUE DATE AND TIME STATED IN THE SOLICITATION TIMETABLE IN THIS REQUEST FOR QUALIFICATIONS WILL NOT BE OPENED AND WILL NOT BE CONSIDERED. TELEGRAPHIC OR FACSIMILE PROPOSALS WILL NOT BE CONSIDERED.

SECTION 1

GENERAL TERMS AND CONDITIONS

1-1 DEFINITIONS

Wherever used in these General Terms and Conditions or in the other Contract Documents the following terms have the meanings indicated:

The term "Addenda" shall mean the written or graphic instruments issued which make additions, deletions, or revisions to the Solicitation.

The term "Application for Payment" shall mean the form furnished by the Consultant to request progress or final payment and which includes such supporting documentation as is required by the Contract Documents.

The term "Amendment" shall mean a document signed by the Consultant and the City that authorizes an adjustment in the Work, Contract Price or Contract Time.

The terms "Architect" or "Consultant" shall refer to the professional that will contract with the City to provide professional architectural and/or design Services for this Project.

The term "Best and Final Proposal(s)" shall refer to a responsive proposal that contain the Proposer's most favorable terms for price, Services and products to be delivered.

The terms "CBE" or "SBE" Firm is defined as a Small Business Enterprise ("SBE") or a County Business Enterprise ("CBE") which has a Broward County Business Tax Receipt, is located and doing Business in Broward County, and is certified as such by the Broward County Office of Economic Development and Small Business Development.

The term "Change Order" shall mean a document which is signed by the Contractor and the City and authorizes an adjustment in the Work, Contract Price and/or Contract Time.

The term "Chief Procurement Officer" shall refer to the Director of the City's Procurement Department.

The term "City" shall refer to the City of Miramar, Florida.

The term "City Commission" shall mean the governing and legislative body of the City.

The term "City Manager" shall mean the chief administrative officer of the City as defined by City Charter and/or Code of Ordinances.

The term "Claim" shall mean a demand, assertion, dispute or other such claim by one of the parties arising out of or based upon the terms and conditions of the Contract Documents.

The term "Contract Documents" shall mean the Request for Qualifications, all attachments and exhibits, Qualification Forms (including the Quote, information required of Proposer, and all required certificates and affidavits), Contract, Performance Bond (if any), Payment Bond (if any), General Terms and Conditions (if any), Special Conditions (if any), Technical Specifications (if any), Drawings (if any), and all addenda and Change Orders.

The terms "Contract" or "Agreement" shall refer to the Contract that may result from this Request for Qualifications. "Contract" shall refer to the enclosed contract, provided for illustrative purposes only, and subject to modification by the City.

The term "Contract Price" shall mean the original contract amount established in the Proposal and awarded by the City, as may be amended by Change Order (if any).

The term "Contract Time" shall mean the original time between commencement and completion established in the Contract, as may be amended by Change Order (if any).

The term "Day" shall mean a calendar day of 24 hours measured from midnight to 11:59 P.M.

The term "Defective Work" shall mean Work that is unsatisfactory, faulty, or deficient; or that does not conform to the requirements of the Contract Documents; or that does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents; or Work that has been damaged prior to a recommendation of final payment.

The term "Design Consultant" or "Consultant" or "Architect" or "Engineer" shall refer to the design professional engaged by the City to provide professional design Services for this Project.

The terms "Drawings" and/or "Plans" shall mean the official drawings, plans, maps, profiles, diagrams, and other graphic representations which show the character, location, nature, extent, and scope of the Work and which have been prepared by the Consultant and are referred to in the Contract Documents. Shop Drawings are not drawings.

The term "Due Date and Time" shall refer to the due date and time listed in the Solicitation Timetable stated in Section 2 of this Solicitation.

The term “Effective Date of the Agreement” shall mean the date indicated in the Agreement on which it was executed. If no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the parties to sign and deliver.

The terms “Engineer”, “Architect” or “Architect/Engineer” shall mean the City’s engineer or architect.

The term “Final Completion” shall mean the date on which all conditions and requirements of any permits and regulatory agencies have been satisfied; any documents required by the Contract Documents have been received by the City; any other documents required to be provided by the Consultant have been received by the City; and the Work defined herein has been fully completed in accordance with the terms and conditions of the Contract Documents.

The term “Force Majeure” shall mean any delay occasioned by superior or irresistible force(s) occasioned by violence in nature without the interference of human action, such as, hurricanes, tornados, flood and loss caused by fire and other similar unavoidable casualties; changes in federal Law, state or local Laws, ordinances, codes or Regulations, enacted after the date of this Agreement and having a substantial impact on the Project; other causes beyond the parties control; or by any other such causes which the City and the Consultant decide in writing to justify the delay. Provided, however, that market conditions, labor conditions, and similar matters which normally impact the Work shall not be considered Force Majeure.

The term “General Requirements” shall mean any and all requirements set forth in this Solicitation.

The term “Goods” shall refer to all Materials and commodities that will be required to be provided by the Successful Proposer in accordance with the Scope of Work and the terms and conditions of this Solicitation.

The terms “Laws and Regulations”, or “Laws” or “Regulations” shall mean the laws, rules, regulations, ordinances, codes, and/or orders promulgated by a lawfully constituted body authorized to issue such laws and regulations, including the applicable federal, state and local government entities and/or agencies.

The term “Local Business” shall refer to a firm that is domiciled and doing business within the City of Miramar City limits and complies with all City of Miramar licensing requirements, and is current on all City taxes.

The term “Materials” shall mean materials incorporated in this Project or used or consumed in the performance of the Work.

The term “Notice of Intent to Award” shall mean the written notice by the City to the apparent Successful Proposer stating that upon compliance by the apparent Successful Proposer with the conditions precedent therein within the time specified, the

City may enter into a Contract.

The term "Notice to Proceed" shall mean any written notice issued by the City to the Successful Proposer authorizing the Successful Proposer to proceed with the Work.

The terms "Procurement Office" or "Procurement Department" shall refer to the Procurement Office of the City.

The term "Proposal" shall mean any offer(s) submitted in response to this Request for Qualifications.

The term "Proposal Forms" shall mean the forms required to be submitted in accordance with this Request for Qualifications.

The term "Proposer" shall refer to any architect or engineer submitting a Proposal in response to this Request for Qualifications.

The terms "Request for Qualifications", "RFQ" or "Solicitation" shall mean this Request for Qualifications, including all exhibits, attachments, amendments and change orders issued by the Procurement Department.

The terms "Specifications" or "Technical Specifications" shall mean those portions of the Contract Documents consisting of the General Requirements (if applicable) and any other written technical descriptions of Materials and execution of the Work.

The terms "Subcontractor" or "Subconsultant" shall refer to any person, firm, entity, or organization, other than the employees of the Successful Proposer, who contracts with the Successful Proposer to furnish labor, or labor and Materials, in connection with the Work or Services for the City, whether directly or indirectly on behalf of the Successful Proposer.

The term "Substitutions" shall mean Materials that are alternate from those originally specified in the Contract Documents.

The term "Successful Proposer" shall refer to the Consultant or Architect receiving an award of a Contract as a result of this Request for Qualifications.

The term "Supplier" shall mean a manufacturer, fabricator, supplier, distributor, Material man, or Vendor.

The term "Surety" shall mean the surety company or individual which is bound by the performance bond and payment bond with and for the Successful Proposer who is primarily liable, and which surety company or individual is responsible for the Successful Proposer's satisfactory performance of the Work under the Contract and for the payment of all debts pertaining thereto in accordance with Section §255.05, Florida Statutes.

The term “Taxes” shall mean all taxes related to the performance of the Work or any portion thereof, including but not limited to all sales, consumer, use, occupational, excise, social security, unemployment compensation and similar taxes.

The term “Vendor” shall mean all merchants, Material men, Suppliers of labor, Material and equipment, providers and all other professionals who are currently under service contracts with the City and are delivering Services to the City.

The term “Weather Delays” shall mean Work stoppage caused by abnormal inclement weather, where abnormal duration and frequency of rain or exceptionally adverse weather as compared with the Weather Bureau data and supported by Project logs, has caused the Consultant to suspend critical path activities during the exceptional adverse weather event for more than 50 percent of the Work period of the Day. Weather delay claims can be made for Work Day only. No time extension will be allowed for weekend rains.

The term “Work Day” shall be as defined in Section 10-114 of the City of Miramar Code of Ordinances, being the time between the hours of 7:00 A.M. and 6:00 P.M. on weekdays, except when Work is necessary for the proper care and protection of Work already performed, or except in case of emergency, or unless otherwise provided in the General Requirements.

The terms “Work”, “Scope of Work”, “Scope of Services”, “Services”, “Program”, “Project”, or “Engagement” shall mean all matters and things and includes all labor, Materials, equipment and Services that are required to be provided by the Successful Proposer in accordance with this Solicitation.

1-2 AVAILABILITY OF REQUEST FOR QUALIFICATIONS

Copies of this Solicitation package may be obtained from DemandStar at www.demandstar.com or by calling (800) 711-1712. DemandStar distributes the City’s solicitations through electronic download, by facsimile, or through the United States Postal Service.

Proposers are **not** required to register with DemandStar to receive a copy of a City solicitation. Registration with DemandStar.Com is optional and at the sole discretion of the Proposer. **DemandStar does not charge a fee for registering with the City of Miramar.** However, Proposers who obtain copies of this Solicitation from sources other than DemandStar.com risk failing to receive amendments if their names are not included on the list of firms participating in the Solicitation process.

To request the Solicitation package from the City’s Procurement Department, your request should include the following information: the Solicitation number and title, the name of the potential Proposer’s contact person, the potential Proposer’s name, complete mailing address, telephone number, and fax number.

1-3 CONE OF SILENCE

Proposers are notified that this Solicitation is subject to a "Cone of Silence." From the time of advertising and until the City Commission approves an award, there is a prohibition on communication by Proposers (or anyone on their behalf) with City's professional staff or Evaluation Committee members regarding this RFQ. This does not apply to oral communications at pre-proposal conferences, oral presentations before evaluation committees, Contract negotiations, public presentations made to the City Commission during any duly noticed public meeting, or communications in writing at any time with any City employee, official, or member of the City Commission regarding matters not concerning this Solicitation.

Any questions, explanations, or other request by Proposers regarding this Solicitation must be requested in writing by the due date for all questions to the City's Procurement Contact noted below. In addition to other penalties, violation of these provisions may render a Proposal "Non-Responsive" and an award to a Proposer "Voidable."

The City's Procurement Contact information is:

Natalie Richmond
Procurement Department
City of Miramar
2200 Civic Center Place, 2nd Floor
Miramar, Florida 33025
Telephone: 954-602-3196
Facsimile: (954) 602-4573
Email address: narichmond@miramarfl.gov

1-4 CONTENTS OF SOLICITATION

a) General Conditions.

1) It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the process of this Solicitation. Pleas of ignorance by the Proposer of conditions that exist, or that may exist, will not be accepted as a basis for varying the requirements of this Solicitation.

2) The Proposer is advised that this Solicitation is subject to all legal requirements and all other applicable Laws and Regulations.

b) Additional Information/Addenda.

1) Requests for additional information, explanation, clarification or interpretation must be made in writing only to the contact person in the Procurement Department. Requests must be received by the Procurement Department by the Due Date and Time for all questions stated in the Solicitation Timetable in section 2-5. Any request received after that time may not be reviewed for inclusion in this Solicitation. Requests should contain the requester's name, address, telephone number, fax number and e-mail address.

2) Responses to any inquiry shall be made by the Procurement Department, by written Amendment to the Solicitation. The Proposer shall not rely on any representation, statement or explanation other than those made in this Solicitation or in any Addenda issued. Where there appears to be a conflict between this Solicitation and any Addenda issued, the last Addendum issued shall prevail.

3) It is the Proposer's responsibility to ensure receipt of all Addenda and substitute Proposal Forms. It is the Proposer's further responsibility to verify with the Procurement Department, prior to submitting a Proposal, that Proposer has received all Addenda.

c) Conflicts in this Solicitation.

Where there appears to be a conflict between the General Conditions (if any), the Special Conditions (if any), the Specifications or Scope of Work and Specific Requirements, the Contract, or any Amendment issued, the order of precedence shall be: the last Addendum issued, the Specifications or Scope of Work and Specific Requirements, the Special Conditions (if any), the General Terms and Conditions (if any), and the Contract.

Where there appears to be a conflict of the Due Date and Time listed anywhere in this Solicitation, it is the sole responsibility of the potential Proposer to verify the Due Date and Time by contacting the City's Procurement Office at the address indicated above.

1-5 PREPARATION AND SUBMISSION OF A PROPOSAL

a) Preparation/Submission.

1) The Proposal Forms shall be used when submitting a Proposal. Use of any other forms may result in the Proposer's Proposal being deemed "Non-Responsive."

2) The Proposal shall be typed or completed legibly in ink. The Proposer's authorized agent shall sign the Proposal Forms in ink, and all corrections made by the Proposer shall be initialed in ink by the authorized agent. The use of pencil or erasable ink or failure to comply with any of the foregoing may result in the submittal being deemed "Non-Responsive."

Upon request, the City will provide a tax exemption certificate, if applicable.

Any special tax requirements will be specified either in the Special Conditions or in the Specifications.

3) Any telegraphic or facsimile Proposal shall not be considered.

4) The apparent silence or omission of any detail or description concerning the Services requested in the Scope of Work and/or any Amendment regarding same shall be interpreted as meaning only the best commercial practices are to prevail, and that only Materials and workmanship of first quality will be used. All interpretations of the Scope of Work shall be made upon the basis of this Solicitation, and if the Solicitation is silent, on industry standards of best practices.

b) Vendor Registration is **not** required.

c) Criminal Conviction Disclosure.

Any individual submitting a Bid who has been convicted of a felony during the past 10 years and any corporation, partnership, joint venture or other legal entity submitting a Bid or assisting in the performance of Work that has an officer, director, or executive who has been convicted of a felony during the past 10 years shall disclose this information with its Bid. Forms for the disclosure of such information are available from the Procurement Department.

d) Sworn Statement on Public Entity Crimes.

Pursuant to Paragraph 2(a) of Section §287.133, Florida Statutes, "[A] person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity; may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in s. 287.017 for CATEGORY TWO for a period of 36 months following the date of being placed on the convicted vendor list."

All Proposers shall submit a signed and notarized statement with their Proposals on the form entitled "**PUBLIC ENTITY CRIMES.**"

e) Drug-free Workplace Preference.

All public bids or Proposals are subject to the City's Preference to Businesses with Drug-free Workplace Program as defined in Section 2-456 of the City's Code. The City grants a preference to a business with a drug-free workplace program whenever two or more Proposals are equal with respect to price, quality, and Services. The Drug-free Workplace Vendor shall have the burden of demonstrating that its program complies with Section §287.087, Florida Statutes, and any other applicable state Law. All Proposers shall submit the form entitled "**DRUG-FREE WORKPLACE AFFIDAVIT.**"

f) Anti-Kickback Affidavit.

All Proposers shall submit the duly signed and notarized form entitled "**ANTI-KICKBACK AFFIDAVIT.**"

g) Non-Collusion Affidavit.

All Proposers shall affirm that they shall not collude, conspire, connive or agree, directly or indirectly, with any other Proposer, firm, or person to submit a collusive or sham Proposal in connection with the Work for which their Proposal has been submitted; or to refrain from submitting a Proposal in connection with such Work; or have in any manner, directly or indirectly, sought by any person to fix the price or prices to be negotiated or that of any other Proposer to be negotiated, or to fix any overhead, profit, or cost elements of the price to be negotiated, or that of any other Proposer to be negotiated, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against any other Proposer, or any person interested in the proposed Work. All Proposers shall submit the duly signed form entitled "**NON-COLLUSION AFFIDAVIT.**"

h) Non-Discrimination Affidavit.

All Proposers shall affirm that their organization shall not discriminate against any person in its operations, activities or delivery of Services. Proposers shall also affirmatively comply with all applicable provisions of federal, state and local equal employment Laws and shall not engage in or commit any discriminatory practice against any person based on race, age, religion, color, gender, sexual orientation, national origin, marital status, physical or mental disability, political affiliation or any other factor which cannot be lawfully used as a basis for Service

delivery. All Proposers shall submit the duly signed and notarized form entitled **"NON-DISCRIMINATION AFFIDAVIT."**

i) Business/Vendor Profile Survey.

All Proposers shall provide the City with the information requested in the Business/Vendor Profile Survey prior to being recommended for award of any Contract resulting from this Solicitation.

j) Request for Taxpayer Identification Number and Certification.

All Proposers shall provide the City with their taxpayer identification number prior to being recommended for award of any Contract resulting from this Solicitation.

k) Antitrust Laws.

By submission of a signed Proposal, the Successful Proposer acknowledges compliance with all antitrust laws of the United States and the State of Florida.

l) Conflicts of Interest.

The award of the Contract hereunder is subject to the provisions of Chapter 112, Florida Statutes. Proposers shall disclose the name of any officer, director, partner, associate, or agent who is also an officer, appointee, or employee of the City at the time of the Proposal or within one year prior to the Due Date and Time. Proposers are required to disclose any such conflict that occurs after the Proposal Due Date and Time at the time of occurrence of such conflict of interest.

m) Collection of Fees and Taxes.

By acceptance of a Contract, the Successful Proposer acknowledges compliance with the requirement that all delinquent and current fees and Taxes due to the City from the Proposer have been paid. The City may require verification and satisfaction of all delinquencies and current fees and Taxes due prior to recommending a Proposer for the award of any Contract.

n) Preferences.

Local Business. Except where federal, state or county Law mandates to the contrary or where federal or state funding is utilized, the City shall grant a preference in the amount of five percent of any Proposal or five points of any Proposal score to a Local Business, as defined herein. Such preference shall apply to bids or Proposals for commodities, Services and construction.

Businesses Employing Miramar Residents. A Vendor located outside of the City limits is considered equivalent to a Miramar Vendor (a Local Business) and accorded the same Local Business preference if it employs a minimum of ten full time equivalent ("FTE") Miramar residents, or if Miramar residents constitute 20% FTE of the company's local workforce (Broward and Miami-Dade Counties), whichever is larger. Such preference shall apply to bids or Proposals for commodities, Services and construction.

CBE or SBE Firms. Except where federal, state or county Law mandates to the contrary, the City, pursuant to its purchasing authority, shall grant a preference in the amount of five percent of any bid or five points of any Proposal score to a CBE or SBE Firm. Such preference shall apply to bids or Proposals for commodities, Services and construction.

Application of preferences. In the application of any preference granted by the City Code or City policies in regard to this RFQ, the preference is applied by adding the specified points to the evaluation criteria scoring.

1-6 LATE PROPOSALS, LATE MODIFICATIONS, AND LATE WITHDRAWALS

Proposals received after the Solicitation Due Date and Time shall not be accepted, opened, or considered. Modifications of Proposals received after the Solicitation Due Date and Time shall also not be accepted or considered. Withdrawals of Proposals received after the Solicitation Due Date and Time or prior to the expiration of 180 calendar days after the Solicitation Due Date and Time shall not be accepted or allowed.

1-7 SOLICITATION POSTPONEMENT OR CANCELLATION

The City may, in its sole and absolute discretion, at any time prior to City Commission award and approval of a Contract, reject all or any parts of any or all Proposals, re-advertise this Solicitation, postpone or cancel this Solicitation or waive any irregularities in this Solicitation or any process used in this Solicitation.

1-8 COST OF PROPOSALS

All expenses involved with the preparation and submission of Proposals to the City shall be borne by the Proposer(s). No payment shall be made for any responses received by the City or effort required of or made by the Proposer(s) prior to commencement of Work authorized pursuant to the Contract.

1-9 ORAL PRESENTATIONS

The City may require Proposers to perform oral presentations in support of their Proposals or to exhibit or otherwise demonstrate the information contained therein. This presentation or demonstration may be performed before the Evaluation/Selection Committee and/or the City Commission. If required, the City shall provide Proposers with as much advance notice as possible prior to the date of such a presentation.

1-10 EXCEPTIONS TO THE SOLICITATION

Exceptions are not applicable to this Solicitation. Taking exceptions in the Proposal may render the Proposal "Non-Responsive".

1-11 PROPRIETARY/CONFIDENTIAL INFORMATION

Proposers are provided with notice that all information submitted as part of or in support of Proposals will be available for public inspection after opening of the Proposals, in compliance with Chapter 119, Florida Statutes, popularly known as the "Public Records Law". Any person wishing to view the Proposals must make an appointment with the City's Clerk.

All Proposals submitted in response to this Solicitation shall become the property of the City. Unless the information submitted is proprietary, copywritten, trademarked, or patented, the City reserves the right to utilize any or all information, ideas, conceptions, or portions of any Proposal in its best interest. Acceptance or rejection of any Proposal does not affect the City's rights hereunder. Proposers, when submitting their Proposals, must clearly notify the City of any proprietary information within their Proposal.

1-12 EVALUATION OF PROPOSALS

a) Rejection of Proposal.

- 1) The City may reject any Proposal, and award the Contract to the next highest scoring Proposer or re-advertise for all or any part of this Solicitation whenever it is deemed in the best interest of the City, in the City's sole discretion. The City shall be the sole judge of what is in its "best interest". The City may reject any Proposal if the Proposer does not accept or attempts to modify the terms and conditions of this Solicitation.
- 2) The City may reject any Proposal if prices are not reasonable, or if they exceed the City's budget for the Project, as determined by the City.

b) Elimination from Consideration.

No Contract shall be awarded to any person or firm that is in default to the City as a result of any debt, Tax, or other obligation.

c) Waiver of Informalities.

The City reserves the right to waive any informalities or irregularities in any Proposal.

d) Demonstration of Competency.

1) A Proposal will only be considered from a firm regularly engaged in the business of providing the Goods and/or Services required by this Solicitation. The Proposer must be able to demonstrate a good record of performance and have sufficient financial resources, equipment and organization to ensure that they can satisfactorily provide the Goods and/or Services required by this Solicitation.

2) The City may conduct a pre-award inspection of the Proposer's facilities and site or hold a pre-award qualification hearing to determine if the Proposer is capable of performing the requirements of this Solicitation. The City may consider any evidence available regarding the financial, technical or other qualifications and abilities of the Proposer, including past performance and experience with the City or any other governmental entity or private entity in making the award of any Contract.

3) The City reserves the right to audit all records pertaining to any award resulting from this Solicitation, whether financial or otherwise.

4) The City may require the Proposer to show evidence that it has been designated as an authorized representative of a manufacturer, Supplier and/or distributor if required by this Solicitation.

5) In determining a Proposer's responsibility and ability to perform the Contract, the City has the right to investigate and request information as to whether the Proposer can perform the Contract within the time specified without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the Proposer; the quality of performance of previous contracts of a similar nature; the previous and existing compliance by the Proposer with Laws and ordinances relating to any other contract; the Proposer's record with environmental regulations; and the claims and litigation history of the Proposer.

- e) Copy of Abstract of Proposals.

A copy of the Proposal abstract will be made available through www.DemandStar.com or may be requested in person from the Procurement Department. Proposal results shall not be provided by telephone or facsimile.

1-13 NEGOTIATIONS

The City, in its sole discretion, reserves the right to enter into Contract negotiations with the highest evaluation scoring, most qualified responsive, responsible Proposer whose Proposal is most advantageous to the City. If the City and that Proposer cannot negotiate a successful Contract, the City may terminate those negotiations and begin negotiations with the next most qualified responsive, responsible Proposer. This process may continue until a Contract acceptable to the City has been executed or all Proposals are rejected. No Proposer shall have any rights against the City arising from such negotiations or termination thereof.

To assure full understanding of and responsiveness to the Solicitation requirements and full understanding of qualified Proposals, discussions may be conducted with qualified Proposers who submit responses determined to be reasonably acceptable of being selected for award for the purpose of clarification and to assure full understanding of, and responsiveness to, the Solicitation requirements. The Proposers shall be accorded fair and equal treatment with respect to any opportunity for discussion and revision of Proposals, and such revisions may be permitted through negotiations prior to award for the purpose of obtaining Best and Final Proposals.

1-14 AWARD OF AN AGREEMENT

- a) Agreement.

This Solicitation contains the document entitled "AGREEMENT". After award, a Contract similar to the Agreement, inclusive of all attachments and any modifications which the City ***in its sole discretion may make*** and reflecting all requirements, terms and conditions of this Solicitation and any negotiated changes, will constitute the entire agreement between the parties. No rights shall inure to the Successful Proposer pursuant to this Solicitation until the Contract has been executed by both parties thereto.

- b) Additional Information.

The award of the Contract may be preconditioned on the subsequent submission of other documents in connection with this Solicitation. The Successful Proposer shall be deemed "Non-Responsive" if such documents are not submitted in a timely manner and in the form required by the City. Where the Successful Proposer is deemed "Non-Responsive" as a result of such failure to provide the required documents, the City may award the Contract to the next most qualified, responsive, responsible Proposer.

c) Independent Contractor.

The Successful Proposer shall be a Consultant operating independently from the City. The employees and Subcontractors or Subconsultants of the Successful Proposer shall not be considered or deemed employees, Subcontractor or Subconsultants or agents of the City, nor shall such employees and Subcontractor or Subconsultants of the Successful Proposer have any privity of contract with the City. Neither the Successful Proposer nor any of its employees shall receive any City benefits. The Successful Proposer shall supply competent and physically capable employees and Subcontractor or Subconsultants. The City may require the Successful Proposer to remove any employee or Subcontractor or Subconsultant it deems careless, incompetent, insubordinate, or otherwise objectionable and whose continued performance of the Services is not in the best interest of the City.

d) Contract Extension.

To the extent applicable, the City reserves the right to extend the Contract for up to 180 calendar Days beyond the stated Contract term under the same terms and conditions of the Contract. The City shall notify the Successful Proposer(s) in writing of such extensions. Additional extensions beyond the first 180 Day extension may occur, if approved by the City Commission with the mutual agreement of the Successful Proposer.

e) Limited Contract Extension.

Any Work commencing prior to the termination date of the Contract and extending beyond the termination date shall, unless terminated by mutual written agreement of both parties, continue until completion at the same prices, terms and conditions as set forth in the Contract.

f) Warranty.

Any implied warranty granted under the Uniform Commercial Code shall apply to all Goods provided pursuant to the Contract.

g) Non-Exclusive Contract.

Although the purpose of this Solicitation is to secure a Contract that can satisfy the total needs of the City, it is agreed and understood that the Contract does not grant any exclusive rights to the Successful Proposer to receive all orders that may be generated by the City in connection with the types of Goods and/or Services required herein.

1-15 RIGHT OF APPEAL

a) After a notice of intent to award a Contract is posted by the City, any actual or prospective Proposer who is aggrieved in connection with the pending award of the Contract or any element of the Solicitation process may file a protest with the Chief Procurement Officer. A protest must be filed within five business days after the posting of the notice of award or the right to protest is forfeited. The protest must be in writing, must identify the name and address of the protester, and must include a factual summary of, and the basis for, the protest. Filing shall be considered complete when the written protest and accompanying required filing fee are received by the Chief Procurement Officer.

b) The protester must include a nonrefundable filing fee to compensate the City for the expenses of administering the protest. The fee shall be in the form of cash or a cashier's check, and in accordance with the schedule provided below:

Contract Award	Protest Filing Fee
\$10,000-\$50,000	\$500.00
\$50,001-\$250,000	\$1,000.00
\$250,001 and greater	1% of the pending award or \$5,000.00, whichever is greater

1-16 PERFORMANCE EVALUATION

The City reserves the right to evaluate the Successful Proposer's work will at any time during the project.

1.17 PURCHASING CARD (P-CARD)

The City has implemented a Procurement Card (P-Card) Program. Proposers must have the capability to accept credit cards for payments or must be willing to take the necessary steps in order to accept credit card payments by the City prior to the implementation of this agreement as the City may opt to use the P-Card as its method of payment.

While acceptance of credit cards for payments may be mandatory, this shall not be the City's exclusive method of payment. Proposers shall not charge a surcharge, convenience fee or any other fees associated with the acceptance of payment by the City's P-Card.

1.18 COOPERATIVE PURCHASING AGREEMENT

This Solicitation may be expanded to include other governmental agencies provided a cooperative Purchasing Agreement exists or an Inter-Local Agreement for joint purchasing exists between the City and other public agencies. The Contractors may agree to allow other public agencies to contract with them for the

same items at the same terms and conditions as this Solicitation, during the period of time that this Solicitation is in effect. Each political entity will be responsible for execution of its own requirements with the Contractor.

SECTION 2

SCOPE OF WORK AND SPECIFIC REQUIREMENTS

2-1 PURPOSE

Following the requirements of Sections §287.055, Florida Statute the “Consultants Competitive Negotiation Act”, and §489.145 , Florida Statutes, “Guaranteed energy, water, and wastewater performance savings contracting” the City of Miramar (the “City”) is seeking to engage the Services of a qualified licensed Consultant to provide professional services for Guaranteed Energy, Water and Wastewater Performance Savings Contracting Services (the “Project”).

2-2 GENERAL DESCRIPTION

The City is seeking a Consultant to review energy, water and wastewater equipment in facilities Citywide. The successful consultant will first review and provide separate reports for equipment in the utilities department and a separate report for equipment in other city facilities.

2-3 SCOPE OF WORK

2.3.1 Guaranteed Energy Performance Savings – City Wide (Except for Utilities)

- i. LED Lighting Fixtures Installation / Replacement/Modifications
- ii. HVAC System Installation / Replacement / Modifications
- iii. Other Measures as identified on 2019 Florida Statutes Title XXXII, Section 489.145.

2.3.2 Guaranteed Energy, Water, Wastewater Performance Savings for Utilities Department

- i. LED Lighting Fixtures Installation / Replacement / Modifications
- ii. HVAC System Installation / Replacement / Modifications
- iii. Air Blowers, Water and Wastewater Pumping Systems
- iv. Renewal Energy Systems
- v. Solid Waste and Disposal Systems
- vi. Other Systems as identified on 2019 Florida Statutes Title XXXII, Section 489.145

2.3.3 Based on the inventory lists shown in Attachment I to this RFQ and other energy cost data that the City may provide, the consultant will conduct an “investment grade energy audit” as defined by Florida Title XXXII, Section 489.145 without any cost burden to the City. This will establish a baseline for the previous cost fuel, energy, water consumption, wastewater

production, stipulated operation and maintenance, meter accuracy or performance, and identified capital costs. Also, it will conduct analysis of proposed energy, water and wastewater conservation measures, and their costs, savings and benefits.

- 2.3.4 Consultant must also detail in its proposal its methodology of how this project can be financed, including any successful innovative financial plans used for other projects. The City, however, reserves the right to finance its own project or select any method to finance this project as deemed necessary and in the best interest of the City.

2-4 MINIMUM REQUIREMENTS

A. In order for a Proposal to be considered by the City, Proposers shall demonstrate in their Proposals compliance with the following minimum requirements:

- i. Proposers must be currently certified, licensed and authorized as a “guarantee energy, water and wastewater performance savings contractor” as defined by Florida Statutes Title XXXII, Section 489.145.
- ii. The Proposer shall be in business for a minimum of five (5) years as a firm that provides analysis, design, implementation, or installation of energy water, and wastewater efficiency and conservation measures and have performed at least three (3) municipal projects that is the same or similar size and scope to the City of Miramar over the past five (5) years.
- iii. Proposers must be currently insured and satisfy insurance requirements applicable by Law to perform the Services, with insurance certificates that state the name of the Proposer, current street address of the business and the type of work that the Business Tax Receipt is issued for, and all additional insurance requirements, including required endorsements, as specified herein; and

B. The City will not consider Proposals that fail to demonstrate compliance with the above requirements. The Proposer shall maintain and keep in force throughout the life of the Contract all renewals and extensions, if any, pertaining or relating to the requirements specified in this Section. Failure of the Proposer to comply with these requirements will be sufficient grounds for the City to declare the Proposer in default and subject the Contract to possible termination by the City.

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2-5 SOLICITATION TIMETABLE

The anticipated schedule for this Solicitation and the award of any resulting Contract shall be as follows:

RFQ TIMETABLE	
RFQ advertised	Thursday, April 30, 2020
NON-MANDATORY: Pre-Proposal Conference held in the Parks & Recreation Conference Room, 2 nd Floor, 2200 Civic Center Place, Miramar, Florida, with site visit immediately following. Dial in information: Telephone 1-415-655-0001 Access code 474-471-794	Thursday May 28, 2020, at 10:00 A.M.
Deadline for questions and requests for information	Tuesday June 2, 2020
Due Date and Time for this RFQ	Tuesday, June 30, 2020 at 2:00 P.M.

The above schedule is not final. The City reserves the right to modify the above dates and times, at its discretion.

2-6 TERM OF CONTRACT: UPON COMPLETION AND ACCEPTANCE

The Contract resulting from this Solicitation shall commence upon the last date of execution or other effective date provided therein and shall remain in effect until such a time as the Services acquired in conjunction with this RFQ have been completed and accepted by the City or for a specific term as agreed to by the City and the Proposer.

2-7 METHOD OF AWARD: TO THE HIGHEST MOST QUALIFIED EVALUATION SCORING, RESPONSIVE, RESPONSIBLE PROPOSER(S) (SUBJECT TO SUCCESSFUL NEGOTIATION AND APPROVAL OF A CONTRACT)

A. This Solicitation shall require City Commission approval of the final ranking and recommended award of the RFQ to the highest most qualified evaluation scoring responsive, responsible Proposer, subject to the subsequent successful negotiation and approval of a mutually agreeable Contract substantially in the form of the Agreement attached to this RFQ, and in accordance with Section 2-412 of the City Code.

B. The Chief Procurement Officer or designee shall enter into Contract negotiations with the highest most qualified evaluation scoring, responsive, responsible

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Proposer whose Proposal is most advantageous to the City. If the City is unable to negotiate a satisfactory Contract, negotiations with that Proposer may be terminated and negotiations may begin with the second most qualified Proposer. If these negotiations also prove unsatisfactory, negotiations may again be terminated, and the City may negotiate with the third most qualified firm. If the short-list of qualified firms is exhausted, the City may select additional Proposers with whom to attempt to negotiate a Contract, in the order of their ranking.

C. The resulting Contract shall contain requirements, terms and conditions consistent with this Solicitation, along with any modifications the City, in its sole discretion, may require or accept. No rights shall inure to the benefit of any Proposer pursuant to this Solicitation until the Contract has been executed by both parties and approved by the City Commission.

2-8 METHOD OF PAYMENT: PERIODIC INVOICES FOR SERVICES RENDERED

The Successful Proposer shall submit fully and accurately documented invoices within 30 calendar days after the Services have been rendered. These invoices shall be submitted to the City of Miramar, ATTN: Accounts Payable, 2300 Civic Center Place, Miramar, Florida 33025. All documentation shall reference the Contract number, the type of Service(s) provided, and the dates or period(s) that the Service(s) were provided in the prior 30 days.

2-9 INSURANCE

Proposer agrees that he/she/it will, in the performance of Work and Services under the Contract, comply with all federal, state and local Laws and Regulations now in effect or hereinafter enacted during the term of the Contract that are applicable to Successful Proposer, its employees, agents or Subcontractors, if any, with respect to the Work and Services described herein.

Proposer shall obtain at Proposer's expense all necessary insurance in such form and amount as required by the City's Risk Manager before beginning Work under the Contract, including but not limited to Workers' Compensation Insurance required by Law. Proposer shall maintain such insurance in full force and effect during the life of the Contract. Proposer shall provide the City's Risk Manager with certificates of all insurance and endorsements required under this section prior to beginning any Work under the Contract. Proposer shall make this same requirement of any of its Subcontractors to which Florida's Workers' Compensation Laws apply.

Proposer shall indemnify and save the City harmless from any damage resulting to them for failure of either Proposer or any Subcontractor to secure or maintain such insurance.

For programs that are active in nature, which shall be determined in the sole and exclusive discretion of the City, Proposer shall maintain commercial general, automobile (where applicable), workers' compensation and professional liability insurance in an amount acceptable to the City's Risk Manager.

Minimum Limits of Insurance

Proposer shall maintain the following minimum limits of insurance (unless higher limits are required by Law or statute):

1. Professional Liability: \$1,000,000
2. Commercial General Liability: \$1,000,000 Combined Single Limit per occurrence; property damage and medical expense \$10,000; personal injury and advertising injury liability \$1,000,000; products and completed operations policy aggregate \$2,000,000; and general aggregate \$2,000,000.
3. Automobile Liability: \$1,000,000 combined single limit per accident.
4. Employer's Liability: \$1,000,000 per accident for bodily injury by accident or disease.
5. Workers' Compensation: Statutory

Required Insurance Endorsements

The City requires the following insurance endorsements:

1. AUTOMOBILE - The City must be included as an additional insured by policy endorsement under Automobile Liability policy.
2. ADDITIONAL INSURED - The City must be included as an additional insured by policy endorsement under Commercial General Liability policy as in respects to liability arising from Work or operations performed by or on behalf of the Proposer.
3. WAIVERS OF SUBROGATION - Proposer agrees to waive all rights of subrogation against the City by policy endorsement for loss, damage, claims, suits or demands, however caused:
 - a. To property, equipment, vehicles, laptops, cell phones, etc. owned, leased or used by the Proposer or the Proposer's employees, agents or Subcontractors; and
 - b. To the extent such loss, damage, claims, suits or demands are covered, or should be covered, by the required or any other insurance (except professional liability to which this requirement does not apply) maintained by the Proposer.

This waiver shall apply to all first party property, equipment, vehicle and workers compensation claims, and all third party liability claims, including deductibles or retentions which may be applicable thereto. If necessary, the Proposer agrees to endorse the required insurance policies to acknowledge the required waivers of subrogation in favor of the City. Proposer further agrees to hold harmless and indemnify the City for any loss or expense incurred as a result of Proposer's failure to obtain such waivers of subrogation from Proposer's insurers.

This Agreement shall not be deemed approved until the Proposer has obtained all insurance required under this section and has supplied the City with evidence of such coverage in the form of a Certificate of Insurance with additional insured and waiver of subrogation endorsements for policies as stated in the required insurance endorsement section above. The City shall be named as certificate holder in all of Proposer's liability insurance policies. The City shall approve such Certificates prior to the performance of any Services pursuant to this Agreement.

ALL INSURANCE COMPANIES PROVIDED SHALL: Be rated at least A VII per Best's Key Rating Guide and be licensed to do business in Florida. The Proposer's liability insurance shall be primary to any liability insurance policies that may be carried by the City. The Proposer shall be responsible for all deductibles and self-insured retentions on their liability insurance policies.

All of the policies of insurance so required to be purchased and maintained shall contain a provision or endorsement that the coverage afforded shall not be cancelled, materially changed or renewal refused until at least 30 calendar days written notice has been given to the City by certified mail.

2-10 CONTENTS OF PROPOSAL

To facilitate the analysis of responses to this RFQ, Proposers are required to prepare their Proposals in accordance with the instructions outlined in this Section. **Proposers must respond in full to all RFQ sections and follow the indicated RFQ format (section numbering, and similar matters) in their Proposals. Failure to follow these instructions may result in rejection of the Proposal.**

- a) The Proposal must consist of the components listed below.
 - 1) The Qualification Proposal:
 - i) Cover Page

The form entitled "PROPOSAL COVER PAGE" (SECTION 4) is to be used as the cover page for the Qualification Proposal. This form

must be fully completed and signed by an authorized officer of the Proposer.

ii) Table of Contents

The Table of Contents should outline in sequential order the major areas of the Proposal. All pages of the Proposal, including enclosures, must be clearly and consecutively numbered and correspond to the Table of Contents.

iii) Executive Summary

Each Proposer shall provide a brief summary describing the Proposer's ability to perform Work requested in this Solicitation; a history of the Proposer's background and experience providing services; the qualifications of the Proposer's personnel to be assigned to this Project; the Subcontractors, Subconsultants, and/or Suppliers (if any) and a brief history of their background and experience, and any other information called for by this Solicitation that the Proposer deems relevant. This summary should be brief and concise to apprise the reader of the experience and qualifications of the Proposer, staff, Subcontractors, Subconsultants, and/or Suppliers (if any).

iv) Required Information.

Proposers shall provide documentation that demonstrates their ability to satisfy the required information contained herein. Proposers who do not satisfy the requirements or who fail to provide supporting documentation and/or affidavits as specified herein may be deemed "Non-Responsive". If a prescribed format or required documentation for the response to information requirements is listed below, Proposers must use the required format and supply said documentation. See form entitled "**PROPOSER INFORMATION FORM**" (SECTION 5).

v) Technical Information.

A) Describe the Proposer's approach to organization/management and the responsibilities of Proposer's management and Project personnel that will perform Work; describe methods or benchmarking systems used to ensure quality service, customer satisfaction, prompt complaint resolution, quality control, and timely initiation and completion of all Work.

B) Provide relevant background information on your firm, including a brief history, firm ownership, and organizational structure, location of headquarters, and number and location of offices.

C) List any subsidiary/affiliate company of the Proposer in the same business, the nature of the relationship, and the location of their office(s).

D) Provide a description or information concerning or substantiating each of the requirements below:

- i. Drug-free Workplace
- ii. Employee drug testing program.
- iii. Proposer's experience, past performance, financial capabilities, violations, and litigation.
- iv. Proposer's social responsibility, charitable acts and contributions, and benevolence programs.
- v. Proposer's internal, organization-wide green and environmental programs and initiatives.

E. State the number of years the Proposer has been in business and the number of years in operation under the Proposer's current business name. Any business owner who has previously operated a business under another name must include a description of the previous business and identify the name of each business. Failure to include such information will be deemed by the City as an intentional misrepresentation and may render the Proposal "Non-Responsive".

F. Provide a detailed description of the largest projects the Proposer is either performing or has completed within the last five years which are similar in scope. Describe the Proposer's qualifications and experience realized by the performance and management of these projects. The specific role of the Proposer in any project that is included must be described in detail. The description should identify for each project or contract:

- 1) The name and size firm of the Proposer's client, address, telephone number and the name of the contact person;
- 2) A description of the required work;
- 3) The contract term;
- 4) A statement as to whether the Proposer was a prime consultant, Subcontractor, Subconsultant, Subcontractor or Supplier; and
- 5) The result of the project.
- 6) List any and all contracts the Proposer has performed for the City.

7) Provide five (5) references by submitting the Reference Questionnaire form provided in Section 14.

- G. Describe any other experience related to the Work or Services described in **SECTION 2, SCOPE OF WORK AND SPECIFIC REQUIREMENTS**.
- H. Proposers shall provide evidence of financial stability for the last five years.
- I. Describe any prior or pending litigation or investigation, whether civil or criminal, involving a governmental agency or which may affect the performance of the Services to be rendered herein, in which the Proposer, any of its employees (while in the performance of their duties), Subcontractors or Subconsultants (if any) is or has been involved within the last five years.
- J. Describe and explain any prior complaints (both substantiated and inconclusive) filed with any governmental agency against the Proposer or any of its employees (while in the performance of their duties), Subcontractors or Subconsultants (if any) within the last five years.
- K. Confirm in your Proposal that your firm has errors and omissions insurance and identify the carrier and amounts.
- L. Key Personnel and Subcontractors or Subconsultants.
 - i. Provide an organizational chart showing all individuals, including their titles, who will perform any Work under the Contract. This chart must clearly identify the Proposer's employees and those of the Subcontractors or Subconsultants (if any).
 - ii. Describe the expertise of your firm's professional staff for both the local office and the entire organization. Describe the experience, qualifications, and other relevant information, including relevant experience on similar contracts, for all key individuals and Subcontractors or Subconsultants (if any) who will perform Work under the Contract. This information shall include functions to be performed by key individuals, Subcontractors or Subconsultants to include the number of professionals in each of the following categories:
 - 1) Licensed architectural/engineering consultants;
 - 2) Unlicensed technical support staff; and
 - 3) Administrative staff
 - iii. Describe the team that would serve the City. List each team member's role on this Engagement, professional designation, qualifications, experience, education, and clients with similar services.

- iv. Provide resumes with job descriptions and other detailed qualifications and information on all key personnel who will be assigned to the Contract, including any Subcontractors or Subconsultants. The phrase “all key personnel” includes all partners, managers, senior employees and other professional or technical staff that will perform Work under the Contract.
 - v. List names and addresses of all first tier Subcontractors, Subconsultants, or Suppliers who will perform and/or provide Work or Services under the Contract.
- N. The City strongly encourages and supports Proposers who are registered as CBE, SBE, and/or Local Businesses. Additional points will be allotted in the evaluation process for such businesses.
- O. The City may request the successful contractor to provide a performance bond for the duration of the project.
- P. Affidavits and Acknowledgements.

- 1) PROPOSAL COVER PAGE (SECTION 4)**
- 2) PROPOSER INFORMATION FORM (SECTION 5)**
- 3) PROPOSER’S DISCLOSURE OF SUBCONTRACTORS, SUBCONSULTANTS, AND SUPPLIERS (IF ANY) (SECTION 6)**
- 4) DRUG-FREE WORKPLACE AFFIDAVIT (SECTION 7)**
- 5) ANTI-KICKBACK AFFIDAVIT (SECTION 8)**
- 6) NON-COLLUSIVE AFFIDAVIT (SECTION 9)**
- 7) NON-DISCRIMINATION AFFIDAVIT (SECTION 10)**
- 8) BUSINESS/VENDOR PROFILE SURVEY (SECTION 11)**
- 9) PUBLIC ENTITY CRIMES (SECTION 12)**
- 10) FORM W-9 REQUEST FOR TAXPAYER IDENTIFICATION NUMBER AND CERTIFICATION (SECTION 13)**
- 11) REFERENCE QUESTIONNAIRE (SECTION 14)**

2-11 EVALUATION CRITERIA

A. Following the closing of the Solicitation, the Proposals will be evaluated by an evaluation committee appointed by the City. The evaluation committee may be comprised of any combination of City personnel and representatives selected by the City with the appropriate experience and/or knowledge to ensure that the committee is well balanced. The scoring of Proposals is based on a point total and not a percentage factor.

B. The evaluation committee will first evaluate, score and rank responsive Proposals based on the criteria listed below. The criteria are itemized with their respective weights for a maximum total of 100 points. A Proposer may receive the maximum points, a portion of this score, or no points at all, depending upon the merits of the Proposal as judged by the evaluation committee. A Proposal that fails to adequately show the qualifications and experience necessary for this Project shall be deemed "Non-Responsive" and will not be considered.

C. The evaluation committee reserves the right, but is not obligated, to require oral presentations from one or more of the Proposers, either before or after the initial ranking, and shall have the option to short-list and re-rank after the receipt of additional information from such presentations, follow-up questions and answers, on-site Proposer demonstrations, reference checks or site visits.

Criteria	Points
1. Consultant's background, qualifications, credentials and in-house expertise, factoring in the proposed Proposer team's current workload and experience working together on similar energy performance projects. Provide details regarding three similar municipal projects performed by Proposer	30
2. Staff experience and resumes of team's personnel, including assigned Project manager's experience	15
3. Ability to finance project and methodology of finance plan for guarantee savings to the City	25
4. Understanding of the Project, technical approach, Commitment and innovation to project success	20
5. Local Business Preference.	5
6. CBE or SBE Preference.	5
TOTAL	100

2-12 COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS

The Successful Proposer understands and acknowledges that agreements with governments are subject to certain Laws and Regulations, including laws pertaining to (without limitation) matters such as public records, conflict of interest, and record keeping. The Successful Proposer agrees to comply with and observe all applicable Laws, codes and ordinances, as they may be amended from time to time.

2-13 POINT OF CONTACT

For submittal of questions and any additional information regarding the Specifications and requirements of this Solicitation, contact the Procurement Department as shown below:

City of Miramar Procurement Department
Attn: Natalie Richmond
2200 Civic Center Place, 2nd Floor
Miramar, FL 33025
Tele: 954-602-3196
Email: narichmond@miramarfl.gov

FORMS

SECTION 3 AGREEMENT

(The City reserves the right to amend the terms and conditions set forth herein)



AGREEMENT BETWEEN THE CITY OF MIRAMAR, FLORIDA AND

FOR GUARANTEED ENERGY, WATER, WASTEWATER PERFORMANCE SAVINGS CONTRACTING SERVICES

THIS AGREEMENT (the "Agreement") is entered into and dated _____, 2020, by and between the CITY OF MIRAMAR, FLORIDA (the "City"), a Florida municipal corporation, whose address is 2300 Civic Center Place, Miramar, Florida 33025, and _____ (the "Engineer", "Architect", "Contractor" or "Consultant"), a Florida corporation whose address is _____.

WITNESSETH:

WHEREAS, the City issued Request for Qualification No. 20-02-15 (the "RFQ") for Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services, (the "Work", "Project" or "Services"); and

WHEREAS, Consultant was determined to be the highest most qualified evaluation scoring responsive, responsible Proposer; and

WHEREAS, Consultant and City have agreed upon a Scope of Services and fee for such Services; and

WHEREAS, on _____, 2020, the Miramar City Commission awarded the RFQ to Consultant; and

WHEREAS, Consultant is willing and able to perform these Services for the City within the basic terms and conditions set forth in this Agreement (the "Agreement"); and

WHEREAS, City desires to engage Consultant to perform the Services specified herein under the terms of this Agreement.

NOW THEREFORE, the City and Consultant, in consideration of the mutual covenants hereinafter set forth, the receipt and sufficiency of which is acknowledged, agree as follows:

ARTICLE 1 **DEFINITIONS**

Except as provided herein, terms used in this Agreement are defined in the RFQ, which is deemed fully incorporated herein for all purposes, and have the meanings indicated in the RFQ or in the General Terms and Conditions incorporated herein and made a part hereof. In the event of conflict, the definitions and all other terms and conditions contained in the RFQ shall govern.

ARTICLE 2 **SCOPE OF SERVICES**

Upon request of the City, Consultant shall provide Guaranteed energy, water and wastewater performance savings contracting consulting Services for the Project pursuant to the Scope of Services set forth in Exhibit "A", Consultant's Proposal, attached hereto and made a part of hereof.

ARTICLE 3 **CONSULTANT AND CITY'S RELATIONSHIP**

3.1 The Consultant accepts the relationship of trust and confidence established between it and the City by this Agreement. The Consultant represents that it will furnish its best skill and judgment in performing the Consultant's Services and the Work, and shall always act to further the interest of the City in the expeditious completion of the Project at the lowest responsible cost to the City, and in strict accordance with the Contract Documents and prudent and customary industry practices.

3.2 By signing this Agreement, the Consultant accepts a fiduciary duty with the City and warrants and represents to the City that the Consultant:

- A.** Has all licenses and certifications required by applicable Law to perform the Consultant's Services and the Work;
- B.** Is experienced in all aspects of the Work required for projects similar to the Project;
- C.** Will act in the City's highest and best interest in performing the Consultant's Services and the Work; and
- D.** That no employee or affiliate of the Consultant, including all Subconsultants, Subcontractors and Suppliers (if any), at any tier, has been convicted of a

Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services

RFQ #20-02-15

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public entity crime pursuant to Section §287.133, Florida Statutes, within the preceding 36 months from the date of execution of this Agreement.

3.3 The Consultant acknowledges and agrees that the City is relying on these representations and covenants as a material inducement to enter into this Agreement.

ARTICLE 4 **TERM**

The term of this Agreement shall commence upon the last date of execution hereof and shall remain in effect until acceptance of the Goods and/or Services by the City , unless terminated earlier as provided herein.

ARTICLE 5 **CONSULTANT'S RESPONSIBILITIES**

5.1 Consultant shall provide City with a detailed breakdown of its monthly bills, indicating each task performed and time allocated to each task.

5.2 Consultant agrees that all meetings relating to Work performed pursuant to this Agreement shall take place at a City facility and all site visits relating to such Work shall take place with a City representative present.

5.3 Consultant agrees that its Services are to be performed within the limits prescribed by the City and represents that the standard of care for all Services performed or furnished by Consultant under this Agreement, will be the care and skill ordinarily used by members of the Consultant's profession practicing under similar conditions.

5.4 Consultant is prepared to begin Work on the Project immediately upon receipt of a copy of this fully executed Agreement. Consultant, in consultation with the City, shall perform its Work in such a manner as to comply with an agreed upon Project Schedule, attached as Exhibit "B."

ARTICLE 6 **CITY'S RESPONSIBILITIES**

6.1 In exchange for the Services to be performed by Consultant, outlined herein and in Exhibit "A" of this Agreement, the City agrees to compensate the Consultant pursuant to the Scope of Service in the amount of \$_____."

6.2 Compensation shall be invoiced by Consultant and paid by the City as follows: Consultant shall submit monthly invoices to the City for review. Each invoice shall indicate the original fee estimate for the Service provided the invoice date, the amount of the invoice and the estimated fees remaining. Payment for Services rendered by Consultant during the previous billing period shall be due and payable as of the date

of the invoice, and shall be paid by the City no later than the 30th Day after the date of invoice, unless some other mutually agreeable period of required payment is established. All invoices are subject to the City's approval.

ARTICLE 7

INDEMNIFICATION

7.1 To the fullest extent permitted by Laws and Regulations, the Consultant shall indemnify, defend, and hold harmless the City, its officers, directors, agents, and employees, against and from all claims and liability arising under, by reason of or incidental to the Agreement or any performance of the Work, but not from the sole negligence or willful misconduct of the City. Such indemnification by the Consultant shall include but not be limited to the following:

A. Liability or claims arising directly or indirectly from or based on the violation of any Law, ordinance, Regulation, order, or decree, whether by the Consultant, its employees, or agents;

B. Liability or claims arising directly or indirectly from the use or manufacture by the Consultant, its employees or agents in the performance of this Agreement, of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article, or appliance, unless otherwise specifically stipulated in this Agreement;

C. Liability or claims arising directly or indirectly from the breach of any warranties, whether express or implied, made to the City or any other parties by the Consultant, its employees or agents;

D. Liabilities or claims arising directly or indirectly from the willful misconduct of the Consultant, its employees or agents; and

E. Liabilities or claims arising directly or indirectly from any breach of the obligations assumed herein by the Consultant.

7.2 The Consultant shall reimburse the City for any and all costs and expenses (including but not limited to fees and charges of Architects, attorneys, and other professionals and court costs) incurred by the City in enforcing the provisions of this indemnification.

7.3 This indemnification obligation shall not be limited in any way by any limitation of the amount or type of damages, compensation, or benefits payable by or for the Consultant or any Subcontractor (if any) or other person or organization under workers' compensation Laws, disability benefit acts, or other employee benefit acts, or insurance coverage.

7.4 The Consultant acknowledges receipt and the adequacy of the specific consideration in the amount of \$100.00, which sum was included in the total

negotiated Proposal Price and is included in the Proposal Price to be paid by City to the Consultant, as consideration for the indemnification given by the Consultant to the City.

ARTICLE 8 **TERMINATION**

8.1 TERM OF AGREEMENT - This Agreement shall commence on the date that it is fully executed by all parties. Consultant shall begin Work promptly after receipt of a fully executed copy of this Agreement from City and complete the Project within the completion timeframes established in the Project Schedule as set forth in Exhibit "B". With respect to such schedule, performance shall be timely under this Agreement, and time is of the essence. However, the completion timeframes shall be extended for periods of delay resulting from strikes, natural disasters, and similar circumstances over which the Consultant has no control, if City approves such extensions in writing.

8.2 TERMINATION - For Convenience - This Agreement may be terminated by City for convenience upon 30 calendar Days' written notice to Consultant. In the event of termination by City, Consultant shall be paid for all authorized Services rendered to the date of such termination. The amount payable to Consultant in the event of such termination shall be a pro rata amount determined on the basis of the amount and value of the Work performed prior to Consultant's receipt of notice of termination for the applicable Work performed. In exchange for such payment, Consultant shall turn over to City all work product which has been paid for by City. Under no circumstances shall City make payment for Services that have not been performed.

8.3 TERMINATION - For Cause - This Agreement may be terminated by either party upon five calendar Days' written notice to the other should such other party fail substantially to perform in accordance with its material terms through no fault of the party initiating the termination. In the event Consultant abandons this Agreement or causes it to be terminated by City, Consultant shall indemnify City against loss pertaining to this termination. In the event that City terminates the Agreement for cause, and it is subsequently determined by a court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a termination for convenience under Article 8.2 and the provisions of Article 8.2 shall apply.

ARTICLE 9 **DEFAULT**

9.1 An event of default shall mean a breach of this Agreement by Consultant. Without limiting the generality of the foregoing and in addition to those instances referred to as a breach, an event of default shall include the following:

- A.** Consultant has not performed Services on a timely basis as set forth in the Project Schedule attached as, Exhibit "B";

- B.** Consultant has refused or failed, except in the case for which an extension of time is provided, to supply enough properly skilled staff personnel;
- C.** Consultant has failed to make prompt payment to Subconsultants or Suppliers (if any) for any Services;
- D.** Consultant has become insolvent or has assigned the proceeds received for the benefit of Architect's creditors, or Architect has taken advantage of any insolvency statute or debtor/creditor law or, if Architect's affairs have been put in the hands of a receiver;
- E.** Consultant has failed to obtain the approval of City where required by this Agreement;
- F.** Consultant has failed in the honoring of any warranties; or
- G.** Consultant has refused or failed, except in the case for which an extension of time is provided, to provide the Services as defined in this Agreement.

9.2 In the event Consultant fails to comply with the provisions of this Agreement, City may declare Consultant in default, notify Consultant in writing, and give Consultant 15 calendar Days to cure the default. If Consultant fails to cure the default, compensation will only be due for any completed professional Services, minus any damages pursuant to Article 8.3. In the event payment has been made for such professional Services not completed, Consultant shall return these sums to City within ten (10) days after notice that these sums are due. Nothing in this Section shall limit City's right to terminate, at any time, pursuant to Article 8 above, and its right for damages under Article 9.3.

9.3 In the event of Default, Consultant shall be liable for all damages resulting from the default, including but not limited to:

- A.** Lost funding, and
- B.** The difference between the cost associated with procuring services and the amount actually expended by City, including procurement and administrative costs.

9.4 City may take advantage of each and every remedy specifically existing at law or in equity. Each and every remedy shall be in addition to every other remedy specifically given or otherwise existing and may be exercised from time to time as often and in such order as may be deemed expedient by City. The exercise or the beginning of the exercise of one remedy shall not be deemed to be a waiver of the right to exercise any other remedy. City's rights and remedies as set forth in this Agreement are not

exclusive and are in addition to any other rights and remedies available to City at Law or in equity.

ARTICLE 10

DELIVERY OF MATERIALS

10.1 Upon receipt of notice of termination under Articles 8 or 9 above, Consultant shall immediately deliver to City all Materials held or used by Consultant in connection with the Services except those Materials, if any, owned by Consultant or supplied by Consultant at Consultant's own cost. If, at the time of termination further sums are due Consultant, Consultant shall not be entitled to sums until all Materials required to be delivered to the City are delivered in electronic format, including any additional format of delivery of Materials requested by the City.

10.2 Upon receipt of notice of termination for any reason, Consultant shall promptly cease all Services, except for additional Services that the City may, in its discretion, request Consultant to perform. Consultant shall perform additional Services with the standard of care as stated in Article 4 above.

ARTICLE 11

CONTRACT DOCUMENTS

11.1 The Contract Documents which comprise the entire agreement between City and Contractor concerning the Work consist of this Agreement and the following: the Request for Qualifications, all attachments and exhibits, Qualification Forms (including the Quote, information required of Proposer, and all required certificates and affidavits), Contract, Performance Bond (if any), Payment Bond (if any), General Terms and Conditions (if any), Special Conditions (if any), Technical Specifications (if any), Drawings (if any), and all addenda and Change Orders.

11.2 There are no Contract Documents other than those listed herein. The Contract Documents may only be amended by written Change Order (if any). In the event of any conflict between this Agreement and any other of the Contract Documents, this Agreement and amendments shall govern first and then the other Contract Documents in the order listed above.

ARTICLE 12

OWNERSHIP OF DOCUMENTS

12.1 All original construction Drawings and Specifications produced by Consultant under this Agreement shall remain the property, and shall remain in the custody and possession, of Consultant, who shall retain them in confidence. Copies of all Drawings and Specifications (both in electronic form, clearly marked as copies, and in the form of reproducible hard copies) shall be furnished to the City, along with copies (or originals to the extent permitted by Florida Regulations governing the practice of Consultants) of any drafts, Work papers, samples, prototypes, models, sketches,

conceptual or schematic Drawings, master plan documents, and other work product produced in connection with this Agreement or the Project which is the subject of this Agreement, regardless of the state of completion of the Work, and regardless of the source (collectively, Consultant's "Work") that Consultant has retained in its possession. City may reuse the concepts, themes, ideas, and expression reflected or embodied in the Drawings and Specifications and may, if it wishes, retain another licensed design professional to incorporate said concepts, themes, ideas, and expression into other plans and Specifications. All Consultant's Work other than one set of original construction Drawings, line Drawings, Specifications, and computer disks prepared by the Consultant shall be the property of the City and may be used by the City as the City sees fit. The original physical Drawings and Specifications retained by City may be used for occupying the Project, completing or modifying the Project, the building, the site for which they were prepared, but not for the construction of another project on another site. All original construction Drawings, line Drawings, Specifications, and computer disks shall remain in the possession, care, custody and control of Consultant. Consultant's Work shall be deemed "work for hire" commissioned by the City to the fullest extent permitted by the copyright Laws of the United States and by Florida Law. To the fullest extent permitted by federal and Florida Law, Consultant hereby transfers to the City, for good and valuable consideration, all copyright, trademark, and patent rights in and to Consultant's Work, and agrees to sign any and all further documents deemed necessary by the City to protect the City's copyright rights therein at the conclusion of the Project. Consultant agrees not to share, reveal, or advertise any of the Work, or the concepts, themes or ideas reflected therein, with or to any third parties absent City's prior written consent, and further agrees not to reuse same for any purpose without City's prior written consent. Consultant expressly acknowledges that, to the extent the concepts and themes for a given Project were initially conceived by the City, they shall remain the property of the City, and the City may reuse them as it sees fit. Upon the completion or termination of Consultant's involvement on a given Project, any and all documents, information or use rights provided to the Consultant for purposes of or in connection with the Consultant's performance of this Agreement in connection with the Project, or otherwise related to the Project, shall be returned to the City, without Consultant retaining any copies except that Consultant shall retain copies of documents or information furnished by the City which were influential in Consultant's production of the Work so long as the Consultant holds same in confidence and does not disseminate them or share them with any other third parties.

12.2 When the City requests that the Consultant provide to it certain plans, Specifications, or other documents in electronic form ('Electronic Documents'), the Project Consultant will do so subject to the terms of this provision. The City recognizes that Electronic Form Documents are not intended to be used for construction, are not Contract Documents under the terms of the Construction Contract, may be revised by others without the knowledge or consent of the Consultant, and, when plotted, may result in variances or corrupt other files of the user. City agrees not to use the Electronic Form Documents for any purposes other than the Project for which they were prepared. Consultant will provide to the City only a working copy of the Electronic Form Documents. Said working copy of the Electronic Form Documents shall have removed from the electronic display all indices of the Consultant's ownership, professional name, and/or

involvement in the Project. Any use of any kind and/or changes to the Electronic Form Documents will be at the sole risk of the user and without liability, risk, or legal exposure to the Consultant.

ARTICLE 13 **ASSIGNMENT**

No assignment by the Consultant of any rights or obligations hereunder or interests in the Contract Documents will be binding on the City without the written consent of the City, which may be withheld for any reason, in the City's sole discretion.

ARTICLE 14 **APPLICABLE LAW; ACCIDENT PREVENTION AND REGULATIONS**

Consultant shall comply with all applicable Laws and Regulations at all times. Precautions shall be exercised at all times for the protection of persons and property. The Consultant and all Subcontractors (if any) shall conform to all OSHA, federal, state, county and City Regulations while performing under this Agreement. Any fines levied by the above-mentioned authorities because of inadequacies to comply with these requirements shall be borne solely by the Consultant.

ARTICLE 15 **AUDIT AND INSPECTION RIGHTS**

15.1 The City may, at reasonable times and for a period of up to three years following the date of Final Completion, audit, or cause to be audited, those books and records of Consultant that are related to Consultant's performance under this Agreement. Consultant agrees to maintain all such books and records at its principal place of business for a period of three years after final payment is made under this Agreement.

15.2 The City may, at reasonable times during the term hereof, inspect Consultant's facilities and perform such inspections as the City deems reasonably necessary to determine whether the Services required to be provided by Consultant under this Agreement conform to the terms hereof and/or the terms of this Agreement. Consultant shall make available to the City all reasonable facilities and assistance to facilitate the performance of inspections by the City's representatives. All inspections shall be subject to and made in accordance with all applicable Laws, including but not limited to the provisions of the City Code and the Code of Broward County, Florida, as same may be amended or supplemented from time to time.

15.3 The City may, as deemed necessary, require from the Consultant support and/or documentation for any submission. Upon execution of the Agreement, the Consultant agrees that the City shall have unrestricted access during normal working hours to all Consultant's records relating to this Project, including hard copy as well as electronic records, for a period of three years after Final Completion.

ARTICLE 16

SURVIVAL OF PROVISIONS

Any terms or conditions of this Agreement that require acts beyond the date of its termination shall survive the termination of this Agreement, shall remain in full force and effect unless and until the terms or conditions are completed, and shall be fully enforceable by either party.

ARTICLE 17

PUBLIC RECORDS

17.1 The Contractor shall comply with The Florida Public Records Act as follows:

17.1.1 Keep and maintain public records in the Contractor's possession or control in connection with the Contractor's performance under this Agreement, that ordinarily and necessarily would be required by the City in order to perform the service.

17.1.2 Upon request by the City's records custodian, provide the City with a copy of requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law.

17.1.3 Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of this Agreement, and following completion of this Agreement until the records are transferred to the City.

17.1.4 Upon completion of this Agreement or in the event of termination of this Agreement by either party, any and all public records relating to this Agreement in the possession of the Contractor shall be delivered by the Contractor to the City, at no cost to the City, within seven (7) days. All records stored electronically by the Contractor shall be delivered to the City in a format that is compatible with the City's information technology systems. Once the public records have been delivered to City upon completion or termination of this Agreement, the Contractor shall destroy any and all duplicate public records that are exempt or confidential and exempt from public record disclosure requirements.

17.1.5 The Contractor's failure or refusal to comply with the provisions of this Section shall result in the immediate termination of this Agreement by the City.

17.1.6 IF CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT 954-602-3011, daqibbs@miramarfl.gov OR BY MAIL: City Of Miramar – City Clerk's Office, 2300 Civic Center Place, Miramar, FL 33025.

17.1.7 Ownership of Documents: Unless otherwise provided by law, any and all reports, surveys, and other data and documents provided or created in connection

with this Agreement are and shall remain the property of the City. Any compensation due to the Contractor shall be withheld until all documents are received as provided herein.

ARTICLE 18

COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS

18.1 Consultant understands that agreements between private entities and local governments are subject to certain Laws and Regulations, including, by example and not limited to, Laws pertaining to public records, conflict of interest, and record keeping. Consultant agrees to comply with and observe all applicable Laws, codes and ordinances as they may be amended from time to time.

18.2 Consultant agrees that it shall not make any statements, press releases or publicity releases concerning this Agreement or its subject matter or otherwise disclose or permit to be disclosed any of the data or other information obtained or furnished in compliance with this Agreement, or any particulars thereof, during the period of the Agreement, without first notifying the City and securing prior written consent, unless and except otherwise required by Law. The Consultant also agrees that it shall not publish, copyright or patent any of the data developed under this Agreement, it being understood that such data or information are works made for hire and the property of the City.

18.3 The knowing employment by Consultant or its Subcontractors or Subconsultants of any alien not authorized to work by the immigration Laws or the Attorney General of the United States is prohibited and shall be a default of this Agreement.

ARTICLE 19

INSURANCE

19.1 Consultant shall furnish to the City of Miramar, 2300 Civic Center Place, Miramar, Florida 33025, before the commencement of Work, certificates of insurance and all required endorsements that indicate the insurance coverage has been obtained and meets the requirements set forth in the General Conditions (if any) and the following:

- Commercial General Liability:
\$1,000,000 each occurrence, \$2,000,000 general aggregate;

Professional Liability: \$1,000,000;
- Products and Complete Operations Aggregate: \$2,000,000;
- Personal Injury and Advertising Injury: \$1,000,000;
- Bodily Injury, \$1,000,000 each person, \$1,000,000 each occurrence;
- Property Damage, \$500,000 each occurrence or combined single limit of \$1,000,000 each occurrence;

- Automobile Liability: \$1,000,000 combined single limit per accident;
- Workers Compensation and Employers Liability: \$1,000,000 each accident, \$1,000,000 each employee for injury by disease, \$1,000,000 aggregate for injury by disease.

19.2 The City shall be named as the certificate holder and an Additional Insured on all certificates. All liability insurance policies shall have endorsements adding the City of Miramar as an Additional Insured, a waiver of subrogation in favor of the City and a separate endorsement for automobile liability. Insurance shall be maintained continuously during the term of the Contract up to the date of Final Completion, but the Consultant's liabilities under this Agreement shall not be deemed limited in any way to the insurance coverage required.

ARTICLE 20

INDEPENDENT CONTRACTOR

Consultant has been procured and is being engaged to provide Services to the City as an independent contractor, and not as an agent or employee of the City. Accordingly, Consultant shall not attain nor be entitled to any rights or benefits of the City, nor any rights generally afforded classified or unclassified employees of the City. Consultant further understands that Florida Workers' Compensation benefits available to employees of the City are not available to Consultant, and agrees to provide workers' compensation insurance for any employee or agent of Consultant rendering Services to the City under this Agreement.

ARTICLE 21

NONDISCRIMINATION

Consultant represents and warrants to the City that Consultant does not and shall not engage in discriminatory practices and that there shall be no discrimination in connection with Consultant's performance under this Agreement on account of race, age, religion, color, gender, sexual orientation, national origin, marital status, physical or mental disability, political affiliation or any other factor which cannot be lawfully used as a basis for delivery of Services. Consultant further covenants that no otherwise qualified individual shall, solely by reason of his/her race, age, religion, color, gender, sexual orientation, national origin, marital status, physical or mental disability, political affiliation or any other factor which cannot be lawfully used as a basis for delivery of Services, be excluded from participation in, be denied any Services, or be subject to discrimination under any provision of the General Conditions (if any).

ARTICLE 22

COSTS AND ATTORNEY FEES

If either City or Consultant is required to enforce the terms of this Agreement by court proceedings or otherwise, whether or not formal legal action is required, the

prevailing party shall be entitled to recover from the other party all such costs and expenses, including but not limited to court costs and reasonable attorney's fees.

SECTION 23

CONFLICT-OF-INTEREST

23.1 To avoid any conflicts of interest, or any appearance thereof, Consultant, for the term of this Agreement, agrees that it will not represent any private sector entities (including but not limited to developers, corporations, real estate investors, etc.) in Miramar, Florida, without notifying the City of the services to be performed. If after such notification the City reasonably determines that a material conflict exists, Consultant will not perform such conflicting Work. The conditions and requirements of this paragraph will also apply to any Subconsultants utilized by Consultant in completion of the Work tasks under this Agreement.

23.2 Furthermore, Consultant covenants that no person under its employ who presently exercises any functions or responsibilities on behalf of the City in connection with this Agreement has any personal financial interest, direct or indirect, with contractors or vendors providing professional services on projects assigned to Consultant, except as fully disclosed and approved by the City. Consultant further covenants that, in the performance of this Agreement, no person having such conflicting interest shall be employed. Any such interest on the part of Consultant or its employees must be disclosed in writing to the City.

ARTICLE 24

COUNTERPARTS

This Agreement may be executed in two or more counterparts, each of which shall constitute an original but all of which, when taken together, shall constitute one and the same Agreement.

ARTICLE 25

WAIVER

The waiver by either party of any failure on the part of the other party to perform in accordance with any of the terms or conditions of this Agreement shall not be construed as a waiver of any future or continuing similar or dissimilar failure. No waiver shall be effective unless made in writing.

ARTICLE 26

BINDING AUTHORITY

Each person signing this Agreement on behalf of either party individually warrants that he or she has full legal power to execute this Agreement on behalf of the party for whom he or she is signing, and to bind and obligate such party with respect to all provisions contained in this Agreement. This Agreement shall be binding upon the parties hereto, their heirs, executors, legal representatives, successors, or assigns.

ARTICLE 27

NOTICES

All notices or other communications required under this Agreement shall be in writing and shall be given by Electronic Mail Transmittal, hand-delivery or by registered or certified U.S. Mail, return receipt requested, addressed to the other party at the address indicated herein or to such other address as a party may designate by notice given as herein provided. Notice shall be deemed given on the day on which personally delivered, or, if by mail, on the fifth day after being posted or the date of actual receipt, whichever is earlier.

TO CONSULTANT:

TO THE CITY OF MIRAMAR:

ATTN: Vernon E. Hargray, City Manager
CITY OF MIRAMAR
2300 Civic Center Place
Miramar, Florida 33025
Telephone: (954) 602-3115
Fax: (954) 602-3672
Email: vhargray@miramarfl.gov

WITH A COPY TO:

City Attorney
Austin Pamies Norris Weeks Powell, PLLC
401 NW 7th Avenue
Fort Lauderdale, FL 33311
Telephone: (954) 768-9770
Email: miramarcityattorney@apnwplaw.com

ARTICLE 28

CITY'S OWN FORCES

28.1 The City reserves the right to perform operations related to the Project with the City's own forces, and to award contracts in connection with the Project which are not part of the Contractor's responsibilities under this Agreement.

28.2 The City will have the right to inspect and conduct periodic inspections of the Work and/or Materials to determine compliance with the requirements of the Contract. Any Work and/or Materials rejected by the City for non-compliance shall be replaced and/or corrected at the Contractor's expense. Failure to reject Defective Work and/or Materials, whether from lack of discovery of such defect or for any other reason, will not relieve the Contractor from responsibility to complete the Work in full compliance with all Contract requirements and shall in no way prevent later rejection of such Defective Work when discovered.

ARTICLE 29

LIMITATION OF LIABILITY

29.1 The City desires to enter into this Agreement only if in so doing the City can place a limit on City's liability for any cause of action for money damages due to an alleged breach by the City of this Agreement, so that its liability for any such breach never exceeds the fee paid to Consultant herein, less any sums paid by the City. Consultant hereby expresses its willingness to enter into this Agreement with Consultant's recovery from the City for any damage action for breach of contract to be limited to a maximum fee paid to Consultant herein, less any sums paid by the City.

29.2 Accordingly, and notwithstanding any other term or condition of this Agreement, Consultant agrees that the City shall not be liable to Consultant for damages in an amount in excess of the fee paid to the Consultant herein, less any sums paid by the City, for any action or claim for breach of contract arising out of the performance or non-performance of any obligations imposed upon the City by this Agreement. Nothing contained in this paragraph or elsewhere in this Agreement is in any way intended to be a waiver of the limitation placed upon the City's liability as set forth in Section §768.28, Florida Statutes.

29.3 In no event shall either party be liable for any indirect, incidental, special, or consequential damages, including, without limitation, loss of profits, revenue, or use incurred by either party or any third party, whether in an action in contract or tort, even if the other party or any other person has been advised of the possibility of such damages.

ARTICLE 30

NON-SOLICITATION

Consultant represents and warrants to the City that it has not employed or retained any person or company employed by the City to solicit or secure this Agreement and that

it has not offered to pay, paid, or agreed to pay any person any fee, commission, percentage, brokerage fee, or gift of any kind contingent upon or in connection with the award or making of this Agreement. For the breach or violation of this provision, the City shall have the right to terminate the Agreement without liability at its discretion, to deduct from the Contract Price, or otherwise recover the full amount of such fee, commission, percentage, gift or consideration.

ARTICLE 31

THIRD PARTY BENEFICIARY

It is specifically agreed between the City and Consultant executing this Agreement that it is not intended by any of the provisions of any part of the Agreement to create in the public or any member thereof a third party beneficiary hereunder, or to authorize anyone not a party to this Agreement to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of this Agreement.

ARTICLE 32

WARRANTY AND GUARANTEE

Architect warrants that its Services are to be performed within the limits prescribed by City and with the usual thoroughness and competence of Architect's profession. Architect shall be responsible for technically deficient designs, reports or studies due to errors and omissions directly related to the Services provided by Architect pursuant to this Agreement for four years after the date of acceptance of the Services by City. Architect shall, upon the request of City, promptly correct or replace all Defective Work due to errors or omissions directly related to the Services provided by Architect pursuant to this Agreement at no cost to the City.

ARTICLE 33

VENUE AND JURISDICTION

This Agreement shall be construed and enforced according to the Laws of the State of Florida. The parties submit to the jurisdiction of any Florida state or federal court in any action or proceeding arising out of or relating to this Agreement. Venue for any action arising out of this Agreement shall be in Broward County, Florida.

ARTICLE 34

HEADINGS AND INTERPRETATION

Title and paragraph headings are for convenience only and are not a part of this Agreement. Consultant has been given an opportunity for counsel of its choice to review this Agreement. Accordingly, no party shall be deemed to have any benefit as the drafter of the document for interpretation purposes.

ARTICLE 35 **SEVERABILITY**

35.1 Should any provision, paragraph, sentence, word or phrase contained in this Agreement be determined by a court of competent jurisdiction to be invalid, illegal or otherwise unenforceable under any applicable Law, such provision, paragraph, sentence, word or phrase shall be deemed modified to the extent necessary in order to conform with such Laws, or if not modifiable, then same shall be deemed severable, and in either event, the remaining terms and provisions of this Agreement shall remain unmodified and in full force and effect for limitation of its use.

35.2 City and Consultant each binds itself, its partners, successors, assign and legal representatives to the other party hereto, its partners, successors, assign and legal representatives in respect of all covenants, agreements and obligations contained in this Agreement and in all Contract Documents.

ARTICLE 36 **REAFFIRMATION OF REPRESENTATIONS**

Contractor reaffirms all of the representations contained in the Solicitation documents and previously made in all Contract Documents.

ARTICLE 37 **SCRUTINIZED COMPANIES**

37.1 Contractor certifies that it and its subcontractors are not on the Scrutinized Companies that Boycott Israel List. Pursuant to Section 287.135, F.S., the City may immediately terminate this Agreement at its sole option if the Contractor or its subcontractors are found to have submitted a false certification; or if the Contractor, or its subcontractors are placed on the Scrutinized Companies that Boycott Israel List or is engaged in the boycott of Israel during the term of the Agreement.

37.2 If this Agreement is for more than one million dollars, the Contractor certifies that it and its subcontractors are also not on the Scrutinized Companies with Activities in Sudan, Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or engaged with business operations in Cuba or Syria as identified in Section 287.135, F.S. Pursuant to Section 287.135, F.S., the City may immediately terminate this Agreement at its sole option if the Contractor, its affiliates, or its subcontractors are found to have submitted a false certification; or if the Contractor, its affiliates, or its subcontractors are placed on the Scrutinized Companies with Activities in Sudan List, or Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or engaged with business operations in Cuba or Syria during the term of the Agreement.

37.3 The Contractor agrees to observe the above requirements for applicable subcontracts entered into for the performance of work under this Agreement.

37.4 As provided in Subsection 287.135(8), F.S., if federal law ceases to authorize the above-stated contracting prohibitions then they shall become inoperative.

ARTICLE 38 **LIQUIDATED DAMAGES**

City and the Contractor recognize that time is of the essence of this Agreement and that the City will suffer financial loss if the Work is not completed within the time specified herein. They also recognize the delays, expense, and difficulties involved in proving in a legal proceeding the actual loss suffered by the City if the Work is not completed on time. Accordingly, instead of requiring any such proof, the City and the Contractor agree that as liquidated damages for delay (but not as a penalty), the Contractor shall pay the City \$_____ for each Day that expires after the time specified herein for Substantial Completion until Substantial Completion is achieved, and \$_____ for each calendar Day that expires after the time herein for Final Completion and full acceptance is achieved. Liquidated damages are cumulative.

ARTICLE 39 **CERTIFICATE OF COMPETENCY**

Contractor shall, at the time of executing this Agreement, hold a valid certificate of competency or applicable license for providing the Services, if applicable, issued by the federal, state, or county examining board qualifying the Contractor to perform the Work. If a Subcontractor(s) or Subconsultant(s) is employed, an applicable certificate of competency or license issued to the Subcontractor(s) or Subconsultant(s) shall be submitted along with Contractor's certificate or license upon execution of this Agreement; provided, however, that the City may, at its sole option, upon written approval to Contractor, and in its best interest, allow Contractor to supply the certificate(s) to the City during the first week of Work or Services.

ARTICLE 40 **ENTIRE AGREEMENT**

The Contract Documents constitute the sole and entire agreement of the parties relating to the subject matter hereof and correctly set forth the rights, duties, and obligations of each to the other as of its date. Any prior agreements, promises, negotiations, or representations not expressly set forth therein, are of no force or effect. No modification or amendment thereto shall be valid unless in writing and executed by properly authorized representatives of the parties herein.

IN WITNESS WHEREOF, the parties have set their hands and seals the day and year first above written.

CITY OF MIRAMAR:

By: _____
City Manager
Vernon E. Hargray

CONSULTANT/ARCHITECT:

By: _____

This ____ day of _____, 2020.

Date: _____

ATTEST:

Denise A. Gibbs, City Clerk

Corporate Seal

Approved as to form and legal sufficiency
for the use of and reliance by the City of
Miramar, Florida only:

City Attorney
Austin Pamies Norris Weeks Powell, PLLC

SECTION 4
PROPOSAL COVER SHEET – RFQ #20-02-15

PROPOSER'S NAME (Name of firm, entity, or organization):

FEDERAL EMPLOYER IDENTIFICATION NUMBER:

NAME AND TITLE OF PROPOSER'S CONTACT PERSON:

Name:

Title:

MAILING ADDRESS:

Street Address: _____

City, State, Zip: _____

TELEPHONE:

(_____) _____

FAX: (_____) _____

Email: _____

PROPOSER'S ORGANIZATION STRUCTURE:

_____ Corporation _____ Partnership _____ Proprietorship _____ Joint Venture _____ Other (explain): _____

IF CORPORATION:

Date Incorporated/Organized: _____

State of Incorporation/Organization: _____

States registered in as foreign Corporation: _____

PROPOSER'S SERVICES OR BUSINESS ACTIVITIES OTHER THAN WHAT THIS SOLICITATION REQUESTS:

LIST NAMES OF PROPOSER'S SUBCONTRACTORS AND/OR SUBCONSULTANTS FOR THIS PROJECT:

PROPOSER'S AUTHORIZED SIGNATURE:

The undersigned hereby certifies that this Proposal is submitted in response to this Solicitation.

Signed by: _____ Date: _____

Print name: _____ Title: _____

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 5 PROPOSER'S INFORMATION FORM

All information supplied in connection with this form is subject to review and verification. Any and all determinations concerning this information will be used to determine eligibility for participation in the award. Inaccurate or incomplete answers may result in your Proposal being deemed "Non-Responsive."

- (1) How many years has your organization been in business under your present business name? _____ years
- (2) State of Florida business tax receipt type and number: _____
- (3) County (state county) business tax receipt type and number: _____
- (4) City business tax receipt license type and number: _____

PROPOSERS MUST INCLUDE A COPY OF EACH LICENSE LISTED WITH PROPOSAL

- (5) Describe experience providing services/commodities for similar (government) organizations:

- (6) Have you ever had a contract terminated (either as a prime contractor or sub-contractor) for failure to comply, breach, or default?

_____ yes _____ no

(IF YES, PLEASE ENCLOSE A DETAILED EXPLANATION ON SEPARATE SHEET)

**FAILURE TO COMPLETE AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 6
PROPOSER'S DISCLOSURE OF SUBCONTRACTORS,
SUBCONSULTANTS, AND SUPPLIERS (IF APPLICABLE)

Please list all Subcontractors, Subconsultants and Suppliers to be used in connection with performance of the Contract (use additional pages if necessary):

Company Name: _____

Address: _____

City, State, & Zip Code: _____

Company Name: _____

Address: _____

City, State, & Zip Code: _____

Company Name: _____

Address: _____

City, State, & Zip Code: _____

SECTION 6
PROPOSER'S DISCLOSURE OF SUBCONTRACTORS,
SUBCONSULTANTS, AND SUPPLIERS(CONTINUED)

Company Name: _____

Address: _____

City, State, & Zip Code: _____

Company Name: _____

Address: _____

City, State, & Zip Code: _____

Company Name: _____

Address: _____

City, State, & Zip Code: _____

FAILURE TO COMPLETE AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE

SECTION 7 DRUG-FREE WORKPLACE AFFIDAVIT

FLORIDA STATE STATUTE 287.087

Identical Tie Bids: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- a) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- b) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
 - 1) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
 - 2) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five days after such conviction.
 - 3) Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
 - 4) Make a good faith effort to continue to maintain a drug-free workplace through the implementation of this section.

SECTION 7

DRUG-FREE WORKPLACE AFFIDAVIT (CONTINUED)

FLORIDA STATE STATUTE 287.087

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

Proposer's Signature

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

**SECTION 8
ANTI-KICKBACK AFFIDAVIT**

STATE OF FLORIDA)
)
COUNTY OF BROWARD) ss:

I, the undersigned, hereby duly sworn, depose and say that no portion of the sum herein proposed, or compensation that may be received as a result of this Proposal, will be paid to any employees of the City of Miramar, its elected officials, and _____ or its design consultants, as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By: _____

Title: _____

Sworn to (or affirmed) and subscribed before me
by means of ☐ **physical presence** or ☐ **online notarization**,
this ____ day of _____, __ (year), by _____.

Notary Public
State of Florida at Large

My commission expires:

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 9

NON-COLLUSIVE AFFIDAVIT

State of _____)
County of _____) ss:

_____, being first duly sworn, deposes and says that:

a) He/she is the _____,
(Owner, Partner, Officer, Representative or Agent) of
_____ the Proposer that has submitted the attached
Proposal;

b) He/she is fully informed respecting the preparation and contents of the attached Proposal and of all pertinent circumstances respecting such Proposal;

c) Such Proposal is genuine and is not collusive or a sham Proposal;

d) Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, have in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Proposer, firm, or person to submit a collusive or sham Proposal in connection with the Work for which the attached Proposal has been submitted; or to refrain from proposing in connection with such Work or have in any manner, directly or indirectly, sought by person to fix the price or prices to be negotiated or that to be negotiated by any other Proposer, or to fix any overhead, profit, or cost elements of the Proposal price to be negotiated or to be negotiated by any other Proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against (Recipient), or any person interested in the proposed Work;

e) The price or prices to be negotiated will be fair and proper and will not be tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Proposer or any other of its agents, representatives, owners, employees or parties in interest, including this affiant.

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 9
NON-COLLUSIVE AFFIDAVIT (CONTINUED)

Signed, sealed and delivered
in the presence of:

Witness

By:_____

Witness

(Printed Name)

(Title)

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 9
NON-COLLUSIVE AFFIDAVIT (CONTINUED)

ACKNOWLEDGMENT

State of _____)
County of _____) ss:

BEFORE ME, the undersigned authority, _____ personally appeared to me and known by me _____ or produced identification _____ to be the person described herein and who executed the foregoing Affidavit and acknowledged to and before me that _____ executed said Affidavit for the purpose therein expressed.

WITNESS my hand and official seal this _____ day of _____, 20____.

Notary Public
State of Florida At Large

My commission expires:

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 10 NON-DISCRIMINATION AFFIDAVIT

I, the undersigned, hereby duly sworn, depose and say that the organization, business or entity represented herein shall not discriminate against any person in its operations, activities or delivery of Services under any agreement it enters into with the City of Miramar. The same shall affirmatively comply with all applicable provisions of federal, state and local equal employment Laws and shall not engage in or commit any discriminatory practice against any person based on race, age, religion, color, gender, sexual orientation, national origin, marital status, physical or mental disability, political affiliation or any other factor which cannot be lawfully used as a basis for Service delivery.

By: _____

Title: _____

Sworn to (or affirmed) and subscribed before me
by means of ☐ physical presence or ☐ online notarization,
this ____ day of _____, __ (year), by _____.

Notary Public
State of Florida at Large

My commission expires:

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 11

BUSINESS/VENDOR PROFILE SURVEY

Name of Business: _____

Address: _____

Phone No.: _____

Email Address: _____

Contact Person (Regarding This Form): _____

Type of Business (check the appropriate type):

- ☐ **CONSTRUCTION SERVICES** - Firms involved in the process of building, altering, repairing, improving or demolishing any structure, building or real property.
- ☐ **ARCHITECTURE AND ENGINEERING (A&E) SERVICES** - Firms involved in architectural design, engineering services, inspections and environmental consulting (materials and soil testing) and surveying.
- ☐ **PROFESSIONAL SERVICES** - Includes those services that require special licensing, educational degrees, and unusually highly specialized expertise.
- ☐ **BUSINESS SERVICES** - Involves any services that are labor intensive and not a construction related or professional service.
- ☐ **COMMODITIES** - Includes all tangible personal property services, including equipment, leases of equipment, printing, food, building materials, office supplies.

Small Business Enterprise (SBE) or a County Business Enterprise (CBE), has a Broward County Business Tax Receipt, is located in, and doing Business in Broward County, and is certified by the Broward County Office of Economic Development and Small Business Development.

Business is claiming the CBE/SBE Preference: Yes_____, No_____

Please attach the Broward County Office of Economic Development and Small Business Development certification to this form.

Business is claiming the Miramar Local Business Preference: Yes_____, No_____

Please attach a copy of a current Miramar Business Tax Receipt to this form.

- ☐ Business is domiciled within City limits, complies with all City licensing requirements and is current on all taxes.
- ☐ Business is located outside of the City and employs a minimum of 10 full time equivalent ("FTE") City residents or City residents constitute 20 percent FTE of the company's local workforce (Broward and Miami-Dade Counties), whichever is larger.

BUSINESS EMPLOYING MIRAMAR RESIDENTS AFFIDAVIT

The completed and signed form must be returned with the Vendor's submittal if the Vendor is claiming the Business Employing Miramar Residents preference.

Vendor: _____

Address: _____

Telephone Number: _____ E-Mail Address: _____

Solicitation No. and Title: _____

By signing below, I hereby certify that Vendor has _____ employees (in the company's local workforce Broward and Miami-Dade Counties), of which _____ are full time equivalent Miramar residents.

Signature

Title

Date

Sworn to (or affirmed) and subscribed before me

by means of ☐ physical presence or ☐ online notarization,
this ____ day of _____, __ (year), by _____.

STATE OF _____

COUNTY OF _____

Notary Public (Sign name of Notary Public)

My commission expires: _____ (SEAL)

Personally Known _____ or Produced Identification _____

Type of Identification Produced _____

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

SECTION 12

PUBLIC ENTITY CRIMES

SWORN STATEMENT PURSUANT TO SECTION §287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES:

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to _____
by _____
for _____
whose business address is _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:

2. I understand that a "public entity crime" as defined in Section §287.133(1)(g), Florida Statutes, means a violation of any state or federal Law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.
3. I understand that "convicted" or "conviction" as defined in Section §283.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.
4. I understand that an "affiliate" as defined in Section §287.133(1)(a), Florida Statutes, means:
- a. A predecessor or successor of a person convicted of a public entity crime;
or
 - b. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another

person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

5. I understand that a "person" as defined in Section §287.133(1)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bids on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement (Indicate which statement applies).

___ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

___ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

___ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list (attach a copy of the final order).

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION §287.017, FLORIDA STATUTES, FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

DATED: _____

BY: _____
(Signature)

NAME: _____
(Print)

TITLE: _____

STATE OF FLORIDA)
) ss:
COUNTY OF BROWARD)

SWORN TO AND SUBSCRIBED before me this _____ day of _____,
20__, by _____, who is personally known to me or has
produced _____ as identification.

Notary Public
State of Florida at Large

My commission expires:

END OF DOCUMENT

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR BID NON-RESPONSIVE**

SECTION 13

Form W-9 (Rev. January 2003) Department of the Treasury Internal Revenue Service	Request for Taxpayer Identification Number and Certification	Give form to the requester. Do not send to the IRS.
--	---	---

Print or type
See Specific Instructions on page 2.

Name	
Business name, if different from above	
Check appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Other ▶	<input type="checkbox"/> Exempt from backup withholding
Address (number, street, and apt. or suite no.)	Requester's name and address (optional) City of Miramar 2300 Civic Center Place Miramar, FL 33025
City, state, and ZIP code	
List account number(s) here (optional)	

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN on page 3.

Note: If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number
<div style="display: flex; justify-content: space-around;"> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> </div>
or
Employer identification number
<div style="display: flex; justify-content: space-around;"> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> <div style="border-bottom: 1px solid black; width: 20px;"></div> </div>

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. person (including a U.S. resident alien).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 4.)

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

Purpose of Form

A person who is required to file an information return with the IRS, must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

U.S. person. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued).
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee.

Note: If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Foreign person. If you are a foreign person, use the appropriate Form W-8 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien.

Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the recipient has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement that specifies the following five items:

- The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
- The treaty article addressing the income.
- The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
- The type and amount of income that qualifies for the exemption from tax.
- Sufficient facts to justify the exemption from tax under the terms of the treaty article.

SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): _____
 Agency Giving Reference: _____
 Contact Person Name: _____
 Address: _____
 Telephone: _____
 E-Mail: _____

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?		
2	How would you rate the firm's quality of work?		
3	How would you rate the experience of the firm's staff?		
4	How would you rate the firm's commitment to the success of the project?		
5	How would you rate how the firm managed it's workload while providing service to your agency?		
6	Would your agency use this firm to provide services again? (Circle One)	YES/ Satisfactory	NO/ Unsatisfactory

Additional Comments: _____

 Signature

 Title

**FAILURE TO COMPLETE AND RETURN THIS FORM MAY
DEEM YOUR PROPOSAL "NON-RESPONSIVE."**

City of Miramar
Public Works Department - Building Maintenance
Municipal Buildings Data

G:\Bids\RFQs\RFQ - Guaranteed Energy\Data-Tables-City Buildings Areas HVAC Cities TC SF- City of Miramar March 2019 (00

[illegible]



Date of Issuance of Addendum: **May 26, 2020**

**CITY OF MIRAMAR
Procurement Department**

ADDENDUM NO. 1

To

**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 1** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 1** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 1** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 1 by including a signed copy of this form in each Proposal.

Due to the COVID-19 PANDEMIC, THE CITY OF MIRAMAR IS CURRENTLY CLOSED TO THE PUBLIC. THE FOLLOWING CHANGES HAVE BEEN MADE TO ACCOMMODATE THE PRE-PROPOSAL CONFERENCE AND SITE VISITS.

**I. THE SOLICITATION TIMETABLE IN SECTION 2-5 OF THE RFQ
HAS BEEN AMENDED AS FOLLOWS:**

RFQ Advertised	Thursday, April 30, 2020
NON-MANDATORY: Pre-Proposal Conference will be held virtually via webex. <i>(Please see updated Webex information below)</i>	Thursday, May 28, 2020 at 10:00 AM
NON-MANDATORY Site Visits by appointment only (Please see instructions below for site visits)	Appointments will be scheduled during one of the following timeframes: Public Works Site Visits: June 1, 2020 9AM -12PM OR June 2, 2020 9AM – 12PM Utilities Site Visits: June 3, 2020 9AM -11 AM OR June 4, 2020 9 AM - 11 AM

Deadline for written questions and requests for information	Tuesday, June 9, 2020
Due Date and Time for this RFQ (<i>Due to COVID-19 Proposal submission instructions will be issued via subsequent Addendum.</i>)	June 30, 2020 at 2:00 P.M.

II. **UPDATED WEBEX INFORMATION FOR PRE-PROPOSAL CONFERENCE ON THURSDAY MAY 28, 2020 AT 10:00 A.M**

Meeting Link:

<https://miramarfl.webex.com/miramarfl/j.php?MTID=md6bf110b16c9b7d12f96aee33e573678>

Join By Phone:

+ 1-415-655-0001 US Toll

Meeting number (access code) 474 471 794

Join from a video system or application

Dial 474471794@miramarfl.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

III. INSTRUCTIONS FOR SITE VISITS

1. Each person that will attend a site visit must complete the Waiver of Liability form and the COVID-19 Questionnaire below. The Questionnaire must be completed the day of the site visit. The Waiver of Liability Form and Questionnaire must be submitted to City staff conducting the site visit before commencement of the visit.
2. Due to COVID-19 and the City's requirements to maintain social distancing there will be a limited number of vendors allowed at each site visit. Each vendor must provide a list of locations / equipment that they would like to see along with any preference for a timeframe shown in the table above by 4:00 PM on Thursday, May 28, 2020. A confirmation will be provided via e-mail for a date and time. Please be reminded also that some of the City's equipment may be visible through Google Earth and the Broward County Property Appraisal's (BCPA) website.
3. Vendors that will attend site visits MUST show up with proper Personal Protective Equipment (PPE) which includes face masks and gloves. The City reserves the right to also take the temperature of each participant on the site visit. Individuals that are not wearing the requested PPE will not be allowed on the site visits.
4. To ensure all vendors are provided with the same information, the site visits will be for viewing purposes only. Only responses to questions and information provided in writing via an addendum will be binding in this RFQ process.

IV. THE FOLLOWING WAIVER OF LIABILITY IS ADDED TO THE SOLICITATION DOCUMENTS AS SECTION 15 AND MUST BE COMPLETED AND SUBMITTED BEFORE THE SITE VISIT.

SECTION 15

CITY OF MIRAMAR RELEASE, WAIVER OF LIABILITY AND ASSUMPTION OF RISK FOR PROJECT SITE VISIT(S)

In consideration of being permitted to enter, visit or tour , The City of Miramar's _____ ("Project Premises") with the property address of _____, for inspection in relation to RFQ No. 20-02-15 for Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services, by signing below the UNDERSIGNED HEREBY:

1. ACKNOWLEDGES THAT THE VISIT TO OR TOUR OF THE PROJECT PREMISES IS POTENTIALLY HAZARDOUS and involves certain risks, including the risks of serious bodily injury, death, and property damage.
2. ASSUMES FULL AND SOLE RESPONSIBILITY FOR BODILY INJURY, DEATH, OR PROPERTY DAMAGE arising out of or related to the visit to or tour of the Project Premises, whether caused by the negligence of the Releasees or otherwise.
3. RELEASES, WAIVES, DISCHARGES, AND COVENANTS NOT TO SUE the City of Miramar ("City"), its officers, officials, agents, and employees ("Releasees"), from and for any and all claims, losses, or damages, and any claims or demands therefore (including, without limitation, legal fees and disbursements) on account of bodily injury, death, or property damage (including the loss therefrom) arising out of, from, or in any manner related or connected to the visit to or tour of the Project Premises or the entry by the UNDERSIGNED upon the Project Premises, whether caused by the negligence of the Releasees or otherwise.
4. AGREES TO ASSUME THE RESPONSIBILITY AND LIABILITY for damage or injury to all persons and to all property, including the loss of use therefrom, arising out of, from, or in any manner connected with the UNDERSIGNED'S entry upon or use of the Project Premises. Notwithstanding any provision or agreement to the contrary, UNDERSIGNED shall defend, indemnify and hold harmless the Releasees against all claims, damages and losses (including without limitation legal fees and disbursements) for injury to persons or damage to property, including the loss of use therefrom, arising out of, from, or in any manner connected with the UNDERSIGNED'S entry upon or occupancy of the Project Premises.
5. AGREES THAT THIS RELEASE, WAIVER OF LIABILITY, AND ASSUMPTION OF RISK EXTENDS TO ALL ACTS OF NEGLIGENCE BY RELEASEES, AND IS INTENDED TO BE AS

BROAD AND INCLUSIVE AS IS PERMITTED BY THE LAWS OF THE STATE OF FLORIDA and that if any portion thereof is invalid, agrees that the balance shall, notwithstanding, continue in full legal force and effect. This Release sets forth all agreements and understandings of UNDERSIGNED with respect to the subject matter hereof.

6. AGREES TO ABIDE by the City's safety policies and procedures, criteria and requirements at the Project Premises, and all safety instructions and directions provided by the City at the Project Premises.

I HAVE READ THIS RELEASE, WAIVER OF LIABILITY, AND ASSUMPTION OF RISK, FULLY UNDERSTAND ITS TERMS, UNDERSTAND THAT I HAVE GIVEN UP SUBSTANTIAL RIGHTS BY SIGNING IT, AND HAVE SIGNED IT FREELY, KNOWINGLY AND VOLUNTARILY WITHOUT ANY INDUCEMENT, ASSURANCE, OR GUARANTEE BEING MADE TO ME AND INTEND MY SIGNATURE TO COMPLETELY AND UNCONDITIONALLY RELEASE ALL LIABILITY TO THE GREATEST EXTENT ALLOWED BY LAW. This document is binding upon me and my family, heirs, children, assigns, personal representatives and anyone with the authority to act on my behalf.

By: _____
Releasor's Signature

Company Name: _____

Print Name: _____

Title: _____

Date: _____

V. AVAILABILITY OF RFQ FORMAT

Please note that the RFQ is available in Word format and Attachment 1 is available in Excel Format. Requests for any part of the RFQ in a format other than the advertised pdf format must be made in writing and it will be provided via email.

In accordance with Section 1-4(a)(1) of the Solicitation, "It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the performance of this Solicitation. Pleas of ignorance by the proposer of conditions that exist or that may exist will not be accepted as a basis for varying the requirements of this solicitation.

ADDENDUM ACKNOWLEDGEMENT

BY: _____
PRINT NAME

SIGNATURE

COMPANY NAME: _____



CITY OF MIRAMAR CORONAVIRUS

EVERYDAY PREVENTATIVE ACTIONS



COMPLETED BY: _____

Date Completed: _____

If a visitor responds YES to any of the questions below,
he/she will be denied entry.

QUESTIONS FOR VISITORS TO CITY FACILITIES:

1. Have you traveled outside of the country in the last 14 days?
2. Have you been around someone who has traveled outside of the country within the last 14 days?
3. Have you been within 6 feet of someone who has the coronavirus?
4. Are you experiencing a cough or shortness of breath?
5. Do you have a fever?
6. Is anyone within your household experiencing these symptoms?



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United States
Census
2020





Date of Issuance of Addendum: **June 25, 2020**

**CITY OF MIRAMAR
Procurement Department**

ADDENDUM NO. 2

To

**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 2** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 2** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 2** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 2 by including a signed

DUE DATE and TIME:

By way of this addendum, all sections of the RFQ that refers to the due date and time shall be changed from June 30, 2020 at 2:00 PM to July 28, 2020 at 2:00 PM.

In accordance with Section 1-4(a)(1) of the Solicitation, "It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the performance of this Solicitation. Pleas of ignorance by the proposer of conditions that exist or that may exist will not be accepted as a basis for varying the requirements of this solicitation.

ADDENDUM ACKNOWLEDGEMENT

BY: _____
PRINT NAME

SIGNATURE

COMPANY NAME: _____



Date of Issuance of Addendum: July 2, 2020

CITY OF MIRAMAR
Procurement Department
ADDENDUM NO. 3

To

**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 3** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 3** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 3** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 3 by including a signed copy of this form in each Proposal.

A. QUESTIONS AND ANSWERS:

1. What is the age and condition of the anaerobic digestion equipment including the covers, boiler, heat exchanger, and gas safety equipment?

ANSWER: The Anaerobic digesters and equipment are 24 years old. All of the equipment is at the point of its life expectancy.

2. Please provide a hydraulic profile of the plant.

ANSWER: The City has available the hydraulic profile of the plant in 2009. Please see Attachment 1.

3. What is the age and type and materials of diffused aeration equipment in the aeration tanks?

ANSWER: All of the header is original since 1996. In 2010, all of the fine ceramic bubbler diffusers were replaced. (Sanitare) is the manufacturer of the diffusers.

4. What is the age, type, HP, voltage, design air flow capacity and discharge pressure of the aeration blowers?

ANSWER: Blowers 1-3 original equipment installed in 1996 and Blowers 4 and 5 installed in 2009. Please review Attachment 2 (Aeration Blowers) for detailed information.

5. What is the sludge age or MCRT of the activated sludge process?
ANSWER: Sludge age or MCRT averages between 4 to 5 days.
6. What is the number, type, condition and age of the sludge dewatering equipment in use at the plant?
ANSWER: There are (2) GBT's and (2) BFP's which are 24 years old They were just recently refurbished between the latter part of 2018 and completed in December of 2019. All of the units are showing the sign of age. See attached design data for both see Attachment 3 (Belt Filter Press) and Attachment 4 (Gravity Belt Thickeners).
7. Is there a stated SBE/CBE goal for the project? Do subcontractors and subconsultants qualify for the 5% SBE/CBE proposal ranking preference? What list of SBE/CBE firms does the city utilize?
ANSWER: See items 2 and 3 of this addendum. There will be no preference points applied for SBE/CBE.
8. In Article 3 of the proposed Agreement, please explain how a fiduciary duty would be expected or applied to a City-Contractor relationship.
ANSWER: Please refer to Article 3, item 3.1 for additional clarification.
9. The proposed Agreement appears to be for consulting services and does not include typical construction terms that are normally included in the contract for construction. Is it more appropriate to provide a design-build construction contract instead of a contract for consulting services?
ANSWER: Contract terms and conditions will be revised and negotiated with the Successful proposer as necessary.
10. The City requests a limitation of liability in the Agreement equal to the amount of the fee paid to the energy savings performance contractor. Will the City provide and equal limitation of liability to the energy savings performance contractor that is equal to the project cost?
ANSWER: No
11. The proposed Agreement includes a request for a four year warranty and guarantee against design errors and omissions including replacement of defective work. On what design basis does the City prove that errors and omissions exist in the design and determine that any work is defective?
ANSWER: As construction commences and the project progresses, should the contractor realize any deficiencies in the scope of work that attribute directly to the design, the contractor will notify the City and then the City will file a claim against the error & omission clause accordingly.

12. Do we need to provide a bonding capacity letter as part of the response?

ANSWER: No. The City may require a payment and performance bond which will be negotiated with the successful proposer.

13. Section 1-11 includes the following statement which seems to state that submitted materials for this RFQ response would be made immediately available for public records requests:

Proposers are provided with notice that all information submitted as part of or in support of Proposals will be available for public inspection after opening of the Proposals, in compliance with Chapter 119, Florida Statutes, popularly known as the "Public Records Law". Any person wishing to view the Proposals must make an appointment with the City's Clerk.

Generally, written RFQ submittals are not made available for public review until the conclusion of the cone of silence to help protect the competitive process. For example, short listed companies invited to participate in team interviews, would not be allowed to have access to the submitted materials of the other shortlisted companies in advance of the interviews. Can the City clarify if respondents' submitted responses will be held confidential through the selection process?

ANSWER: The City follows the requirements of Florida Statute 119 for all public records requests (see Section 119.071(2)).

14. Can the city please provide your electric bill history for the previous 12 months.

ANSWER: Please see Attachment 13

15. Can the city please provide your natural gas bill history for the previous 12 months.

ANSWER: Please see Attachment 14

16. Can the city please provide your water bill history for the previous 12 months.

ANSWER: Please see Attachment 15

17. If not providing utility billing data, which buildings utilize natural gas?

ANSWER: None.

18. Are streetlights owned and operated by City?

ANSWER: Streetlights owned and operated by FPL are approximately 3,177+/-; owned and operated by Broward County are approximately 67+/-; owned by FDOT and operated by City are approximately 309+/-; and owned and operated by the City of Miramar are approximately 479+/-.

19. Are all the facilities viewable from a common BMS front end? If yes what system?
ANSWER: 5 facilities are controlled by City's Trane Ensemble BMS, and 16 by the City's Niagara/Distech BMS
20. Is any of the BMS equipment maintained by a third party? If yes please provide copies of agreements.
ANSWER: Yes, the Trane Ensemble BMS by Trane
21. Is any of the HVAC equipment maintained by a third party? If yes please provide copies of agreements.
ANSWER: Please refer to the Attachment 5 (AC Maintenance) and Attachment 6 (Blizzard AC Maintenance).
22. Two natural gas meters were found outside the Multicultural Center building labeled "boiler".
- a. Does this building have boilers?
ANSWER: No
 - b. If so, what are they used for?
ANSWER: Cooking
 - c. What other systems at the facility if any are utilizing natural gas?
ANSWER: No
23. Does the city use reclaimed water for all irrigation? If not what other water sources are used?

ANSWER: The City has been using the reclaimed water for irrigation where it is available. The Wastewater Reclamation Facility is currently undergoing an expansion so it can eventually produce 7.5 MGD reclaimed water.
24. Please briefly describe the City's irrigation controls.
ANSWER: The City follows the SFWMD guidance on irrigation rules.
25. Request for utility consumption data, which I am told has already been requested by other firms.
ANSWER: Please refer to question no.39.
26. SBE/CBE – The first phase of the project is the Audit phase which we conduct with our in-house engineering staff. However, it is our intent to maximize SBE/CBE participation during the implementation phase; how should we best reflect this in the RFQ to maximize our Local Business score?
ANSWER: Please see items # 2 and 3 of this addendum.

27. Paragraph 2.3.3 states that the selected firm will “conduct analysis of proposed energy, water and wastewater conservation measures, and their costs, savings and benefits.” For clarity, can you confirm that it is the intent of the City to move forward with implementation of approved conservation measures with the selected firm, and after the Investment Grade Audit?

ANSWER: Confirmed.

28. Allow us to request a review of documentation submitted by external entities in support of this RFQ.

ANSWER: The City conducted market research to determine the feasibility of this project. An appointment can be made with the Procurement Contact to view documentation.

29. Regarding the City’s RFQ No. 20-04-10, please elaborate on the dynamics of these two RFQs.

ANSWER: RFQ is for 20-04-10 is for Renewable Energy, the project only include the Utilities Department and the City absorbs the cost for that project.

30. Due to the current COVID 19 pandemic, we are working remotely among some of our staff, as well as our clients (who are required to fill out and sign the Reference Questionnaire form), are true “wet” signatures required for the original copy requested in the RFQ, or will electronic signatures suffice?

ANSWER: The City will accept electronic signatures

31. The City has indicated that 5 points will be awarded for a CBE/SBE firm submitting on this RFQ; however, this appears to conflict with Sec2-455b of the City Code says that the CBE/SBE provision shall not apply to professional services procured pursuant to CCNA, which is true for this RFQ. Is the City going to revise the points system for this RFQ to be compliant with City Code?

ANSWER: By way of this addendum, all references to Preference Points shall be removed and not applied (See revised Evaluation Criteria in item # 3 of this addendum.

32. We would like to request membrane pilot tests and operational data for the membrane performance at the West Water Plant.

ANSWER: There is no membrane pilot tests. However, for the operational data for both East and West WTPs, please refer to question no.39 (MOR reports).

33. The City of Miramar Utilities Department has previously contracted for professional services with engineering consulting firms, who are/is also an ESCO, to perform plant evaluations of system improvements including evaluation and recommendations of possible energy savings methodologies. Will these firms be permitted to respond to this RFQ?

ANSWER: The RFQ is open to the public and all eligible firms are welcomed to submit their proposals.

34. In addition to the firms that attended the site visits with us today, can you please advise which other firms have attended the site visits?

ANSWER: The following firms attended site visits: Wharton-Smith, Inc., Trane, Energy Systems Group, Siemens Industry, AECOM, Ameresco, Honeywell, Ardurra, Garth Solutions, Inc.

35. What is the current status of the AMI water meter replacement plan? Will the ongoing AMI program part of the Guaranteed Energy Savings Performance Contract?

ANSWER: AMI water meter replacement is an ongoing CIP project. We do not expect the AMI program is part of this contract but will be open to ideas that can prove to be valuable to the City.

36. What is the current status of the LED streetlight conversion plans? Will the City-owned Street lights be part of the Guaranteed Energy Savings Performance Contract?

ANSWER: The LED streetlight conversion plans are going forward and will be a part of the Guaranteed Energy Savings Performance Contract.

37. Can you provide Utility expenditures for all major buildings and Utilities?

ANSWER: Please refer to question no.39.

38. Will Consulting/Engineering firms that have done business or are currently under contract with City of Miramar Utilities be permitted to submit a proposal response as the Prime ESCO Contractor?

ANSWER: Yes.

39. We would like to request the following information in advance of Thursday's Pre-proposal conference and site visits.

- List of the City plants and type

ANSWER: Wastewater Reclamation Facility (WWRF), West Water Treatment Plant (West WTP), East Water Treatment Plant (East WTP)

- Plant layouts, treatment processes, dimensions, capacities

ANSWER: WWRF-please refer to Attachment 7 - 2017 CAR Report_WWRF.pdf. For East WTP, please refer to Attachment 8 - East WTP Flow Diagram.pdf. The flow diagram for West WTP is currently being developed and not available at this time. However, the City will be able to provide more information if specific items are requested.

- Energy usage at each plant

ANSWER: Please refer to Attachment 9 -FPL Energy Reports

- Flows at each plant

ANSWER: Permitted capacity: WWRF-12.7MGD, West WTP-11.75 MGD, East WTP-6 MGD

- Permits

ANSWER: Please refer to Attachment 10 for WWRF permit. No detailed operation permits both East and West WTPs as confirmed by FDEP and Chief Operators.

- Monthly Reports

ANSWER: Please refer to Attachment 11 for the Membrane Softening Water Treatment Plant Monthly Operations Report ("MOR") for both East and West WTP and Attachment 12 – Department Monthly Report ("DMR") for WWRF. (Please note Attachment 11 and Attachment 12 are available in Excel format upon request).

- Chemical dosing and usage

ANSWER: Please refer to Attachment 11 MOR and Attachment 12 DMR

- Inflow and outflows water chemistry

ANSWER: Please refer to Attachment 11 MOR and Attachment 12 DMR

40. Can you please provide Attachment 1 – Inventory List in excel format?

ANSWER: Yes, requests for documentation in word of excel format must be made in writing to the Procurement contact listed in the RFQ.

41. Can I use a drone to take pictures?

ANSWER: The City prefers the use of Broward County Aerial photos and photos that were taken during site visits.

2. PARTICIPATION PLAN FOR THE PROJECT

The City requires a minimum of 10% of services to be performed by a CBE, SBE, and/or Local (Miramar) Business.

Proposers shall submit an Assurance Statement on company letterhead, signed by an authorized representative, affirming that company will comply with the City's non-discrimination policies, acknowledging the percentage requirements established for this Project, and agree to provide a good faith effort to solicit approved Broward County Office of Economic and Small Business Development firms or Local Businesses (businesses within Miramar) to achieve the Project Plan stated above.

The Project will be monitored throughout the Contract term and monthly utilization reports will be required to demonstrate compliance with Project goals in this regard. Contract penalties will be assessed for non-compliance. Submittals received without the required Assurance Statement may be considered Non-Responsive.

3. By way of this addendum, Section 2-11 of the RFQ is amended as follows:

2-11 EVALUATION CRITERIA

A. Following the closing of the Solicitation, the Proposals will be evaluated by an evaluation committee appointed by the City. The evaluation committee may be comprised of any combination of City personnel and representatives selected by the City with the appropriate experience and/or knowledge to ensure that the committee is well balanced. The scoring of Proposals is based on a point total and not a percentage factor.

B. The evaluation committee will first evaluate, score and rank responsive Proposals based on the criteria listed below. The criteria are itemized with their respective weights for a maximum total of 100 points. A Proposer may receive the maximum points, a portion of this score, or no points at all, depending upon the merits of the Proposal as judged by the evaluation committee. A Proposal that fails to adequately show the qualifications and experience necessary for this Project shall be deemed "Non-Responsive" and will not be considered.

C. The evaluation committee reserves the right, but is not obligated, to require oral presentations from one or more of the Proposers, either before or after the initial ranking, and shall have the option to short-list and re-rank after the receipt of additional information from such presentations, follow-up questions and answers, on-site Proposer demonstrations, reference checks or site visits.

Criteria	Points
1. Consultant's background, qualifications, credentials and in-house expertise, factoring in the proposed Proposer team's current workload and experience working together on similar energy performance projects. Provide details regarding three similar municipal projects performed by Proposer	30
2. Staff experience and resumes of team's personnel, including assigned Project manager's experience	15
3. Ability to finance project and methodology of finance plan for guarantee savings to the City	25
4. Understanding of the Project, technical approach, Commitment and innovation to project success	20
5. Participation Plan for the Project	10
TOTAL	100

ADDENDUM ACKNOWLEDGEMENT

BY: _____
PRINT NAME SIGNATURE

COMPANY NAME: _____



Date of Issuance of Addendum: **July 13, 2020**

**CITY OF MIRAMAR
Procurement Department**

ADDENDUM NO. 4

To

**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 4** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 4** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 4** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 4 by including a signed copy of this form in each Proposal.

PROPOSAL SUBMITTAL:

In an effort to lessen contact due to the COVID-19 PANDEMIC , all Proposals in response to this RFQ must be submitted electronically to the City's secured e-mail address at bids@miramarfl.gov and must not be delivered to the City Clerk's Office.

The subject of the e-mail must be entitled as follows when submitting the proposal:

"RFQ 20-02-15 – ("Company's Name")"

Please note that an automatic confirmation e-mail will be sent for files received.

In accordance with Section 1-4(a)(1) of the Solicitation, "It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the performance of this Solicitation. Pleas of ignorance by the proposer of conditions that exist or that may exist will not be accepted as a basis for varying the requirements of this solicitation.

ADDENDUM ACKNOWLEDGEMENT

BY: _____
PRINT NAME

SIGNATURE

COMPANY NAME: _____

Score Sheet
RFQ 20-02-15
Guaranteed Energy, Water and Wastewater Performance Savings
Contracting Services

Rank	Vendor Name	Total Score
1	Siemens Industry, Inc.	487.00
2	Honeywell International, Inc.	483.00
3	Energy Systems Group	482.00
4	Schneider Electric	480.00
5	Ameresco, Inc.	479.00
6	ABM Building Solutions, LLC	477.00
6	AECOM Technical Services	477.00
6	Trane U.S. Inc	477.00



Submitted by: Siemens Industry, Inc.

City of Miramar

Guaranteed Energy, Water, and Wastewater
Performance Savings Contracting Services
RFQ #20-02-15

July 28, 2020



SIEMENS

Industry

City of Miramar
2300 Civic Center Place
Miramar, FL 33025

RE: RFQ# 20-02-15, Guaranteed Energy, Water and Wastewater Performance Savings Contracting Services

Dear Selection Committee Member:

Thank you and the City of Miramar for inviting Siemens to participate in the City of Miramar's Request for Qualifications for Guaranteed Energy, Water and Wastewater Performance Savings Contracting Services. Siemens and our esteemed team members are pleased to submit this response.

Using the City's "Comprehensive Assessment of Revenue and Expenses" (C.A.R.E.) program as guidance, the Siemens team has developed a targeted approach and established a project team focused on achieving the overall goals and objectives for the City. In the pages that follow we will demonstrate why the Siemens team possesses the resources, industry experience, local knowledge, and customer commitment to assure this project's success.

Siemens Team

Siemens took great care in building a team of thoughtful, experienced, diverse and knowledgeable firms familiar with the City and the constituents it serves. Members of the Siemens Team include:

Siemens, Market leading Performance Contracting firm in FL and Prime Contractor for the project
Hazen and Sawyer, Utilities engineering consultant, evaluation and design of work at the utility plants
Hammond & Associates (CBE), Consulting Engineers, provide MEP design services
Saltz Michelson Architects (CBE), Planning and architectural design services
Advanced Green Technologies South Florida's leading designer and installer of Solar PV
Anthony Brunson, PA (CBE), Project financial analysis and auditing
Dickey Consulting Services (CBE), Economic development, community outreach, and strategic planning
Minority Builders Coalition, Expand inclusion of MBE subcontractors to bid work

Knowledge & Experience

Siemens has been providing Guarantee Energy Performance Contracting services in FL for over twenty-five years and is the leader in the State. We have worked with many of your peer entities including Hallandale Beach, Broward County, Deerfield Beach, Pompano Beach, and FAU. Our subconsultant partners also play a critical role our team's experience. Look no further than Hazen and Sawyer who has been working with the Miramar Utilities Department for over twenty-five years. Our team of experts have the technical experience and local knowledge to provide the City of Miramar with a custom-tailored project that will benefit the City and your constituents. Our collective local knowledge provides unique insights reducing development time and cost while delivering solutions precisely matched to the City's needs. To learn more about our team's experience and capabilities, please see Section L Key Personnel and Subcontractors or Subconsultants.

Innovation

Siemens is leading the way to the future for Cities from smart energy efficient buildings to advanced utility systems and process to distributed energy systems. In fiscal 2019, Siemens spent over \$1.5 Billion on R&D.

Siemens Industry, Inc.

3021 Commerce Pkwy
Miramar, FL, 33025
USA

Tel: +1 954 364-6600
Fax: +1 954 364-6767

SIEMENS

Industry

In total, Siemens holds more than 68,000 issued patents. Siemens' commitment to innovation allows us to offer the broadest and most effective portfolio in energy and operational savings solutions in the industry. To see what innovative ideas we have planned for the City of Miramar allow me to direct you to section A-2 Observations and Opportunities for the City of Miramar. **This section describes 50 Miramar-specific concepts which offer considerable value to the City.** Additional concepts will be developed should we be fortunate enough to be selected as your partner. Please review these ideas as an example of the range of innovative thinking we are prepared to engage in with your team.

Dependability

Founded in 1847, we have been committed to the business of energy management and energy efficiency since shortly after our founding. Siemens has grown to a \$100B per year revenue company and has a Moody's A1 credit rating, the highest among our major competitors. Our financial strength and industry commitment gives the City the confidence that Siemens will be around to fulfill our end of the partnership. Siemens has been a member of the Miramar business community for over 25 years, with an office at 3021 N. Commerce Parkway, Miramar, FL 33025 and we employ over 200 people at this location. In an era of seemingly constant mergers and acquisitions, you can be confident that Siemens with our longevity and strong balance sheet will see this project through. Additionally, it is important to consider the long history our team members have with the City. Hazen and Sawyer has been the Engineer of Record with the City for over twenty-five years, and Hamond and Associates have served as MEP designers for several Miramar facilities. You can learn more about how our financial strength helps to protect the City's risk in Section D – iii and Section H.

Community Enrichment

Siemens was founded by an entrepreneur who believed that technology is a tool to advance the common good. Our Business to Society platform is the modern embodiment of that unique ideal. Siemens Value Map includes: Strengthening the economy, developing jobs and skills, driving innovation, sustaining the environment, improving quality of life, and securing our future.

"A company must contribute to prosperity and progress in society – not just for the short term, but sustainably, for the benefit of future generations. We call that Business to Society"

- Joe Keaser, President CEO Siemens AG.

Siemens is committed to enriching the Miramar community as part of our partnership with the City. Promoting economic development through inclusion of local businesses as subcontractors and subconsultants. Working with City to develop and fund programs that promote Miramar's core values such as workforce development, resiliency and sustainability. Please see Section D - iv Social Responsibility to learn more about our proposed enrichment programs for the City.

Sincerely,



Bryan Reardon
Siemens Smart Infrastructure

Siemens Industry, Inc.

3021 Commerce Pkwy
Miramar, FL, 33025
USA

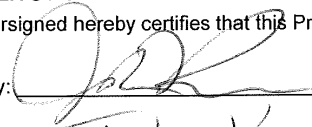
Tel: +1 954 364-6800
Fax: +1 954 364-6767

i) Cover Page

i) Cover Page

The form entitled "PROPOSAL COVER PAGE" (SECTION 4) is to be used as the cover page for the Qualification Proposal. This form must be fully completed and signed by an authorized officer of the Proposer.

SECTION 4 PROPOSAL COVER SHEET – RFQ #20-02-15

PROPOSER'S NAME (Name of firm, entity, or organization): Siemens Industry, Inc., Smart Infrastructure	
FEDERAL EMPLOYER IDENTIFICATION NUMBER: 13-2762488	
NAME AND TITLE OF PROPOSER'S CONTACT PERSON:	
Name: Bryan Reardon	Title: Account Executive, City Infrastructure
MAILING ADDRESS:	
Street Address: 3021 North Commerce Parkway	
City, State, Zip: Miramar, FL 33025	
TELEPHONE: (727) 512-2220	FAX: () Email: bryan.reardon@siemens.com
PROPOSER'S ORGANIZATION STRUCTURE:	
<input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Proprietorship <input type="checkbox"/> Joint Venture <input type="checkbox"/> Other (explain):	
IF CORPORATION:	
Date Incorporated/Organized: November 28, 1972	
State of Incorporation/Organization: Delaware	
States registered in as foreign Corporation: N/A	
PROPOSER'S SERVICES OR BUSINESS ACTIVITIES OTHER THAN WHAT THIS SOLICITATION REQUESTS:	
Building Automation, Mechanical Services, Electrical Services, Distributed Energy Services, Smart Grid and Micro Grid Solutions, Enlighted Building IoT Platform, Real-time Energy Management, Fire and Security, Smart Building Commissioning, Air IQ (mechanical services for airborne contaminants), Siemens Financial Services, Battery Storage, Product Lifecycle Management Software, Wind Energy Generation, Mobility (streetlights, traffic signalization, e-mobility solutions, rail systems), Smart Cities & IOT Consulting, Cyber Security Consulting, Mindsphere IoT Platform	
LIST NAMES OF PROPOSER'S SUBCONTRACTORS AND/OR SUBCONSULTANTS FOR THIS PROJECT:	
Hazen and Sawyer Hammond & Associates Engineering Dickey Consulting Services Broward County Minority Builders Coalition, Inc. Saltz Michelson Architects Anthony Brunson P.A. Advanced Green Technology	
PROPOSER'S AUTHORIZED SIGNATURE:	
The undersigned hereby certifies that this Proposal is submitted in response to this Solicitation.	
Signed by: 	Date: 6/23/20
Print name: John Kovach	Title: VP, EPS

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

ii) Table of Contents

ii) Table of Contents

The Table of Contents should outline in sequential order the major areas of the Proposal. All pages of the Proposal, including enclosures, must be clearly and consecutively numbered and correspond to the Table of Contents.

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Financial Statement Excerpts

Subcontractor and Subconsultant Profiles



iii) Executive Summary

Siemens Industry, Inc.

iii) Executive Summary

Each Proposer shall provide a brief summary describing the Proposer's ability to perform Work requested in this Solicitation; a history of the Proposer's background and experience providing services; the qualifications of the Proposer's personnel to be assigned to this Project; the Subcontractors, Subconsultants, and/or Suppliers (if any) and a brief history of their background and experience, and any other information called for by this Solicitation that the Proposer deems relevant. This summary should be brief and concise to apprise the reader of the experience and qualifications of the Proposer, staff, Subcontractors, Subconsultants, and/or Suppliers (if any).

We understand the City's goal to successfully implement energy, water and wastewater efficiency projects that build upon the work of the City's **Comprehensive Assessment of Revenues & Expenses (C.A.R.E.)** Initiative. This performance contracting solution will allow the City to address critical facility and infrastructure needs and budgetary challenges through an integrated approach that includes customized design, implementation of leading technologies, and innovative financing. The guaranteed energy, water, and wastewater savings performance contract being contemplated as part of the RFQ, represents an extraordinary opportunity for the Siemens team to help further the City's vision while adhering to the key principles of the C.A.R.E Program:

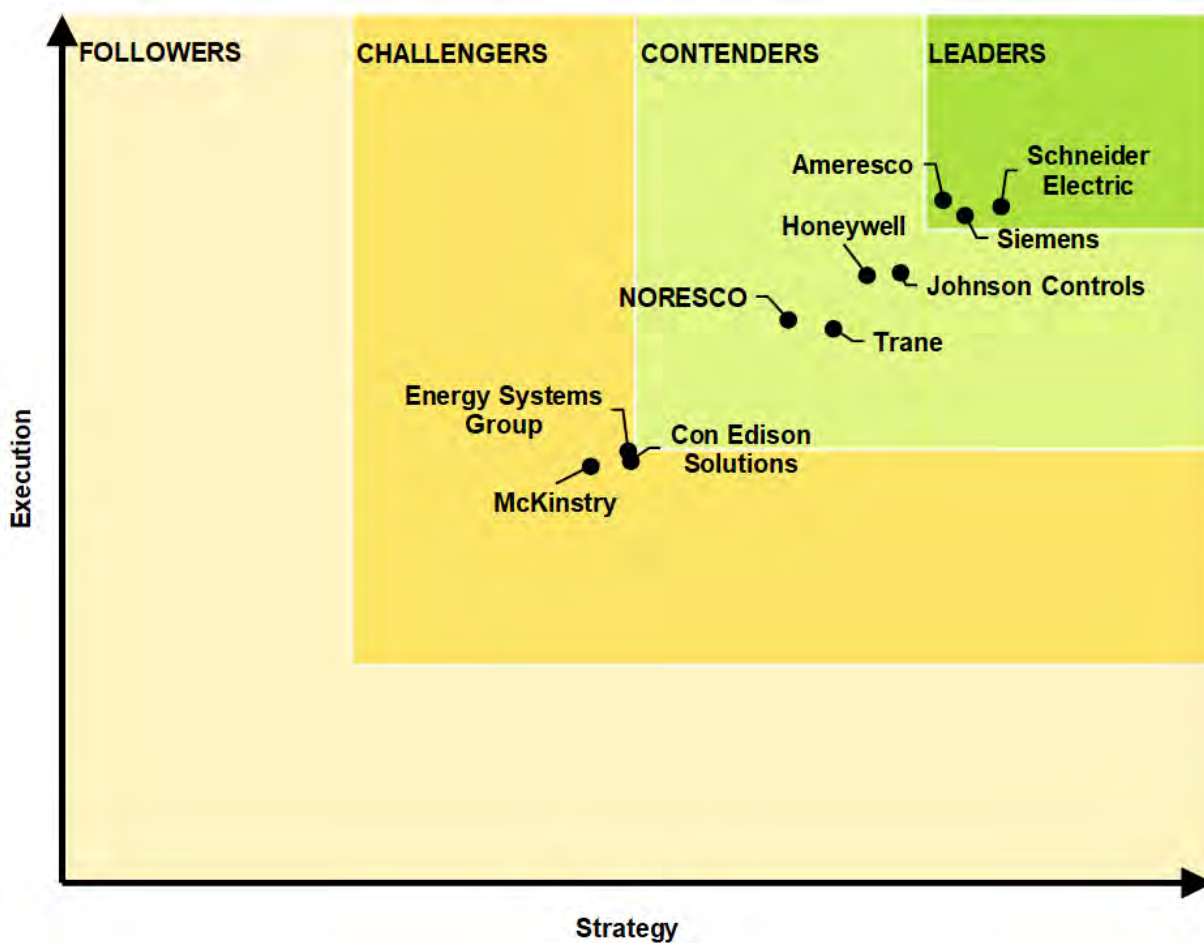
CARE Principle	How Siemens will help
Workplace Efficiency	Siemens integrates City staff development and technical training courses at our Miramar based regional training center as part of the City's guaranteed savings project.
Expenditures	Siemens offers the broadest portfolio of guaranteed savings solutions that allows us to deliver the greatest available reduction of energy, operational, and capital expenditures.
Revenues	Identified chiller plant expansion measure creates an opportunity to generate additional revenues by providing chilled water services to City Center Plaza retail and residential tenants.
Public Private Partnership	Siemens has a suite of creative financing options including Siemens direct financing and "as a Service" agreements that allow for delivering this project within a true P3 structure.
Grants Program	Siemens Empower grant offers funding and resource support for workforce development, STEM education, and community wide sustainability programs.
Reserves	The Siemens team includes a public accounting subconsultant to provide detailed financial analysis of the proposed project including modeling how cost savings and capital avoidance can be leveraged to increase reserve funds.
Volunteer Program	Siemens has a culture of enriching the communities that we serve. As a local employer with over 200 employees we can coordinate our corporate volunteer efforts to align with and provide resource support for City volunteer programs.
Energy Policy	To maximize your project savings, Siemens' digital performance assurance tools will trend critical KPIs for each of the City's facilities to track progress towards energy benchmark goals.
Conservation Policy	Siemens can deploy our City Performance Tool to benchmark community wide carbon footprints and prioritize potential sustainability initiatives based on cost effectiveness and overall environmental impact.
Capital Improvement Plan	The Siemens team includes subconsultants like Hazen and Sawyer who have worked with the City for decades. Their experience provides additional insight to assure that project scope is aligned to also address the City's highest capital improvement priorities.

Siemens takes pride in the fact that our projects have provided long term value for our clients. Creating technical solutions to modernize critical systems improving operations and supporting long term resiliency and sustainability. We partner with our clients to benefit the broader community through public engagement and local economic and workforce development.

LEADERSHIP, STRENGTH & STABILITY, PROVEN PROCESSES, LOCAL TEAM & KNOWLEDGE

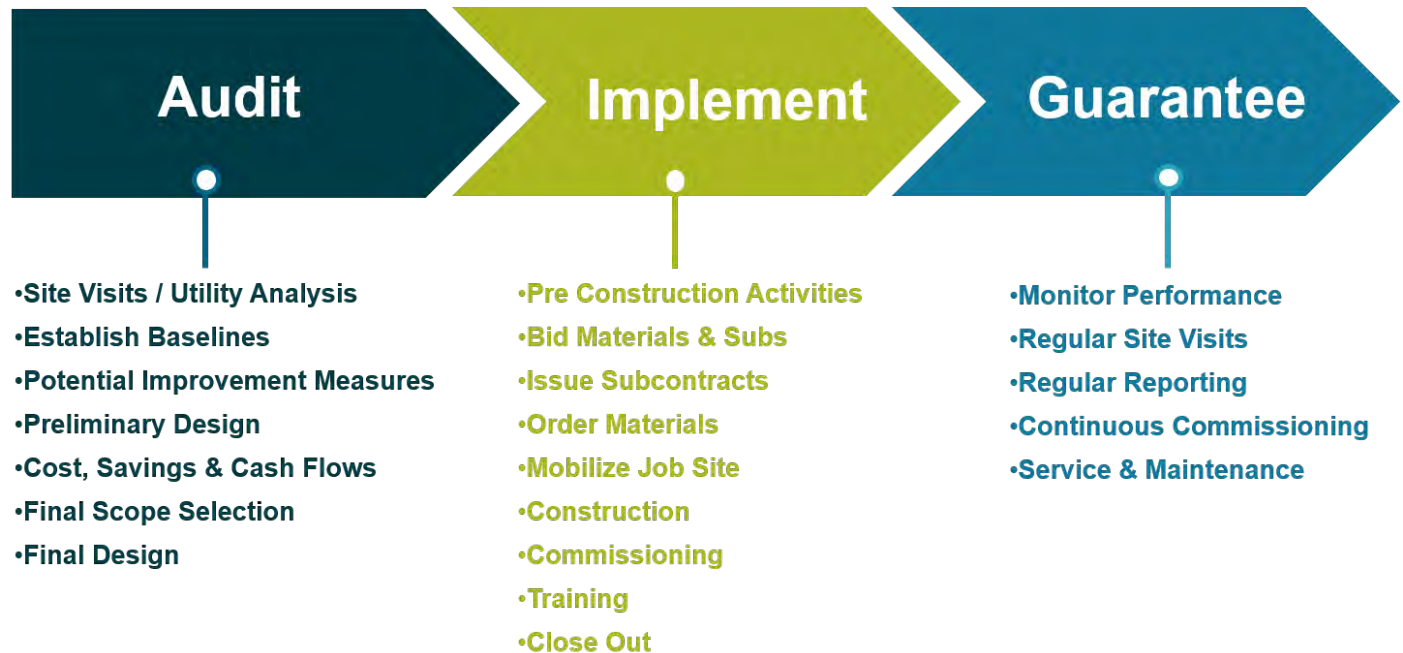
Ability to Perform Work in this solicitation

Siemens works with communities of all sizes to identify solutions that help make existing resources more efficient, while identifying financing and structuring performance guarantees that help them remain a viable, sustainable community that positively impacts the economy and environment. As an industry leader in energy services and performance contracting for over 25 years, we were recently recognized as best in class for both strategy and execution by analyst Guidehouse (Navigant), see their Energy Services Company (ESCO) Leaderboard (May 2020) below:



Proven Process for Success

Siemens' vision is to provide global leadership in energy resource management by delivering world-class product innovation and sustainable building performance. We help our customers reduce their energy costs, ensure infrastructure reliability and improve building quality through our comprehensive energy programs which include a wide range of customized services and solutions. With over two decades of developing and implementing successful performance contracting projects, Siemens has developed a set of proven processes to manage each and every step of the project:



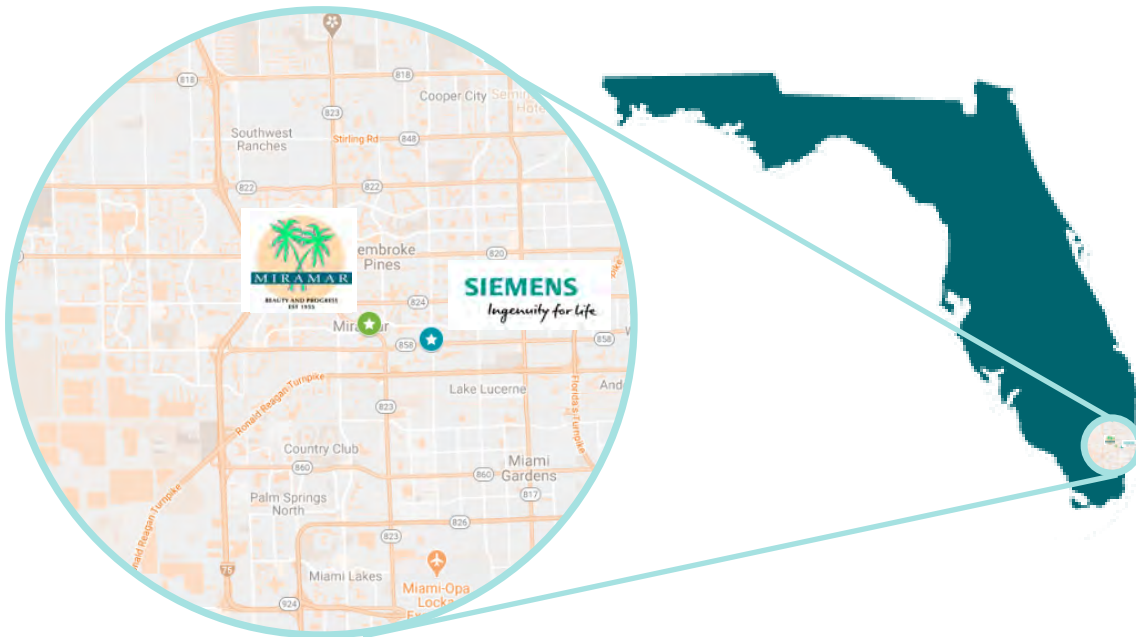
Modernizing your community's infrastructure is a key step in achieving Miramar's vision. Our smart infrastructure solutions go beyond lighting and HVAC retrofits and help make your systems and operations smarter, sustainable, and resilient. Within the sections of this proposal we are very pleased to outline our holistic energy solutions strategy to design, fund and implement a project that will revitalize the City of Miramar's Facilities and Utility Infrastructure while meeting your vision of a sustainable, technology-rich future for the City.

Strong Financial Foundation

In fiscal year 2019 Siemens generated revenues of **\$98.5 billion** and a net income of **\$6.35 billion**. Our credit rating is the highest among all ESCOs. This means that even in uncertain economic times such as these you can be assured that Siemens will weather the storm. Performance contract terms can be up to 20 years, having a financially sound partner is an absolute must. Additionally, a strong financial partner means the City gets the broadest choice of financing options and the lowest cost of project funding. Banks and other lenders know that Siemens will be around to take care of the City and therefore assign less risk to projects done with Siemens than our competitors and the result; lower interest rates. **We also offer unique and low-cost first party financing options through Siemens Financial Services.**

Local Business with Local Knowledge

Our local headquarters in Miramar (3021 N. Commerce Parkway, Miramar, FL 33025) with over 200 employees makes it particularly convenient to provide top notch service to the City. Our Miramar office offers service 7 days week 24 hours a day. Our local technicians provide service on building automation, mechanical, fire safety, and security systems. Our service organization uniquely positions us to become a valued lifecycle partner for the City of Miramar. In addition to offering instantly available resources, the Miramar office is one of Siemens' regional training centers, allowing us to also provide continuous training programs to keep your staff at the top of their game.



Siemens Miramar office is less than two miles from Miramar City Hall

Our team's local knowledge advantage doesn't end with Siemens. We have hand selected a team of subconsultants who are each local leaders in their fields of expertise. Partners like Hazen and Sawyer, who has provided trusted engineering solutions to the City's utility team for over 25 years, and Hammond Engineering who has provided MEP design services for several city facilities. Along with our other subconsultant professionals, their addition to the team brings us a detailed understanding of the City's assets and the best solutions to meet Miramar's needs.

As part of our preparation of this response, Siemens and Hazen took great care to collect and review available information on the City's facility and utility plants. Through these efforts, we have developed an extensive list of general observations and specific improvement measure suggestions. Although not an exhaustive list, these writeups are intended to demonstrate the level of investment that our team is committed to making and the potential benefits that the city can realize from a performance contracting partnership with Siemens. **Our team identified over 50 potential improvement measures that are summarized on the following page and detailed in Section A-2 of this response.**

City Buildings

- ✓ LED Lighting
- ✓ HVAC Replacements
- ✓ Pumps & Drives
- ✓ Pool Geothermal
- ✓ Water Conservation
- ✓ Building Envelope
- ✓ Enlighted Internet of Things (IoT) Building Platform
- ✓ HVAC & Controls Retro Commissioning
- ✓ Digital Facility Management & Energy Analytics Platform
- ✓ Central Chiller Plant Expansion
- ✓ Distributed Solar Photo Voltaic & EV Charging Sytems
- ✓ LED Street Lighting



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West Water Treatment Plant

- ✓ Bypass degasifier
- ✓ Turn off degasifier blowers
- ✓ Reduce second stage permeate backpressure
- ✓ Interstage boost pumping
- ✓ Reduce concentrate flow throttling
- ✓ Increase energy recovery efficiency
- ✓ Replace nanofiltration membranes
- ✓ Evaluate reverse osmosis membranes
- ✓ Replace or de-stage the nanofiltration feed pumps
- ✓ Optimize pump efficiency
- ✓ Optimize blower efficiency
- ✓ Lower electric bill through procurement and demand management



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East Water Treatment Plant

- ✓ Turn off a blower and still maintain alkalinity
- ✓ Consider pretreatment pH control
- ✓ Test alternative scale inhibitors
- ✓ Develop a membrane cleaning plan
- ✓ Optimize pump efficiency
- ✓ Operate inline or with inline boosting in the distribution system
- ✓ Optimize pump efficiency at the remote pump station
- ✓ Use hydraulic model to optimize distribution system operations
- ✓ Lower electric bill through procurement and demand management



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Wastewater Reclamation Plant

- ✓ Consider biological trickling filters for odor control
- ✓ Consider activated sludge diffusion for odor control
- ✓ Optimize aeration process and blower efficiency
- ✓ Implement airflow-based control and most open valve
- ✓ Upgrade aeration control and diffusers
- ✓ Simultaneous nitrification and denitrification
- ✓ Consider activated sludge densification
- ✓ Optimize RAS flow rates and RAS and WAS efficiency
- ✓ Optimize process pump efficiency
- ✓ Evaluate existing digesters and biogas utilization
- ✓ Pretreat WAS to increase digester capacity and biogas production
- ✓ Optimize existing belt filter presses
- ✓ Replace belt filter presses with high-solids centrifuges
- ✓ Optimize existing gravity belt thickeners
- ✓ Retrofit the existing Dynasand filters with EcoWash
- ✓ Lower electric bill through procurement and demand management



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APPROACH TO PRICING AND COST CONTROLS

Siemens has extensive experience in working with public sector clients to develop cost effective and highly successful performance contracting projects for our customers. Our approach to pricing is to negotiate fairly and openly with our customers as part of the project development process so that we can deliver the best possible project while maximizing value and return for the City of Miramar.

Siemens establishes pricing based on the actual cost required to deliver the project plus a reasonable return. Unlike some of our competitors, Siemens does not seek to “pad” or maximize the project price simply because it can be supported by achieved savings. We believe that any “excess” project savings belongs to the City and should be used at your discretion to either invest in additional project scope or be retained to improve the project’s ROI.

Maximizing Value

During development and design, Siemens employs a variety of strategies, including efficient design and competitive procurement practices, to control direct project costs. Due to the scale of Siemens’s operations and annual volume of construction, we have best-in-class buying power that will be passed on to the City of Miramar. Siemens will also work with the City to leverage your tax-exempt status, utilizing Owner Direct Purchasing (ODP) equipment procurement strategies.

Additionally, our team’s inclusion of subconsultants, such as Hazen and Hammond, who are intimately familiar with the City’s existing facilities and plants, will reduce the time and cost of the Investment Grade Audit and project designs. **All of these advantages will translate into direct cost savings for Miramar.**

Transparency / Open Book Pricing

Siemens is committed to providing open book pricing breakouts, offering full transparency in all aspects of our performance contracting agreement and giving the City complete confidence that the City of Miramar is receiving the best possible project value.

Project costs will generally be structured into the following categories:

DIRECT COSTS are costs that will be directly and specifically expended on the implementation of the project. Examples of direct costs include subcontractor costs, equipment costs, engineering subcontracts, freight, shipping, performance and payment bond costs.

INDIRECT COSTS are costs associated with the development, implementation and commissioning of the project. These costs typically include the cost of internal resources such as engineering and project management as well as general conditions requirements.

OVERHEAD charges cover Siemens’ general operating expenses not specifically or solely attributable to the project. Components of overhead expenses include executive and back office activities such as accounting and human resources, general office expenses, etc.

PROFIT is the negotiated return for Siemens for our investment of resources and assumption of risks as part of our project partnership with the City.

The exact costs or rates for each of these costing categories will be impacted by a wide factor of variables, including project size, complexity of scope, project timelines, etc. Under all circumstances, Siemens will demonstrate its commitment to work with the City of Miramar as a partner in a transparent fashion to develop, and ultimately implement, a project that returns superior economic and technical value to the City at a fair price.

BACKGROUND AND EXPERIENCE PROVIDING SERVICES

Siemens has executed energy efficiency projects for hundreds of local government clients across the country; over **1,100 guaranteed performance-based projects** and **\$2.5 billion in guaranteed energy savings**. But more relevant to the City of Miramar is that we have the largest footprint of developed and executed Energy Performance Savings projects in the State of Florida. Our first Performance Contracting project in Florida dates back to 1994 with Miami Dade County Schools. Since that time our local Florida Team has supported the delivery of over **65 Florida Energy Performance Savings projects**, the majority of which have been executed out of our South Florida Headquarters in Miramar.

We have always prided ourselves on the fact that we have completed these important projects with high standards for quality while remaining on schedule and on budget. Part of our outstanding history of successful partnerships with our clients include our projects with the City of Deerfield Beach, Broward County Government, the Florida Government Utility Authority, Florida Atlantic University, and University of Florida that have been included as our project references later in this response.

QUALIFICATIONS OF PERSONNEL TO BE ASSIGNED TO THIS PROJECT

Vertical market specialization has allowed Siemens ESCO team to develop a deep understanding of the challenges facing local governments and the solutions that enable our customers to excel. Your Siemens team lead, **Bryan Reardon**, and lead engineer, **Ulises Perez**, have been working local government projects for over 15 years, including recent projects with the City of Deerfield Beach, Broward County Government and Florida Governmental Utility Authority. Currently the team of Bryan and Ulises is committed and focused like a laser on the City of Miramar as their top priority. Assigned project Manager **Duaine Edwards** and Site Manager **Cory Carter** will be freeing up from their current project assignments about two months prior to the anticipated construction start for the Miramar project. Bryan, Ulises, Duaine, & Corey, are surrounded by Siemens' executive leadership, engineering and project specialists, as well as the experienced professionals of our subconsultant partners.

Within Siemens' consistent process-oriented approach, the same Team members will be engaged from our first meeting to final acceptance and through the performance guarantee term. Our full project team personnel and structure is more fully illustrated later in this response.

Work Capacity

Siemens is staffed to perform approximately \$60M of Performance Contracting/P3 work annually in Florida. Currently we have approximately \$40M leaving a capacity for \$20M in work. From a timing perspective this project lines up perfectly. Our local government team just finished developing projects with City of Deerfield Beach and Broward County. Those projects are currently in implementation meaning our local government Project Management team will have available capacity as this project goes into the final stages of design.

SUBCONTRACTORS, SUBCONSULTANTS, AND / OR SUPPLIERS

Guaranteed performance contracts are complex structures, and their development demands expertise in industry leading technologies, innovative design practices, and precise system analysis. Accomplishing this requires a multidisciplinary team that includes subject matter experts with detailed local knowledge. This is especially true for projects that include highly specialized systems and regulated processes such as water and wastewater treatment. Siemens has a long history of building world class teams comprised of our internal energy services professionals and carefully selected technical partners with the expertise and local experience required to develop and deliver the best project for the City of Miramar.

Below is an overview of our partnered subconsultants and their specific roles on the project team. Additional information on each of our partners, their professional staff, and their relevant work experience are detailed later in this response.

Hazen and Sawyer

Hazen and Sawyer will serve as our team's utilities engineering consultant and will be responsible for evaluation and design efforts at the Water and Wastewater treatment plants. Hazen and Sawyer has served as a trusted engineer of record for the City's utility department for over 25 years. Their historical knowledge and experience within the City's plants will assure a more thorough, efficient, and accurate improvement measure development and design. Hazen's previous operational models, equipment assessments, and system diagrams will eliminate duplication of work, lowering development and project costs allowing the City's guaranteed savings to go further.

Hammond & Associates Consulting Engineers (CBE)

Hammond & Associates will provide MEP design services in support of HVAC, Lighting, and other related facilities work associated with the project including submittal reviews and any required drawings. Hammond has been a member of design teams for several previous City of Miramar construction projects including the City's new police headquarters and the Miramar Cultural Arts Center.

Saltz Michelson (CBE)

Occasionally, certain improvement measures may require facility alterations that include the need for architectural support. Saltz Michelson Architects, Inc. (SMA) is an award-winning architectural firm providing a full range of architectural and planning services. Specifically related to potential work as part of this project, Saltz Michelson, has extensive experience in architectural design for chiller plant expansions and PV solar carport projects. Both of which are identified potential improvement opportunities for this project and are discussed later in this response.

Advanced Green Technologies

We anticipate this project to include a focus on renewable energy systems. Developing Solar PV within a performance contracting project requires customized system design during the IGA phase to assure that systems are appropriately matched and scaled for their application. Advanced Green Technologies (AGT) and Siemens have successfully partnered to implement solar PV arrays as components of numerous performance contracting projects in South Florida including current construction efforts with Broward County and the City of Deerfield Beach.

Anthony Brunson, PA (CBE & Local Miramar)

Certain types of improvement measures require a higher level of detailed financial analysis to insure accurate and realistic savings projections. This is particularly true for projects with a heavy focus on enterprise funds or involve system improvements and process modifications driven by operational and capital savings. These instances require a detailed review of previous budgets, future capital outlay projections, modeling of future budgetary requirements, etc. The inclusion of a professional financial and business process auditor assures



Diversity, Equity & Inclusion

Siemens is committed to advancing diversity, equity, and inclusion for women, minorities, specially-abled, younger Americans, the LGBT community, and veterans, a commitment that we view as essential to the path toward empowering a diverse workforce.



Enriching our Communities

Siemens creates real and lasting value that enriches the local communities where we do business by:

- ✓ Providing High paying professional and technical jobs
- ✓ Driving local economic development by robust establishing networks of CBE, SBE, & LBE subcontractors
- ✓ Supporting workforce development resources
- ✓ Sponsoring sustainability & STEM educational opportunities

the required level of confidence that the city should expect from your Investment Grade Audit report. To provide this expertise, Siemens has partnered with Miramar-based Anthony Brunson, PA.

Dickey Consulting Services (CBE)

Performance contracting projects with municipalities often provide unique opportunities to engage the community and local businesses. Siemens believes that it is essential to maximize the impacts that our projects can have to fuel local economic development, foster workforce development, and promote community wide sustainability. To assist with the development and execution of our engagement and inclusion efforts, Siemens has partnered with Dickey Consulting Services (DCS). DCS provides consulting service expertise in project management, public/government relations, business to consumer marketing, economic development and strategic planning. DCS's clients include private and public sector enterprises across Broward, Miami-Dade and Palm Beach counties as well as across the country.

Minority Builders Coalition

To assist with our outreach and inclusion efforts with the CBE and Local Miramar business community, Siemens has also partnered with the Minority Builders Coalition. The Minority Builders Coalition has been the lead advocate for small, minority and women owned businesses in South Florida for the past 50 years. Under the leadership of Brian C. Johnson, President/CEO, MBC has been the primary conduit for the current proliferation of disparity studies and the development of supplier diversity programs that have recently been adopted in Broward, Miami-Dade and Palm Beach counties.

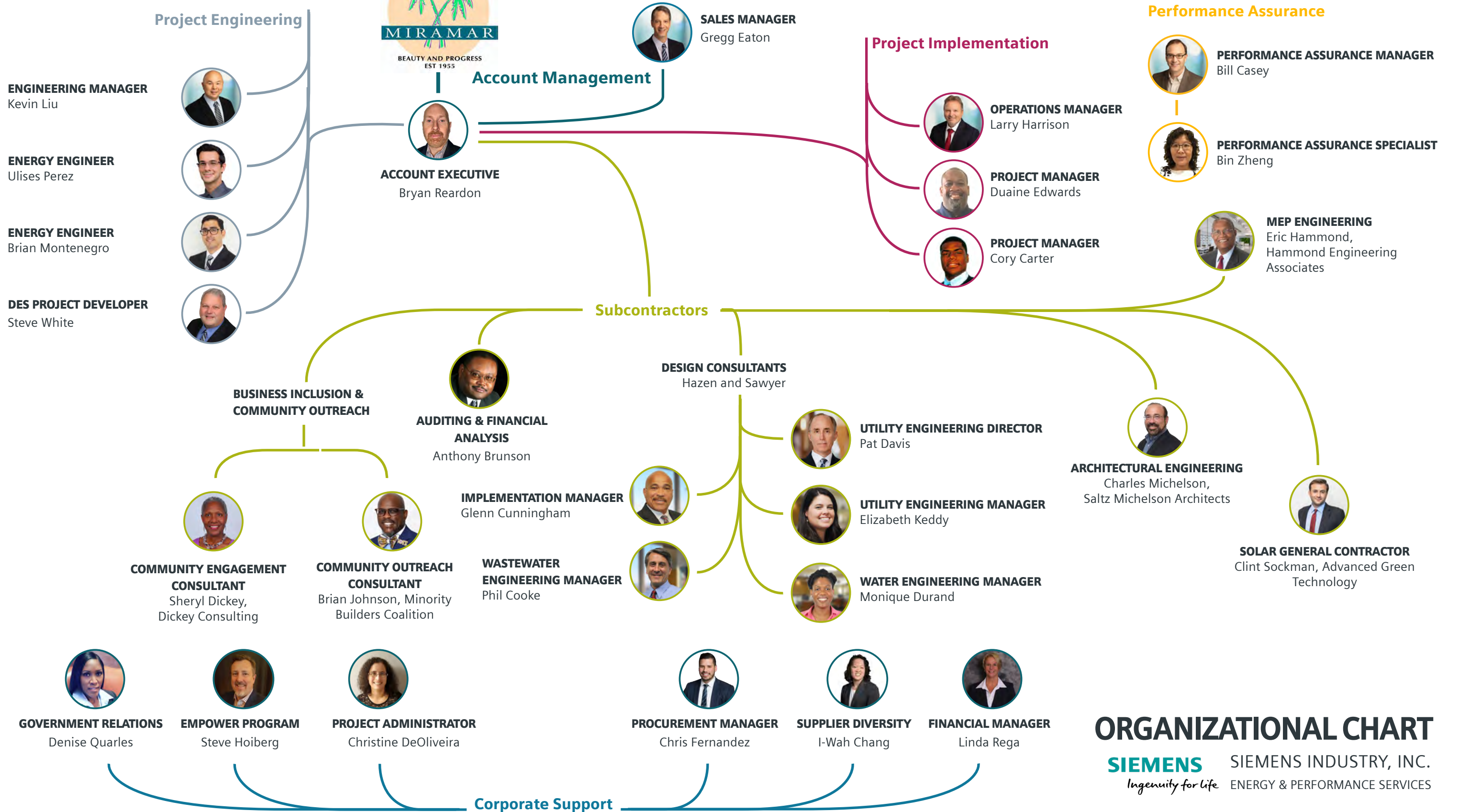


"Diversity, Equity and Inclusion becomes a lens for looking at, identifying, developing and advancing the business. Focused efforts will yield greater business results."

-Nichelle Grant,
Head of Diversity, Equity and
Inclusion, Siemens USA

PROJECT TEAM STRUCTURE

The following is an organizational chart depicting our assembled Miramar Project Team.



iv) Required Information

Siemens Industry, Inc.

iv) Required Information.

Proposers shall provide documentation that demonstrates their ability to satisfy the required information contained herein. Proposers who do not satisfy the requirements or who fail to provide supporting documentation and/or affidavits as specified herein may be deemed "Non-Responsive". If a prescribed format or required documentation for the response to information requirements is listed below, Proposers must use the required format and supply said documentation. See form entitled "PROPOSER INFORMATION FORM" (SECTION 5).

SECTION 5

PROPOSER'S INFORMATION FORM

All information supplied in connection with this form is subject to review and verification. Any and all determinations concerning this information will be used to determine eligibility for participation in the award. Inaccurate or incomplete answers may result in your Proposal being deemed "Non-Responsive."

- (1) How many years has your organization been in business under your present business name? 11 years
- (2) State of Florida business tax receipt type and number: Mechanical, CMC056249; Electrical, EF20001195
- (3) County (state county) business tax receipt type and number: HVAC, 183-1873; Alarm, 181-3435;
- (4) City business tax receipt license type and number: 97000002

PROPOSERS MUST INCLUDE A COPY OF EACH LICENSE LISTED WITH PROPOSAL

- (5) Describe experience providing services/commodities for similar (government) organizations:

Siemens helps create perfect places to live and work by leveraging innovation that saves money and reduces energy, creating smarter and more sustainable communities. We implement energy conservation solutions for municipalities with local, diverse supplier bases. We contribute to social sustainability by using these infrastructure upgrades to promote living labs and STEM education, thereby stimulating local economic development and job creation. Our extensive expertise in guaranteed performance-based solutions, combined with our scalable, proven portfolio, allows Siemens to efficiently and effectively meet the needs of all cities.

- (6) Have you ever had a contract terminated (either as a prime contractor or subcontractor) for failure to comply, breach, or default?

_____ yes ✓ no

(IF YES, PLEASE ENCLOSE A DETAILED EXPLANATION ON SEPARATE SHEET)



RICK SCOTT, GOVERNOR

JONATHAN ZACHEM, SECRETARY



**STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

CONSTRUCTION INDUSTRY LICENSING BOARD

THE BUILDING CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

KELLY, JOHN JAMES

SIEMENS INDUSTRY, INC.
1000 DEERFIELD PARKWAY
BUFFALO GROVE IL 60089

LICENSE NUMBER: CBC1260122

EXPIRATION DATE: AUGUST 31, 2020

Always verify licenses online at MyFloridaLicense.com



Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.



RICK SCOTT, GOVERNOR

JONATHAN ZACHEM, SECRETARY



STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

THE MECHANICAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

LANZILLO, EDWARD JEROME

SIEMENS INDUSTRY INC
3021 N COMMERCE PARKWAY
MIRAMAR FL 33025

LICENSE NUMBER: CMC056249

EXPIRATION DATE: AUGUST 31, 2020

Always verify licenses online at MyFloridaLicense.com



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This is your license. It is unlawful for anyone other than the licensee to use this document.



**STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

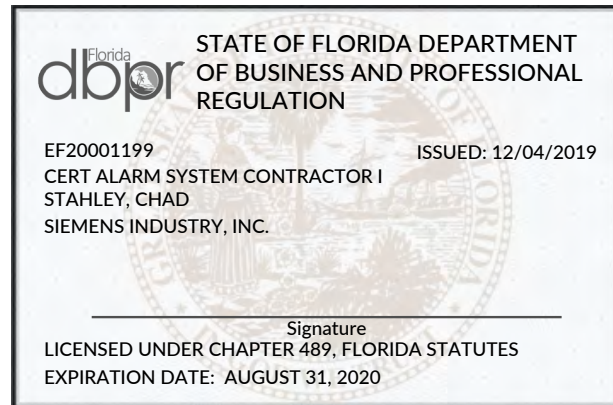
ELECTRICAL CONTRACTORS LICENSING BOARD
2601 BLAIR STONE ROAD
TALLAHASSEE FL 32399-0783

(850) 487-1395

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!



Ron DeSantis, Governor

Halsey Beshears, Secretary

**STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ELECTRICAL CONTRACTORS LICENSING BOARD**

LICENSE NUMBER: EF20001199

EXPIRATION DATE: AUGUST 31, 2020

THE ALARM SYSTEM CONTRACTOR I HEREIN IS CERTIFIED UNDER THE PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

STAHLEY, CHAD
SIEMENS INDUSTRY, INC.
12114 MONTEITH GROVE DRIVE
HUNTERSVILLE NC 28078



ISSUED: 12/04/2019

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA:
Business Name: SIEMENS INDUSTRY INC

Receipt #: 183-1873
Business Type: HEATING/AIRCONDITION CONTRAC
(MECHANICAL CONTR)

Owner Name: EDWARD J LANZILLO/QUAL
Business Location: 3021 N COMMERCE PKWY
MIRAMAR

Business Opened: 08/15/1997
State/County/Cert/Reg: CMC056249
Exemption Code:

Business Phone: 954-364-6600

Rooms **Seats** **Employees** **Machines** **Professionals**
300

For Vending Business Only						
Number of Machines:			Vending Type:			
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
150.00	0.00	0.00	0.00	0.00	0.00	150.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

DUCHARME, MCMILLEN & ASSOC. ATTN:
PO BOX 80600
INDIANAPOLIS, IN 46280

Receipt # 1CP-18-00012236
Paid 07/23/2019 150.00
07/22/2019 **Effective Date**

2019 - 2020

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA:
Business Name: SIEMENS INDUSTRY INC

Receipt #: 181-3435
Business Type: ELECTRICAL/ALARMS/CONTRACTOR
(ELECTRICAL CONTR)

Owner Name: MATTHEW W JORDAN-QUALIFIER
Business Location: 3021 N COMMERCE PKWY
MIRAMAR
Business Phone: 954-364-6600

Business Opened: 07/27/1998
State/County/Cert/Reg: EC13005752
Exemption Code:

Rooms **Seats** **Employees** **Machines** **Professionals**
10

For Vending Business Only						
Number of Machines:				Vending Type:		
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
27.00	0.00	0.00	0.00	0.00	0.00	27.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

DUCHARME, MCMILLEN & ASSOC. ATTN: :
PO BOX 80600
INDIANAPOLIS, IN 46280

Receipt # 1CP-18-00012239
Paid 07/23/2019 27.00
07/22/2019 Effective Date

2019 - 2020

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA: SIEMENS INDUSTRY INC
Business Name:

Receipt #: 181-3435
Business Type: ELECTRICAL/ALARMS/CONTRACTOR
(ALARM CONTR)

Owner Name: STAHLEY, CHAD
Business Location: 3021 N COMMERCE PKWY
MIRAMAR

Business Opened: 07/27/1998
State/County/Cert/Reg: EF20001199
Exemption Code:

Business Phone: 954-364-6600

Rooms **Seats** **Employees** **Machines** **Professionals**
10

For Vending Business Only						
Number of Machines:			Vending Type:			
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
27.00	3.00	0.00	0.00	0.00	0.00	30.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

DUCHARME, MCMILLEN & ASSOC. ATTN: :
PO BOX 80600
INDIANAPOLIS, IN 46280

Receipt # 02C-19-00001337
Paid 02/19/2020 3.00

2019 - 2020



City of Miramar Business Tax Receipt

Business ID
97000002

Issue Date: 10/01/2019
Expiration Date: 09/30/2020

SIEMENS INDUSTRY, INC
C/O DUCHARME, MCMILLEN & ASSOCIATES
BL COMPLIANCE SERVICES
P O BOX 80600
INDIANAPOLIS, IN 46280

(954) 602-3040 or (954) 602-3061 Phone
(954) 602-3470 or (954) 602-4498 Fax
businessstax@miramarfl.gov

Home-Based Restrictions Only
Mail & Phone Only
No Employees at Home
No Work on Premises
No Clients at Home
No Deliveries to Home
Office Only

Cottage-Based Restrictions
Cottage food businesses are allowed in accordance with Florida Statute 500.80, except that the home shall not be used for retail. Please see regulations title 21 part 101.
Only one employee allowed which includes family members residing at the home. No commercial vehicles parked overnight on the premises.

BUSINESS TAX RECEIPT

This is to certify that the person or firm named herein has paid into my hands minimum payment of tax as set out herein for the use and benefit of the City aforesaid, and is licensed to engage in the business of:

CONTRACTOR	CONTRACTOR	13347
STORAGE WA	STORAGE WA	13352
HAZ MAT AN	HAZ MAT AN	17937
BUS/RET/WH	PER SQ FT	20108
FIXED FIRE	FIXED FIRE	20109
GENERATOR	GENERAT AC	24118

Business Location:

3021 COMMERCE PARKWAY
MIRAMAR FL 33025



**This License is NOT Transferable
Your Business Tax Receipt Must be displayed.**

v.) Technical Information

Siemens Industry, Inc.



Section A-1
Approach to Organization/Management

v) Technical Information

A-1 APPROACH TO ORGANIZATION/MANAGEMENT

A) Describe the Proposer's approach to organization/management and the responsibilities of Proposer's management and Project personnel that will perform Work; describe methods or benchmarking systems used to ensure quality service, customer satisfaction, prompt complaint resolution, quality control, and timely initiation and completion of all Work.

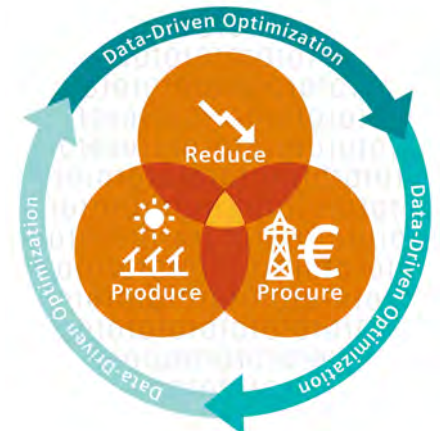
Miramar's goals are strategic, challenging and achievable with the right partner. **We find these goals to be exciting because their intricacies are a perfect fit for our ingenuity and dynamic portfolio of capabilities.** Siemens' approach, based on the concept of Total Energy Management (TEM), allows the City to better prioritize your investments. The lens of TEM focuses our team's efforts to help the City of Miramar establish a long-term program plan, which will:

- Be fully aligned with Miramar's organizational goals
- Provide your team with knowledge and insight needed for confident decision-making
- Deliver real and lasting technical, operational, and financial value to the City

We approach an opportunity of this magnitude as an overall program and not just simply a project. We envision establishing a long-term partnership with the City that will start with developing a plan guided by our TEM strategy.

Total Energy Management is where vision, technology, and best practices intersect to achieve long-term business goals through continuous improvement and innovative financial solutions.

Where TEM is the framework, the Guaranteed Savings Contract will be the vehicle for execution. Siemens has been providing performance-contracting services for over 25 years. We employ a structured approach and proven methodology to deliver innovative, cutting-edge design, engineering, and technologies to maximize the cost effectiveness of your project and optimize energy efficiency and operational improvements for your organization. You can be confident that Siemens' time-tested system of managing projects will be seamless from conception to completion.



Siemens believes strongly in an interdisciplinary team approach to energy related projects. **That team always begins with you—the customer.** Understanding Miramar's goals and objectives for the project and the unique challenges that must be addressed is essential for our success. Armed with that understanding, we take great care in assembling a team that includes Siemens energy services professionals, engineers and project managers partnered with handpicked sub-consultants possessing local knowledge and subject matter expertise specifically tailored for the requirements of your project.

As an example, this project opportunity includes a specific focus on identifying and developing improvement measures within Miramar's utilities. Water and Wastewater Treatment Plants utilize highly specialized equipment and processes that are heavily regulated to ensure the health and safety of the community. Additionally, within that environment, plant operations staff have developed fine-tuned processes and procedures to consistently meet operational requirements. Our team must have a full understanding of your utility systems and their operational intricacies to be successful. To that end, **Siemens has partnered with Hazen and Sawyer (Hazen) who has supported Miramar's utility engineering needs for over 25 years.** Our strategic partnership with Hazen allows our combined team to provide specialized water and wastewater facility engineering expertise with unmatched familiarity and insight into Miramar's utility plants.

Hazen, with an established design center headquartered in Broward County for over 50 years, is one of Florida's leading engineering consulting firms and one of the few consultants who are completely focused on the water, wastewater, stormwater, and reclaimed water engineering services for local utilities. With Hazen as an integral part of the Siemens team, the City has the benefit of a local firm with dedicated personnel who are knowledgeable about the sensitivities of Florida, backed by a national company with the resources to solve a multitude of challenges. Hazen is a perfect complement to the Siemens' overall breadth of performance contracting expertise and will be an invaluable asset to the City as part of this performance contract.

Since 1951, Hazen has focused on two critical activities – helping clients provide safe drinking water to their customers and controlling water pollution and its effects on the environment. Their focus brought exceptional achievements – such as the largest drinking water UV disinfection installation in the world, upgrade of major wastewater treatment plants to reduce nutrient discharges to sensitive receiving waters, and recharging vital drinking water aquifers with highly-treated wastewater effluent, renewing a valuable resource. This focus has made Hazen home to many of the world's most knowledgeable and experienced environmental engineers and scientists, each seeking a challenging and rewarding career while making an important contribution to the communities in which they work.

Hazen's commitment to their clients is absolute. Their expert process groups contribute to the latest research and determine how to apply the most effective and efficient technologies to engineer solutions to your challenges. Your goals are their goals, and they offer the insight and experience needed to achieve and exceed them. If you have a water engineering challenge, Hazen has your solution.

Hazen's experience with the City's water, wastewater and reuse facilities allows our team to identify and precisely analyze any potential improvement measure to ensure only realistic options are carried forward. For selected items, Hazen will design measures to prioritize ease of operation and maintenance for the City's staff. Their experience with the City's utility plants as well as with other performance contracting projects clearly indicates that consideration of the long-term needs of the City is of paramount importance.

Hazen

Energy Management Approach

As a pioneer in water and wastewater engineering since 1951, Hazen understands the important role energy management serves and how it benefits our clients. Our energy management experience, coupled with our extensive water and wastewater treatment background, enables us to develop innovative energy management solutions specifically tailored for water and wastewater utilities.

Hazen maximizes the benefit to our clients by taking a “holistic approach” to Energy Management that explores all aspects of energy management ranging from energy efficiency, resource recovery, energy procurement, and energy monitoring optimization. By incorporating these elements together, their team of experts are able to develop energy saving opportunities that return long-term operational savings, many of which can be implemented at low or zero capital costs.



Hazen's knowledge of Miramar's utility infrastructure

lowers project soft costs, increasing the number of qualifying opportunities for the City.

Hazen's knowledge of City design standards

and performance expectations ensures no surprises after entering into an implementation agreement.

Hazen's water quality experts

can balance energy savings with process requirements to identify measures that will maintain or improve water quality.

Experience

Jefferson County, AL

Village Creek WWTP Energy and Process Optimization Study. Identified \$2M/yr in operational savings opportunities for the 120 MGD Village Creek WWTP. \$400K/yr in savings at low or zero capital costs.

Sanitation District No. 1, KY

Energy Optimization Evaluations. Identified \$350K/yr in operations savings for 3 regional WWTPs.

Similarly, the complete Siemens Miramar Project Team includes other locally based subject matter experts to support every area of specialty expertise that we anticipate may be called upon as part of the project:



Dickey Consulting (CBE)

Partnering with businesses leaders, construction companies, developers, policymakers, administrators and elected officials, Dickey Consulting Services develops and execute projects that leverage public sector vision and private sector expertise. The DCS staffs' expertise is in document management, community liaison services, transportation and construction projects, water and sewer infrastructure, airport expansion and noise mitigation, compliance monitoring, economic development, strategic planning, and business continuity services.



Community & Local Business Inclusion



The Broward County Minority Builders Coalition

The Minority Builders Coalition, Inc. has been the lead advocate for small, minority and women owned businesses in South Florida for the past 50 years. Under the leadership of Brian C. Johnson, President/CEO, MBC has been the primary conduit for the current proliferation of disparity studies and the development of supplier diversity programs that have recently been adopted in Broward, Miami-Dade and Palm Beach counties. Mr. Johnson is the immediate past Chair of Broward County Small Business Development Advisory Board where he led two rounds of enhancements to the County's Business Opportunity Act that improved the county's certification program. Mr. Johnson was the Chair of the Disparity Study Workgroup (School Board of Broward County) and the Supplier Diversity Task Force (Palm Beach County and the Palm Beach Solid Waste Authority) as he led the development of the list of remedies that eventually formed the Supplier Diversity Outreach Programs for each respective entity. Mr. Johnson was also a consistent subject matter expert for the City of Miramar in providing input into the development of the City's Local Preference Ordinance, participated in the City's disparity study, technical assistance into the development of the current program, and encouraging local businesses to get certified to increase the number of firms bidding to benefit from the city's new program.



Anthony Brunson, PA (CBE & Local Miramar)

Anthony Brunson PA, is a full service certified public accounting firm, with extensive experience across a broad range of industries. Tony provides audit and attestation, tax planning and compliance, business advisory and entrepreneur services for a wide range of clients. They are a diverse, unified team committed to the utmost professionalism, delivery of impeccable services and the right resources to maximize benefits. Anthony Brunson, PA has extensive experience providing financial analysis and auditing services to local government entities in South Florida including: Broward County, Broward County Schools, Broward Housing Finance Authority, Miami-Dade County, City of Miami, and City of Miami Gardens.

Anthony Brunson P.A. combines professionals with distinctive industry knowledge and the passion to provide exceptional personal service. By design, our service approach incorporates recognizing the nuances and essence of the issues which impact your industry and thereafter design a service plan to extend beyond the numbers and identify business matters which present economic or operational value to your organization. Consequently, required solutions are prioritized to assist your organization in maximizing your resources or increase your business value.

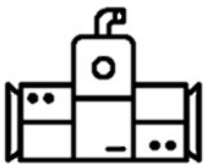


Project Financial Analysis



Hammond Engineering (CBE)

Hammond offers full MEP-FP consulting engineering services delivered by a highly experienced group of professionals focused to give clients the highest quality in Mechanical, Electrical, Plumbing and Fire Protection Engineering solutions. They believe in providing engineering solutions designed for comfort, efficiency and cost effectiveness while adhering to the client's functional and budgetary requirements. Hammond offers a full suite of design and consulting engineering services for both the public and private sectors on new and existing buildings.



General MEP Design



Architecture



Saltz Michelson (CBE)

With offices in Fort Lauderdale and Doral, Florida, the firm was founded in 1976 by Mark L. Saltz, an architect, and general contractor. Charles A. Michelson joined the firm in 1980 and became a principal in 1990. Today, of the twenty-eight professionals employed by the firm, eight are registered architects. There are also four LEED Accredited Professionals on staff. The combined knowledge and expertise of the entire Saltz Michelson Architects team ensures a consistent standard of design and quality for every project.



Solar PV



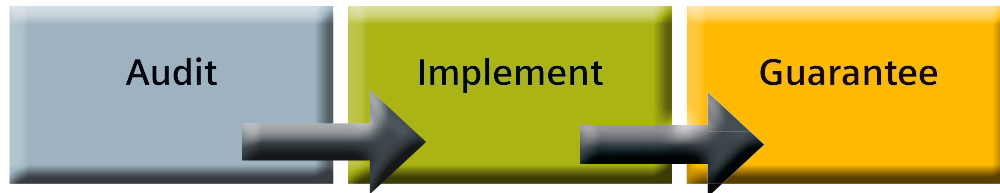
Advanced Green Technologies

AGT is a solar contractor specializing in the design, procurement, and construction (EPC) of commercial, industrial, and utility-scale solar energy projects for clients in Florida and the Caribbean. Established in 2007, AGT is an experienced, award-winning contractor completing more than 250+ Megawatts of renewable energy solutions across many market segments including private business, education, defense, government, manufacturing, and local utility companies.

PROJECT APPROACH

The cumulative competencies and experience of our complete Miramar project team have been built to deliver a turnkey energy services solution incorporating energy auditing, operational & financial analysis, engineering & design, project management, ongoing performance support, and project funding, all under one umbrella.

To keep the process clear and well-managed, the entire project effort will be broken into three stages—Development, Project Management, and Measurement & Verification. Each phase is designed to eliminate the customer’s risk by providing concrete performance benchmarks and guarantees. We will work closely with the City of Miramar through each phase of the performance-contracting project to ensure it meets the City’s goals and objectives.



AUDIT – The investment grade audit is the technical and economic foundation of a successful performance contracting project. The audit provides a summary of the cost, annual savings, simple payback, and expected lifecycle for each measure recommended for inclusion in the performance contract. The audit establishes existing utility and operational cost baselines, savings calculations formulas, detailed project scope, and project cash flows.

IMPLEMENT – Project implementation brings the plan that we develop during the IGA into reality. Siemens project managers will develop schedules, execute subcontracts, secure final design documents and permits, and oversee all construction activities. City shareholders will be closely engaged in the efforts of reviewing installation progress, participate in commissioning activities, and complete training programs to ensure that you’re ready to operate your new systems after project handoff.

GUARANTEE – One aspect that distinguishes performance contracting projects from other construction models is the long-term partnership that is established with both Siemens and the City working together over the guarantee term to ensure long-term project success. During the guarantee term, our teams will work together to monitor system performance. The Siemens team will remain engaged to address any potential shortfall issues and to help support the City to get the most out of your new equipment and technologies.

In the following discussion of our project approach, we will describe each of these three phases and detail Siemens’ established processes and procedures that ensure transparency, effective communication, and quality of outcomes for every step of our journey.



Bryan Reardon, Account Executive, will manage your project seamlessly from the contract stage through M&V.



Development Approach



The development—or Investment Grade Audit (IGA)—process establishes the blueprint for executing the performance contract and fully achieving its guaranteed outcomes. It has been our experience that facility and plant staff participation plays a critical role in investment grade energy audits. We will work very closely with the City's staff to include their input for all phases of the audit. We will begin project implementation activities with a series of pre-construction meetings to finalize all project plans and processes to establish expectations and full alignment of the Siemens PM team and the City's staff.

To help guide and facilitate the IGA effort, Siemens has created a workshop approach focused on transparency of process and inclusion of all key stake holders. These workshops create a collaborative environment for the Siemens team and the City, where Miramar's Guaranteed Savings Performance Project can be cogenerated and tailored specifically to meet the City's technical and financial goals and objectives.

The activities and deliverables of the project Investment Grade Audit Process include:

- Developing energy mass balance models to identify the existing energy performance of each facility, plant, and individual systems and processes to provide a base for the energy optimization study.
- Identifying near- and long-term energy savings opportunities through equipment and process optimization. We use our tools and process expertise to perform a holistic evaluation, which will identify how energy optimization opportunities will also impact the energy performance of downstream systems and processes.
- Evaluating the feasibility and developing implementation strategies for alternative and renewable energy sources to offset purchased energy sources.
- Evaluating current and future energy costs and billing structures to identify energy procurement strategies that will minimize long-term energy costs.
- Providing tools, data, training, and resources to create a formal energy managements program that will enable the City to manage its energy usage and costs for the long-term and promote the program to stakeholders.
- Identifying power monitoring and control upgrades to improve energy management capabilities.
- Identifying and evaluating the best financing options available to the City to fund the project.
- Coordinating project scope with a sustainable asset management approach to extend the life of the City's assets and to reduce risk.
- Prioritizing the identified improvement measures and developing implementation strategies in coordination with the City's CIP plan.

IGA workshops:

Our audit activities are organized into logical components, with each new component building on the last. A focused workshop meeting is held at the completion of each component as a stage gate to moving to the next. Each workshop is attended by the full Siemens development team and all relevant city stakeholders. During the meeting the Siemens team will present our findings and recommendations from that component's activities. We will solicit stakeholder input and direction and discuss all decisions and selections. The workshop allows for the entire team to confirm that project development is maintaining goal alignment with the City's objectives and requires full consensus before moving to the next stage of the process.



Kickoff



Baseline and Savings



Improvement Measures



Financing



Contracts



Construction

The workshops and resulting Investment Grade Audit report fully engage the City's stakeholders and clearly documents every aspect of the development process, audit results, and every detail of the performance contracting agreement. This establishes all project commitments and expectations as we transition to the implementation and eventual performance guarantee phases of the project.



KICKOFF



WORKSHOP

The IGA process will begin with a kickoff workshop that includes the full project team (Siemens staff, subconsultants, and City stakeholders). This workshop allows our team to lay out the project development plan, address the City's questions and comments, and generally ensure that the process gets off to a smooth start. At the completion of the workshop, the project team will have completed the following objectives:

- Introduction of Teams
- Confirmation of Goals, Objectives, & Boundary Conditions
- Overview of Development Process
- Responsibilities & Commitments
- Agreement of Schedule



BASELINE & SAVINGS



WORKSHOP

Following the kickoff meeting the Siemens team will jump into action to begin developing energy and operational baselines and methodologies for savings calculations.

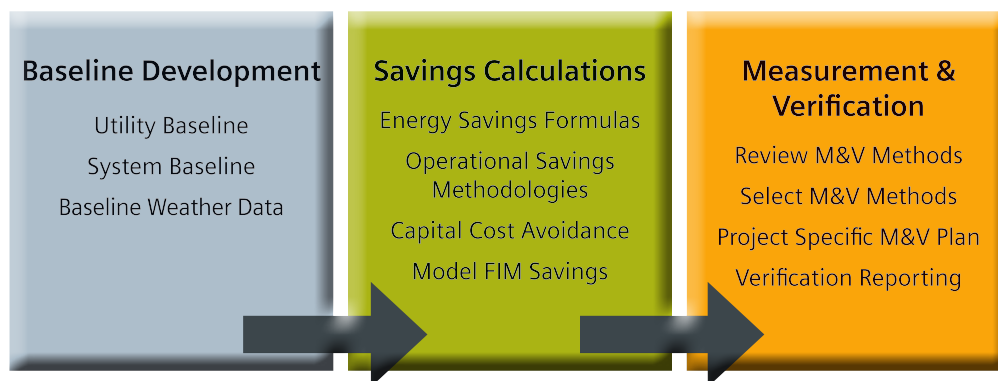
Why establish a baseline?

Our energy engineers are experts in determining how much energy you will save as a result of your project—our realized project savings average 107% of the guaranteed savings, with shortfalls in fewer than 0.3% of total guarantees. The reason we can be so confident in our savings calculations is due to establishing **accurate baseline data** prior to implementing a project.

“You can’t manage what you can’t measure”

Savings Methodologies, Calculations, and Verification

A defining characteristic of performance contracting projects is the financial return from guaranteed energy and operational improvements that justifies and funds the initial project investment. **The credibility of any project is rooted in accurate baselines, savings calculations, and measurement and verification methodologies.** Because these three areas are inexorably linked, Siemens believes that it is important to review and discuss them together as a single workshop component.



BASELINE DEVELOPMENT

In developing a basis for a performance contract, it is essential that the existing conditions are precisely established as a baseline for evaluating potential system improvements. Relevant factors are identified and assessed in a systematic approach for calculating energy savings:

Develop Utility Baseline

Typically, three years of monthly utility data is collected for all relevant sites; electricity, natural gas, propane, fuel oil, water, sewer, etc. The utility data is reviewed in a year-over-year basis to determine if there have been any major variations in use or billing. The most current 12 months of continuous, overlapping utility data is determined to be the base year for a project and is clearly defined as part of the detailed study.

Develop System Baselines:

Since energy usage is dependent on how each system is operated, it is necessary to collect data on operating hours and utilization. Data is collected in a variety of methods; as-built drawings, existing equipment name plates, building automation trending, data logger trending and spot measurements to aid in establishing the baseline energy consumption. Monitored systems can include the HVAC equipment, lighting systems, domestic water fixtures and any specialty systems. Typically, a period of no less than 14 days is used for data logging and trend monitoring.

Parameters, such as operational hours and equipment load profiles, are determined through investigation of monitored data. Other parameters used to define the baseline energy consumption include occupancy schedules, equipment operation schedules, as-built documents, equipment sizes, and space temperatures. These parameters are used to develop a system baseline for each piece of equipment in a detailed energy model. The calculation methodologies for operating parameter determination are detailed in the relevant sections of the Investment Grade Audit report and are based on industry standard practices.

Baseline Weather Data

Weather data is obtained for the local area from the National Weather Service. The data is analyzed for the corresponding year to determine the impacts of changing weather conditions on equipment operations and energy consumption.

A baseline of energy and water consumption will be established using historic utility bills. Adjustments will be made for any discovered abnormalities. An initial list of potential Facility Improvement Measures (FIMs) will also be compiled.

ENERGY SAVINGS CALCULATIONS

In simplest terms, energy savings are determined by comparing the post-installation measurements, calculations and/or stipulations to the established baseline measurements. In general, the following equations are used to determine energy savings.

Utility Savings Formulas:

$$\text{EnergySavings[kWh]} = \text{Energy}_{\text{Baseline}} [\text{kWh}] - \text{Energy}_{\text{post-installation}} [\text{kWh}]$$

$$\text{DemandSavings[kW]} = \text{Power}_{\text{Baseline}} [\text{kW}] - \text{Power}_{\text{post-installation}} [\text{kW}]$$

$$\text{NaturalGasSavings[Therms]} = \text{Energy}_{\text{Baseline}} [\text{Therms}] - \text{Energy}_{\text{post-installation}} [\text{Therms}]$$

$$\text{WaterSavings[kGal]} = \text{Flow}_{\text{Baseline}} [\text{kGal}] - \text{Flow}_{\text{post-installation}} [\text{kGal}]$$

Cost Savings Formulas:

$$\text{EnergySavings[\$]} = \text{EnergySavings[kWh]} \times \text{Cost} [\$/\text{kWh}]$$

$$\text{DemandSavings[\$]} = \text{DemandSavings[kW]} \times \text{Cost} [\$/\text{kW}]$$

$$\text{NaturalGasSavings[\$]} = \text{NaturalGasSavings[Therm]} \times \text{Cost} [\$/\text{Therm}]$$

$$\text{WaterSavings[\$]} = \text{WaterSavings[kGal]} \times \text{Cost} [\$/\text{kGal}]$$

These equations are conceptually simple and could be applied at the equipment, system, or building level.

However, since performance contracts are multi-year efforts applied to dynamic systems, the ongoing determination of savings becomes increasingly complex as the level of specificity increases. Savings for less complex systems such as lighting and water efficiency measures are generally calculated using customized spreadsheets. Calculations for more complex systems such as district chiller plants, or in buildings where several FIMs are proposed on cross-functional systems, an energy analysis modeling software may be used.

For complex building systems or whole facility modeling, Siemens' engineers typically utilize Trane TRACE analysis software. TRACE 700 is a Windows-based program used to construct a virtual building, calculate HVAC loads, simulate hourly operations, conduct energy analyses, and perform life cycle cost analysis. All equipment, materials, and schedules are 100% customizable. TRACE is able to model over 33 different airside systems plus many HVAC plant configurations and control strategies, including thermal storage, cogeneration, fan-pressure optimization, and daylighting controls. Customizable templates provide a fast, easy way to analyze the effects of changes in building loads such as airflows, thermostat settings, occupancy, and construction.

Water and Wastewater Plants utilize specialized and complex process that require advanced modeling for calculation of energy savings as well as confirming that modified systems and processes will be able to meet all regulatory and operational requirements. The Hazen subconsultant team will utilize a suite of commercially available and proprietary modeling software as part of their system analysis during the Investment Grade Audit.

HEET & BioWin™

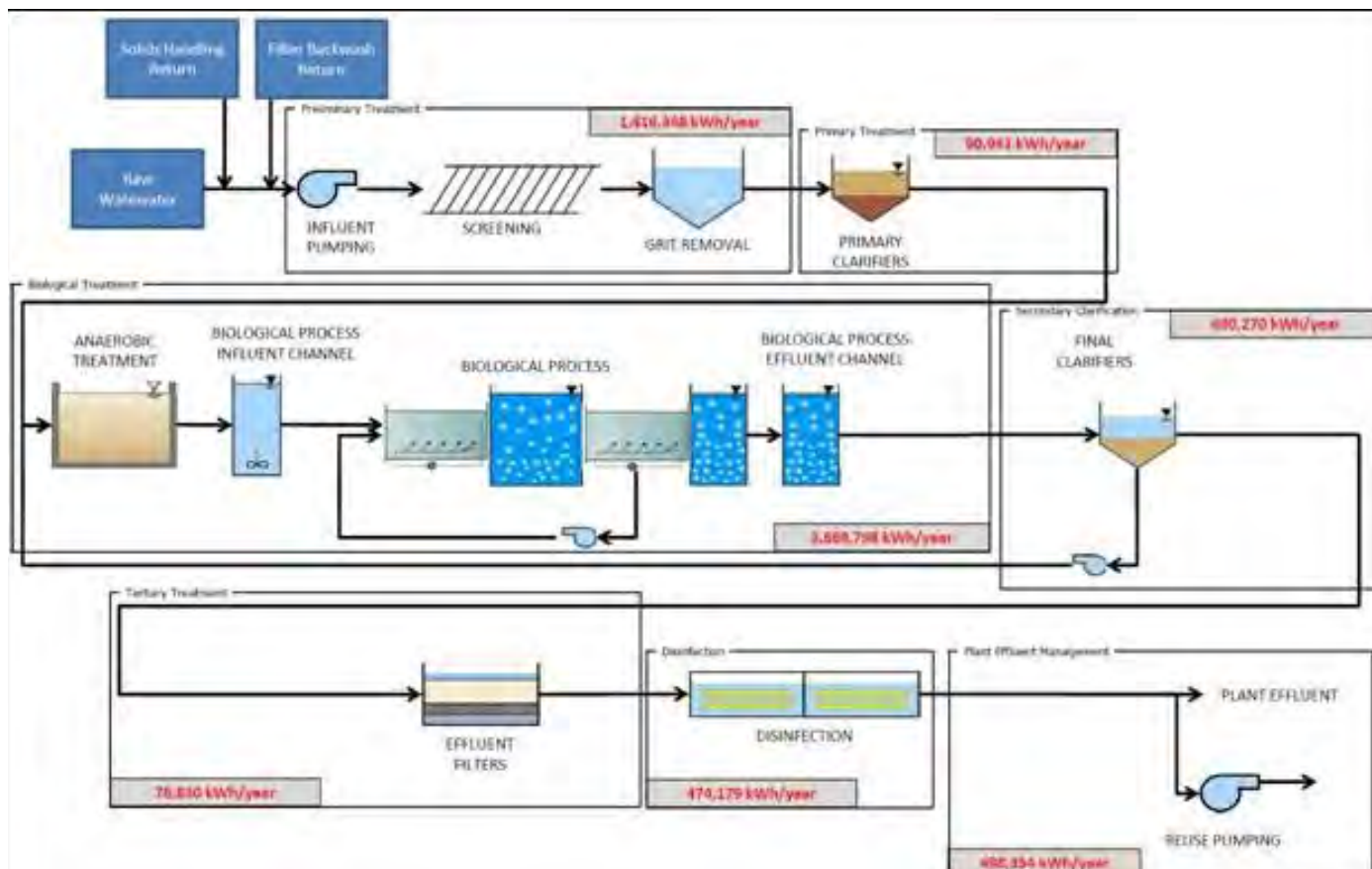
"Hazen's Energy Efficiency Tool" (HEET) is a process energy modeling tool specifically designed to model wastewater plant mass and energy balance giving them the ability to understand how optimization opportunities impact the energy performance of downstream processes. This tool provides an accurate assessment of the "whole plant benefits" for energy optimization projects by accounting for the overall plant energy balance. An innovative feature of this tool is the ability to work in parallel with BioWin™ so that the energy performance and the process performance can be modeled simultaneously. BioWin™ is a wastewater treatment process simulator software that integrates biological, chemical, and physical process models. Hazen developed a whole-plant BioWin™ model for the Miramar WWRF during the most recent Basis of Design Report.

HEET and BioWin™ will be used to develop energy and process performance benchmark data to set an economic baseline for the guaranteed savings. Once the models are calibrated to the existing conditions, the models will be used to identify the optimal energy performance for each major process. They will compare the actual and optimized energy usage for the major process areas and identify which processes have the highest potential for optimization.

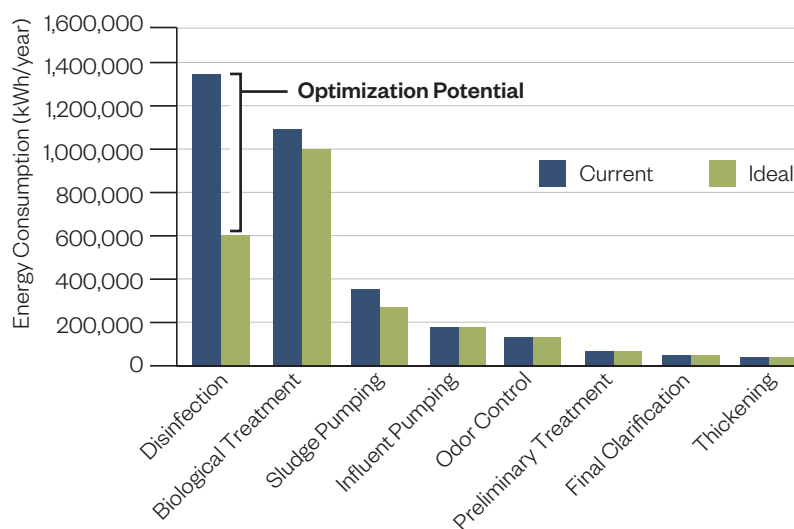
By developing these models at the start of the investment-grade energy audit, we can quickly identify where the process energy optimization opportunities exist and focus our efforts on those opportunities.



Ulises Perez, Energy Engineer for the Siemens Miramar team, will lead the development phase of your project.



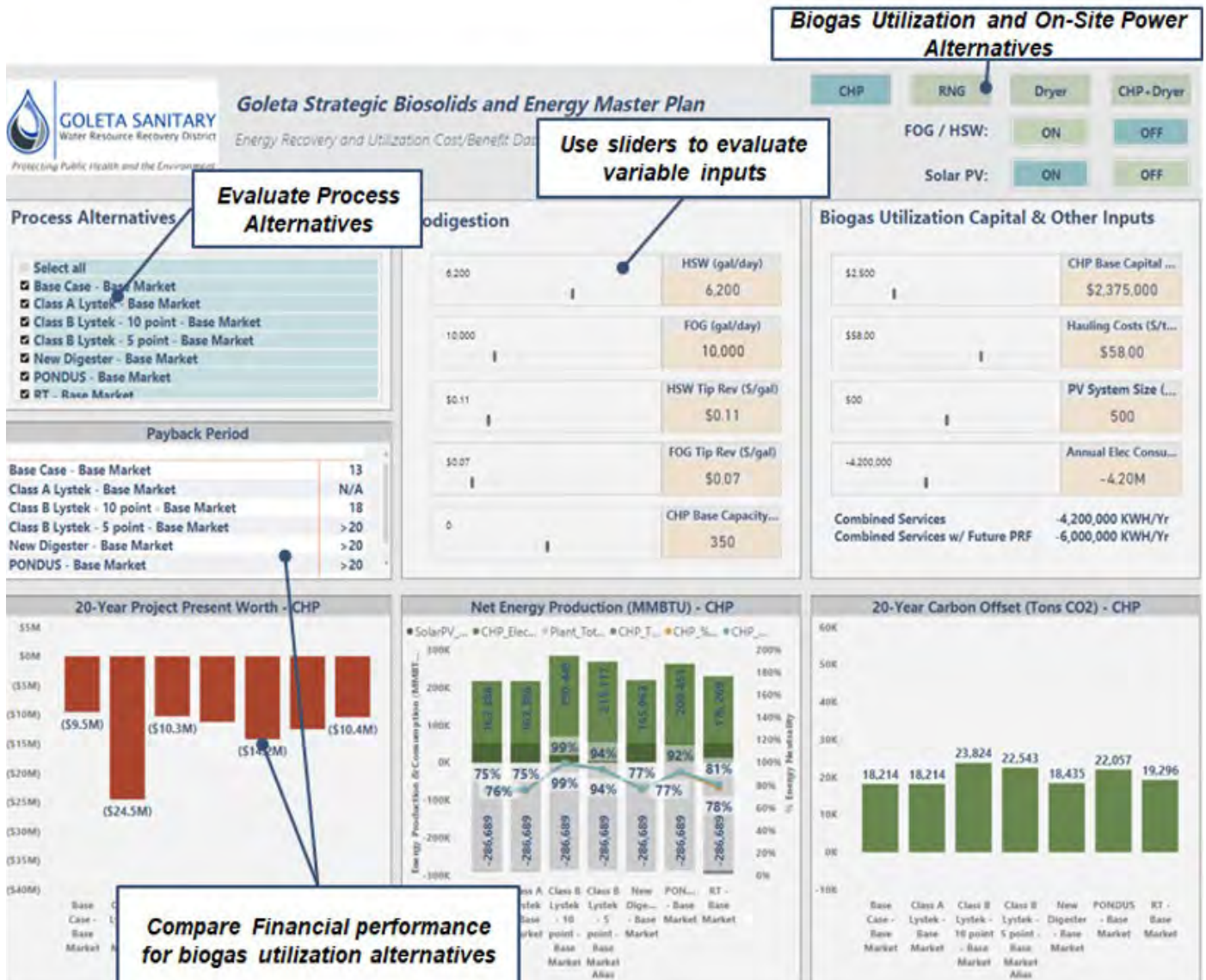
HEET output example, delineated by unit process area



Example graphic for HEET modeling results. This chart shows how energy modeling allows us to quickly identify 'gaps' in process efficiency by comparing the actual and optimized energy consumption for each major process area.

EBAT

Hazen’s “Energy Balance and Analysis Tool” (EBAT) streamlines the process of evaluating and identifying the long-term benefits of multiple digester gas utilization alternatives such as combined heat and power (CHP), renewable natural gas (RNG) pipeline injection, renewable compressed natural gas (rCNG) vehicle fueling, sludge drying and heat production. EBAT models the complex relationship between energy production, energy demands and energy costs to provide an accurate life cycle cost and benefit analysis. EBAT accounts for high and low market conditions so that the full range of economic outcomes can be understood. EBAT is a non-proprietary tool that the City can use near-term and, in the future, to trial alternative digester gas utilization technologies. EBAT can be used as way to compare the existing digester gas utilization at the Miramar WWRF to alternatives. We propose to use EBAT to set a baseline for tracking guaranteed savings projects implemented through a performance contract.



Hazen’s Energy Balance and Analysis Tool (EBAT)

Operational and Capital Savings Calculations

Siemens will review Miramar’s capital budgets and 12 to 24 months of maintenance and repair expenditures to determine which will be impacted by the installation of new equipment or systems. A few basic examples of operational savings that might be generated by the City’s performance contract include the following:

- Average annual cost of service calls by an outside contractor for a piece of equipment which will be replaced
- Annual dollars spent on lighting materials that will be covered under warranties for the new lighting system
- Average annual cost the City spends on repair parts for a piece of equipment which will be replaced
- Annual service contract cost if the pre-existing contract can be discontinued due to the performance contract implementation

Determining accurate operational and capital savings for the full performance contract becomes more complicated in larger projects as well as ones that involve more complex systems and or enterprise fund budgeting. To assure confidence in all of our operational savings calculations and analysis, Siemens has engaged **Anthony Brunson, PA**, a local CPA auditing firm, to lead our budget review and savings calculation process.

At the completion of this data collection and baseline analysis, the Siemens development team will schedule the Baseline and Savings Workshop to review identified operational benchmarks, developed baseline models, and proposed savings calculation methodologies. At the completion of this workshop, the project team will have achieved the following objectives:

- Overview of Baseline Methodology
- Baseline Data Review & Acceptance
- Overview of Savings Calculation Methodology
- Savings Calculations Review & Acceptance
- Overview of M&V Methodology
- M&V Plan Review & Acceptance



IMPROVEMENT MEASURES



WORKSHOP

Following the City’s acceptance of the developed baselines and savings methodologies, our team will begin the process of identifying and developing potential Facility Improvement Measures (FIMs) for the project.

Our engineering and project management team members will evaluate City buildings’ operations and functions through extensive investigations and interviews with the facility personnel. The study is led by **Ulises Perez** and supported by **Brian Montenegro**, two of our Florida development engineers. They bring over 16 years of

experience in energy studies and building efficiency and building system designs. Supporting Ulises and Brian are a team of Siemens engineers with specialty backgrounds in mechanical design, control systems, and distributed energy systems. Our engineering and design team also incorporates design professionals from our subconsultant partners, including utility systems engineering from **Hazen**, MEP Engineering from **Hammond**, and any required Architectural support from **Saltz Mickelson**. **Kevin Lui** and **Chris Summers** will provide managerial oversight of the team, conducting final technical and quality reviews of the team's analysis and design.



PRELIMINARY AUDIT ACTIVITIES (30% DEVELOPMENT) The engineering Team conducts a detailed energy study on all buildings and utility plants where potential improvements are identified. The energy engineers and specialists perform the following tasks during this study phase:

- Interview building personnel to determine operation schedules, equipment issues, and areas of concern
- Investigate and survey problem areas to identify solutions
- Survey and inspect buildings and energy-consuming systems and equipment on a room-by-room basis
- Investigate and identify mechanical and electrical equipment operation status and conditions
- Review and discuss operations with facility managers and systems operators
- Complete preliminary calculations of budgetary cost and savings for each preliminary FIM

CITY FEEDBACK AND INPUT This review confirms FIMs for final development and recommendation in the IGA report. Deliverables for stakeholder feedback and input includes the following:

- Presentation of recommended FIM list
- Discussion of equipment recommendations and other scope of work details
- Review of detailed cost and savings estimates

DETAILED AUDIT DEVELOPMENT (60% DEVELOPMENT) Based on the outcome of the 30% review meeting, the Siemens team will focus on the established list of preferred FIMs for detailed development to provide the following:

- Develop conceptual designs for list of identified preferred FIMs
- Review FIM constructability with project managers and subconsultants
- Complete final detailed energy saving calculations for each FIM
- Develop detailed cost estimates for each FIM
- Develop final list of recommended FIMs for the final project package and IGA report

CITY FEEDBACK AND INPUT Continuous input from City stakeholders is essential to the collaborative development process. The review confirms FIMs for final development and recommendation in the IGA report. Stakeholder feedback and input includes the following:

- Present recommend FIM list
- Discuss equipment recommendations and other scope of work details
- Review detailed cost and savings estimates

DRAFT AUDIT REPORT (90% DEVELOPMENT) The Siemens development team will incorporate feedback and direction from the 60% review meeting to produce the draft IGA Report that will be presented to the City stakeholders for final review and approval. The IGA report will include:

- Existing conditions reports for all reviewed facilities and systems
- Analysis of historical utility data and facility consumption benchmarking
- Descriptions and detailed scopes of work for recommended FIMs
- Developed preliminary design and specifications for recommended FIMs
- Required & recommended operational and maintenance procedures
- Project training plan
- Detailed energy savings calculations and formulas for each recommend FIM
- Detailed budget analysis reports related to operational and or capital cost avoidance savings
- Project measurement & verification plan
- Detailed open book pricing breakouts
- Project cash flow proformas

As described above, the improvement measures workshop is held as a series of progressive meetings over the course of the identification, selection, and design of project FIMs. Initial meetings consist of reviewing a larger list of potential improvement measures that are identified during the initial site visits following the Kickoff Workshop and throughout the Baseline Development process. Through this series of meetings, the full project team will work with City stakeholders to continuously refine the list of FIMs based on established criteria and preliminary design efforts until the final project FIM bundle has been confirmed. At the completion of the Improvement Measures Workshops, the project team will have completed the following objectives:

- Present final FIM package
- Review equipment specifications & detailed scope of work
- Review final costs, savings, & cash flows
- Agree on final selections and modifications



FINANCING



WORKSHOP

Guaranteed savings projects are typically funded using a variety of different financing structures outside of the City's established capital, operational, or enterprise fund budgets. Siemens' financing methods include tax exempt lease purchase agreements, municipal bonds, as-a-service and P3 models. Siemens various financing solutions are discussed in more detail later in this response.

During the Financing Workshops, the Siemens development team, including our internal project financing professionals, will meet with City stakeholders and often your outside financial advisors. During the workshop meeting, we review available financing structures for the anticipated project, projected cash flows, construction payment & finance repayment terms, and Siemens' performance guarantee. A full discussion regarding our

project financing capabilities and offerings are detailed in Section D in this RFQ response. At the completion of this workshop, the project team will have completed the following objectives:

- Review of statutory requirements
- Overview of process (financing, construction payment, loan payments, guarantee)
- Available financing structures and lenders
- Agreed to Siemen’s role and responsibilities
- Established schedule for financing action items



CONTRACTS



WORKSHOP

The Contracts Workshop is designed to review and select the most appropriate contract template, discuss general terms and conditions, and establish the basic contract review and approval process and timeline. Workshop participants typically include key members of City leadership and the City attorney along with the Siemens development leads and contract attorney. At the completion of this Workshop, the project team will have achieved the following objectives:

- Review of enabling legislation / statutes
- Selected agreed-upon contract template document
- Established review and comment process
- Established schedule for contract review process



CONSTRUCTION



WORKSHOP

As the Siemens development team and the City are finalizing the performance contracting and financing agreements, our teams will also begin preparations for transitioning from the project development phase to project implementation. The Construction Workshop provides an opportunity to more fully engage Siemens’ implementation team of project and construction managers, coordinators, schedulers, and administrators. The Construction Workshop acts as a Pre-Preconstruction meeting. It allows our team to capture critical City process requirements to help us draft project specific schedules, communications plans, safety plans, QA/ QC plans, etc. in advance of the preconstruction and construction kick off meetings that will be held shortly after final project approval. The Siemens team has found the Construction Workshop to be a valuable tool in helping to ensure a smooth start to project implementation activities. At the completion of this workshop, the

project team will have completed the following objectives:

- Introduction of project management team
- Established communications plan for project construction
- Reviewed proposed schedules & timelines
- Reviewed special requirements (ex. Owner's direct purchase)
- Established site access requirements
- Reviewed schedule of values & invoicing procedures
- Reviewed FIM punch list & acceptance procedures
- Established closeout documentation expectations



After the completion of the IGA report, the execution for the performance contracting agreement, and the issuance of the city selected financing, the Siemens operations team will begin project implementation, bringing the project plan into reality. We take pride in our ability to complete jobs on time, within budget, and at the quality you and your constituents deserve. We will begin project implementation activities with a series of pre-construction meetings to finalize all project plans and processes to establish expectations and full alignment of the Siemens PM team and the City's staff.

Siemens excels in project management. We anticipate and prevent potential problems, saving everyone on the project team from having to react to one unforeseen incident after another. We avoid wasting time and resources putting out fires; instead, effective project management enables us to focus on essential tasks. We are driven by the fact that your satisfaction rests on our productivity.

Administration is the core of project management because it sets up a system for controlling project elements and situations by establishing proactive management methods.

PM@SIEMENS

PM@Siemens is a disciplined project management process that encompasses the entire project workflow, from initial project development through final delivery and contract close. PM@Siemens establishes specific requirements for all project executions that are fully aligned with our organization, including Project Management Institute (PMI) certification. These guidelines focus on our processes as a road map for the successful execution of projects and overall customer satisfaction.



Using PM@Siemens, we meet project objectives by planning, monitoring, measuring, and taking corrective actions when necessary. Highlights of our methodology include consolidated industry best practices; a 12-module program that is uniformly taught and applied; a vast history in lessons learned; uniform project categorization; and an international project manager database, which ensures that the right project managers are assigned to every project. We consistently apply and improve project management within Siemens field offices.

We adopted PM@Siemens from the Project Management Institute's (PMI) publication, "Project Management Body of Knowledge" (PMBOK). PMI is a worldwide association of over 20,000 project managers. The PMBOK includes proven, traditional practices that are widely applied in addition to innovative and advanced practices. The PMBOK was defined by professional peers, and it outlines five process groups deemed essential for effective

project management and risk minimization:

- **Initiate** – recognize that a project or phase should begin
- **Plan** – devise and maintain a workable scheme to accomplish business needs that the project was undertaken to address
- **Execute** – coordinate people and resources to carry out plan
- **Control** – ensure project objectives are met by monitoring and measuring progress, and taking corrective action when necessary
- **Close** – formalize acceptance of the project or phase, and bring it to an orderly end

The project manager's direct responsibilities start with planning and estimating in the project development phase, and they continue with management and control through the implementation and customer acceptance phases.

"Working with Siemens was a complete pleasure. They are absolutely the best at what they do. Every time there was a question, Siemens had an answer. Every time there was a challenge, Siemens had a solution."

-David Dilena
CFO for the Florida Governmental Authority



PROJECT MANAGER'S RESPONSIBILITIES

Project management is one of Siemens' areas of core competency developed through rigorous process and training. Our project manager serves as your single, dedicated point of contact during delivery and is tasked with the following goals and responsibilities:

1. **Organize and direct the efforts of the project team for maximum success by:**
 - ✓ Breaking down the project into achievable, traceable tasks
 - ✓ Assigning specific responsibilities to individuals
 - ✓ Establishing a chain of command and ensuring that everyone always has the information, tools, materials, manpower and cooperation they need to do their job
2. **Establish a network for communications among all members of the project team and between the project team and the other parties involved in the project, e.g., building occupants, site managers, project owner, engineer and subcontractors, etc. This is accomplished by:**
 - ✓ Identifying who should be talking to whom
 - ✓ Providing channels for communication, including reports and feedback systems
 - ✓ Establishing a schedule of regular meetings

3. **Devise and implement work methods that maximize productivity at all levels by:**
 - ✓ Applying the most productive methods for installation and material handling
 - ✓ Employing labor and time-saving tools and techniques, properly managing project resources such as labor, materials, installed equipment, tools and subcontractors
 - ✓ Coordinating subcontract construction activities with all other associated trades on the job
4. **Monitor and document job progress and events by:**
 - ✓ Implementing a practical, simple monitoring system that keeps the team apprised of all job situations, helps avoid surprises, and brings the entire team's talents to bear in solving problems
 - ✓ Using the job's history and present status to forecast project progress-to-completion and to make adjustments to the project strategy as needed
 - ✓ Establishing strict procedures for completing all documentation required to fulfill the contract and to provide the company with detailed job records for planning future project strategy
5. **Install a proactive style of management by:**
 - ✓ Making everyone on the construction team customer-conscious
 - ✓ Encouraging team ingenuity and imagination
 - ✓ Actively identify, analyze and mitigate project risks before they turn into issues

Tools for Success

The Siemens operations team utilizes a suite of industry leading tools and best practices as part of our project management process. These tools promote communication, transparency, and overall quality control throughout the delivery process assuring that we achieve all project goals and exceed the City's expectations:

- **BIM 360** – Our professional project managers utilize the BIM 360 tool to track daily construction reports, issue logs, site photos, action items, equipment logs, and many other activities to ensure a professional implementation. We provide BIM 360 access to the City, so you can stay close to the project activities and progress.
- **PACT Workshops** – Siemens' "Project Acceleration through Coaching and Teamwork (PACT)" is a process developed and supported through our national operations team that will be utilized on the City's project. PACT begins during preconstruction and includes the Siemens project team, Siemens executive leadership, and all City stakeholders. The workshop and follow-up process ensure that all critical parties are at the table to identify key success factors and risks before the start of construction to ensure a successful project.
- **Project Excellence Reviews** - During project implementation, the project manager leads regular review meetings for the Siemens executive leadership team. The Project Excellence Review (PER) meetings walk through the status of every aspect of the project including customer satisfaction, scope, schedule, budget, safety, potential challenges that need to be mitigated, and any lessons learned to improve delivery. These are deep reviews generally lasting three or more hours. At the end of the meeting, executives assign any action and follow up items to the project team and ensure that any additional required resources are appropriated. This focus of attention from every level of the organization for every project maintains our culture of commitment to excellence throughout the delivery process.



Duaine Edwards, Sr Project Manager for Siemens Miramar, will lead the construction phase of your project.

- **Quality Manager Customer Review Meetings** - Part of Siemens' commitment to quality is making sure that our customer's voice is always heard. This is fostered through transparency of process and open communications. This includes providing multiple channels of communication for our customers to share any concerns or issues so that they can be quickly addressed. One of these channels are regular one on one touch base meetings scheduled by Siemens' Quality Assurance Manager with key city stakeholders. These meetings provide an opportunity for candid input from the City to assure that the construction effort remains inline with the customer's goals and expectations.

Project Quality and Control

Siemens ensures that projects are completed in a manner consistent with our commitment to quality. When we administer a project, we consider the following items to assure quality and control from the start:

Documentation Requirements

The project manager lists all documentation requirements and ties the documentation schedule to the project plan to ensure the timely receipt of information and material from subcontractors and suppliers. This allows sufficient time for review and coordination.

Potential Problem Areas

Potential problems are identified, documented and submitted to the person responsible for clarification and resolution. Two examples of potential problems are unfeasible tolerances and items being used in an incorrect application.

Engineering

When reviewing the scope of work, the project manager may discern a more practical way to achieve the design intent. These items are noted, documented and reviewed with the responsible person.

Testing and Inspection/Measure and Verify

The project manager lists all required special tests and inspections and assures that all required measurements and verification are performed to establish the energy savings guarantee.

Subcontractor Warranties and Guarantees

Early in the project, the project manager identifies and deals with potential subcontractor warranty and guarantee problems (e.g., a subcontractor's inability to properly warrant a product in accordance with the specifications). Discrepancies between the specifications and the subcontractor proposal are examined carefully.

Project Schedule and Milestones

The project manager plans for the completion of the project at the start. Planning for project closeout includes:

- ✓ Complete warranty and guarantee documents; submit them for acceptance
- ✓ Develop as-builts on an ongoing basis throughout the course of the project
- ✓ Develop punch lists and administer solutions
- ✓ Develop short internal work lists, assuring all deadlines and milestones are achieved on time
- ✓ Gather final documentation literature and collate it per the agreed upon format

QUALITY CONTROL PLAN

Siemens Quality Management System (QMS) is established, documented, implemented and maintained to ensure the work delivered under the City's contract conform to specified regulations and local building codes. The QMS provides a framework for continually improving system effectiveness with the requirements of ISO 9001: 2008. Siemens is ISO 9001 certified. Siemens' Quality Assurance Manager develops the Project Quality Control (QC) Plan in accordance with Siemens QMS, and ensures the QC Plan is implemented at City of Miramar site-level by our on-site inspector during construction.

Siemens develops the Final QC Plan after contract award during the project-planning phase and submits the plan with the Final Design and Construction Package. The QC Plan confirms major deliverables and milestone acceptance criteria, and includes process outlines, plan structure and procedures, and describes the interaction between implementation and the QMS processes. The QC Plan starts at the pre-construction planning stage; is incorporated into the final design, bidding and procurement; and continues throughout the entire construction process. Major QC Plan activities and processes are summarized in the following table.

QC Plan Element	Description
Constructability and Design Reviews	<ul style="list-style-type: none"> Evaluation of the practicality / efficiency of design details. Technical review of details and systems to clarify the sequence of construction and the impact of design tolerances.
Subcontractor Selection	<ul style="list-style-type: none"> Siemens employs a rigorous subcontractor selection process to pre-qualify companies for which we have no existing performance relationship or do not have well-established industry reputations / references. If we believe there has been a material change in management, financial strength or other qualifying factor, a vendor or subcontractor is required to re-qualify. Subcontractors must provide a job-specific QC Plan for each of their trades.
Document Control	<ul style="list-style-type: none"> A fundamental principle of ISO 9001 is maintaining a documentation process to ensure compliance with quality-related policies, procedures and the QC Plan. The document control plan is designed to ensure all critical project communications are properly documented, tracked, distributed and resolved. All submittals, Requests for Information (RFI), Field Change Requests and Deficiency Reports are logged and tracked from the time of origination through closure. Document logs are reviewed weekly to ensure all items are addressed timely.
Hold Points, Inspections and Testing	<ul style="list-style-type: none"> Identifies critical activity verification and test points during project construction. Inspection schedule, keyed to the installation schedule, includes all inspections and tests.
Commissioning	<ul style="list-style-type: none"> A post-installation testing program will be implemented. All metering, protection and control equipment, and wiring will be tested in accordance with International Electrical Testing Association (NETA) standards, including functional / witness testing of all relay operations. Standardized checklists developed through years of experience will be used and the Siemens Team will maintain records of inspections and tests.

QUALITY ASSURANCE MANAGER

Every Siemens project is assigned a Quality Assurance Manager (QAM) who is responsible for implementation and oversight of site QC procedures. The QAM has the authority to stop work and delivery or installation of non-conforming items and services. The QAM is authorized to elevate high-risk QC issues to the Program

Manager immediately. We provide senior management access to ensure the QAM is authorized to identify quality problems, initiate actions, make recommendations and verify implementation of solutions.

Project Safety

Siemens believes that project safety is of the utmost importance — for our employees, subcontractors, consultants and for the staff and all other facility occupants. We have extensive experience in establishing and maintaining a safe environment on all of our job sites and have been recognized nationally for outstanding performance in this area.

We establish and maintain our safety focus through the following “Zero Harm” activities:

- Regular Safety Meetings — Our Quality Assurance Manager (QAM) will hold “toolbox” safety meetings with specific topics and safety meetings for field supervisors.
- We conduct a detailed safety orientation for new employees, and provide the required personal protective equipment (PPE) to all new employees, including training in their proper use. We ensure that subcontractors equip their employees with proper safety gear and reinforce the same tenets of working safely.
- All workers and visitors will be required to wear all PPE to be allowed onsite.
- Safety Manuals — We have at least one full set of safety manuals onsite at all times as a reminder and referral document. Also, all required Safety Data Sheets (SDS) are nearby at all times.
- Drug Free Workplace — Siemens maintains zero tolerance for any drug use by an employee or subcontractor and the subject is a recurring topic at all safety meetings. We reserve the right to perform random drug testing with our employees.
- Proper Identification — Siemens requires proper identification for all workers and visitors on the site, allowing clear acknowledgment of who they are and whom they work for.

Siemens has implemented quality programs based on ISO methodology and metrics, including:

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 18001 Occupational Health and Safety Management System

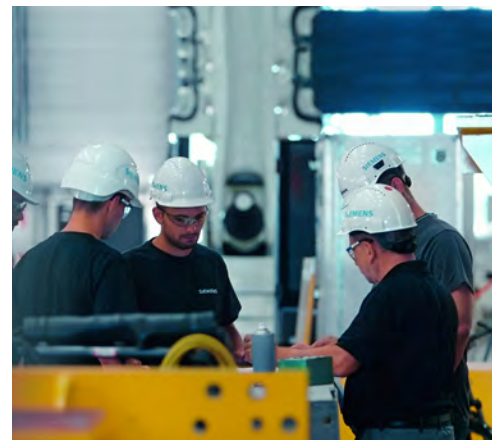
Our quality management system is fully integrated into our business culture and is the backbone of our daily operations. Through our company-wide commitment to our quality management system, we are assured of regularly providing outstanding value to our customers.

TRAINING

The City of Miramar will be making a significant investment into your facilities and infrastructure as part of the Performance Contract. The project’s guaranteed performance commitments require a collaborative partnership between Siemens and the City to protect and maintain that investment. An effective training program is an essential component to the project’s technical and financial success by understanding the intent and proper operation of the project’s various improvement measures.

Approach to Project Training

Siemens is a leader in customer training offering a variety of comprehensive programs and workshops for building operation and



maintenance professionals. Our training process is designed to provide the most effective path to developing employee competency. Siemens' training provides objective-based learning experiences that will teach both management and staff how to manage your operations more efficiently, reduce utility costs, increase comfort and maximize system benefits.

Training will include a structured format of detailed maintenance routines, tasks and required tools based on the manufacturer's recommended procedures and instructions. The intent is to provide the City's staff with the knowledge and skills to maximize the performance of your new systems and infrastructure and to extend equipment life by ensuring proper operation and maintenance procedures.

Training Program Areas of Focus

Siemens typically recommends implementing a training program that incorporates several areas of focus across relevant stakeholder groups:

General Energy Awareness Training

Siemens believes strongly that everyone who works for or within a facility can have an impact on the level of success of any energy conservation program. Therefore, general energy awareness training should be offered to the broadest possible range of employee groups. Educating occupants, facilities staff, and management about the energy conservation project is critical in ensuring its success. Siemens' experience has shown that energy awareness programs can improve the City's actual achieved energy savings up to 15% above the project's predicted savings.

The Energy Awareness program begins with management, occupant and building operations staff's participation in a "Get Started Meeting", where participants are apprised of the program's projected operational, financial, and environmental benefits. Participants under the guidance of a Siemens moderator, will begin discussions about the Energy Awareness program, select leaders who will spearhead aspects of the program and develop program particulars that will focus on getting the building community involved.

Programs typically start with a media campaign to inform and alert everyone about the project and gain community buy-in. This often includes the creation of a project website that shares information about the new technologies being deployed, updates on the implementation efforts, and documentation of achieved energy savings and environmental benefits.

Project Specific Technical Training

Project specific training is focused on the City's facilities and operations staff directly engaged in the day to day utilization and care of the installed improvement measures. Training content is based on the project's specific scope of work including new equipment and systems as well as modified operational and maintenance processes. Project specific training typically includes:

- **Project Background**
 - Overview of the City of Miramar Performance Contract
 - Review of installed equipment and systems
 - Review of the energy savings strategies
 - Review of guaranteed project outcomes
 - Discussion of City administration and staff responsibilities
- **Topics for installed equipment and systems training**



Cory Carter is another experienced Project Manager with the Siemens team in Miramar who can support the City's project along with Duaine.

- Overview of new equipment or system
- Functional operations
- Basic maintenance requirements
- Warranty and service plan and procedures
- Methodology for tracking and validating guaranteed savings

Training Development Process

The City of Miramar's training program will be specifically tailored to your facilities and systems and for your employees. The training curriculum we establish also enables your employees to set a path for their own professional development, which encourages an improved quality of work and also improves employee morale. Miramar's specific plan will be developed during the investment grade audit process based on project scope and staff need:

1. TRAINING NEEDS EVALUATION: Siemens will conduct a needs analysis of the training areas that would be most beneficial to your staff based on existing skillsets and the actual improvement measures that are being designed. Siemens will present the proposed training strategy for the City's review and approval.

2. DETERMINING WHO RECEIVES TRAINING: The City of Miramar and Siemens will work together to determine which groups should receive training. This can include management, supervision and staff.

3. ESTABLISHING GOALS AND OBJECTIVES: It is critical to establish goals and objectives at the beginning of the training program development. Identifying desired outcomes will help set expectations and provide a benchmark for measuring training results.

4. TRAINING PROGRAM PRESENTATION: Siemens will present the recommended formal training program to the City of Miramar for final review and approval. The overall program goal is to objectively demonstrate the ability of your employees to operate and maintain the city's new systems to insure long-term project success.

5. TRACKING THE TRAINING: As part of administering the training program, Siemens will track the participation, progress, and successful completion of all training requirements for the City's staff. All training activities will be tracked and reported as part of our project documentation.

Other Program Considerations

The Siemens project team will also work with the city to account for the following program considerations during the training development process.

Training Locations

Depending on the nature of the specific training activities and requirements we anticipate using a variety of training locations across the overall program including:

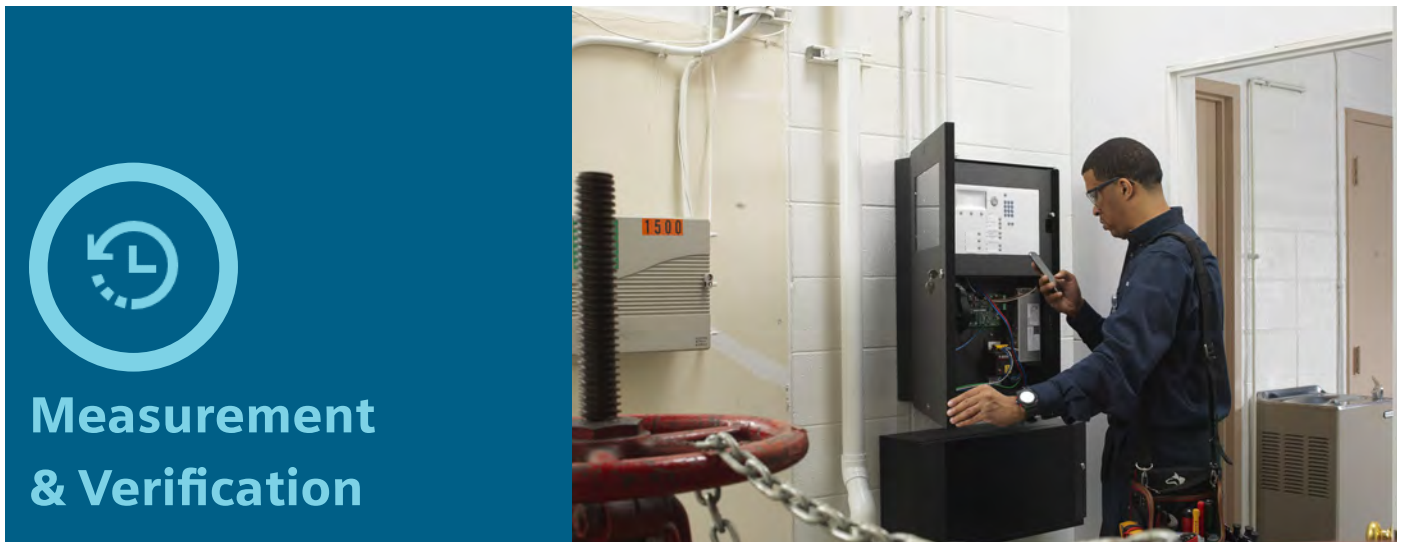
- Onsite Training — at the City of Miramar Facilities
- Offsite Classroom Training — at Siemens' Miramar Corporate Training Center
- On-line and Self-directed Training

Preserving Site-specific Knowledge

Staff turnover within any organization is inevitable. When employees leave, they take with them valuable intellectual capital. In order to maintain the City's staff skillset, it is important to preserve the valuable training and information provided during project implementation. Siemens has developed several means to meet the City of Miramar's ongoing training needs.

- **Project Library:** All site-specific training materials will be physically provided to the City for its use at the facility. Electronic copies of the educational literature and documentation will be stored at both the City's site as well as offsite with Siemens.

- **Video Archives:** Live training sessions can be videoed as part of the project library materials. Training videos can be formatted and archived via the appropriate media (CD, digital storage, etc.) to be used for future training and / or refresher program needs.
- **Group Re-training:** Should the City of Miramar desire, Siemens can provide periodic refresher training based on the original training documentation updated to reflect changes in technology or improved operational strategies that may further benefit the City.
- **Ongoing Interaction and Support:** With Siemens' local branch office and corporate training center located less than 2 miles from Miramar's City Hall. Siemens' local resources will always be available to the city to help address any specific service support or training needs that might arise.



PERFORMANCE ASSURANCE

Performance Assurance is one of the most important services we provide our customers. It is a service applied to all guaranteed and non-guaranteed energy savings projects to ensure the improvements we install continue to function correctly and meet savings expectations. Our experienced team of Performance Assurance Engineers (PAEs) measure and track the savings of each of our projects. Reports are generated and reviewed with our customers. Our team leverages on-site measurements and cloud-based, remote energy monitoring platforms to continuously watch for deviations in energy use and system performance. If a problem is detected during performance tracking, the customer is informed and corrective actions investigated. If corrective actions are needed, we meet with our customers to determine a plan to implement the necessary changes to ensure the persistence of project savings and occupant comfort.

The goal of measurement and verification (M&V) is to accurately assess project savings and ensure their persistence. The Siemens M&V team is involved early in project development to determine the most cost-effective M&V methods tailored to meet customer-specific needs, as well as to ensure seamless coordination of pre-retrofit data and calculations needed to determine savings during performance verification. Once in performance, our engineers will leverage site inspections and continue to work with your personnel to further evaluate building operations. Through our commitment of Performance Assurance, we are confident that additional opportunities will become evident over time, which will further reduce your operating budget. These opportunities will be brought to the attention of your staff, discussed and implemented as determined by the customer.



Measurement & Verification Methodology

Measurement & Verification (M&V) is the cornerstone of the Performance Assurance (PA) process, documenting how project savings will be calculated and measured against guaranteed performance. Siemens' M&V procedures are in full accordance with the International Performance Measurement & Verification Protocol (IPMVP). IPMVP is an independently developed protocol and considered the industry's gold standard for performance verification. IPMVP provides five specific options that can be used to measure savings for individual improvement measures or groups of measures:

Option A - Retrofit Isolation: Key Parameter Measurement. Savings are determined by field measurement of the key performance parameter(s) which define the energy use of the FIM's affected system(s) and/or the success of the Project. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the measured parameter and the length of the reporting period. Parameters not selected for field measurement are estimated. Estimates can be based on historical data, manufacturer's specifications, or engineering judgment.

Option B - Retrofit Isolation: All Parameter Measurement. Savings are determined by field measurement of the energy use of the FIM-affected system. Measurement frequency ranges from short-term to continuous, depending on the expected variations in the savings and the length of the reporting period.

Option C - Whole Facility: Savings are determined by measuring energy use at the whole Facility or sub-Facility level. Continuous measurements of the entire facility's energy use are taken throughout the reporting period.

Option D - Calibrated Simulation: Savings are determined through simulation of the energy use of the whole facility, or of a sub-facility. Simulation routines are demonstrated to adequately model actual energy performance measured in the facility. This Option usually requires considerable skill in calibrated simulation.


Option E - Stipulated: This option is the method of measurement and verification applicable to FIMs consisting either of operational savings or where the end use capacity or operational efficiency; demand, energy consumption or power level; or manufacturer's measurements, industry standard efficiencies or operating hours are known in advance, and used in a calculation or analysis method that will stipulate the outcome. Both the City of Miramar and Siemens agree to the stipulated inputs and outcome(s) of the analysis methodology. Based on the established analytical methodology the savings stipulated will be achieved upon completion of the FIM.


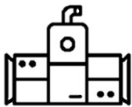


Identification of Appropriate M&V Methodology Based on IPMVP



For each of the project's improvement measures, Siemens will work with the City to identify the appropriate IPMVP M&V option. Several factors are taken into consideration in determining the appropriate M&V Method including:

- The type of improvement measure and its operating characteristics
- Any interactive effects between multiple FIMs within a single facility
- Desired level of confidence in the savings calculations
- Wherever measurement strategies are feasible and cost effective

The following table summarizes examples of a few typical measure-specific methods of calculating energy savings and recommended M&V options for several typical performance contracting FIMs.

FIM	M&V Option	Methodology	Formulas Used
Lighting Upgrades and Retrofit 	A	Savings generated by lighting retrofits shall be based upon one-time 5% sample KW measurement for each major fixture type. Each fixture's Pre and Post wattage measurement will be used along with the actual installed lighting survey to calculate Savings. Pre and Post lighting burn hours used in the energy calculation for each fixture are based on agreed upon hours.	$\text{KW Savings} = \text{Pre KW Measurement} - \text{Post KW Measurement}$ $\text{Annual KWH Savings} = \text{Pre Lighting Burn Hours} \times \text{Pre KW Measurement} - \text{Post Lighting Burn Hours} \times \text{Post KW Measurement}$ $\text{Annual KW Demand Savings} = \text{KW savings} \times \text{demand months}$ $\text{Annual Dollar Savings (\$)} = \text{KWH Savings} \times \text{\$/KWH Rate} + \text{kW demand savings} \times \text{\$/kW rate}$

FIM	M&V Option	Methodology	Formulas Used
Coil Cleaning –VAV Systems 	A	Savings generated by cleaning coils on existing VAV system shall be calculated by measuring the average Pre and Post fan KW multiplied by the fan's run hours. Hours used in the energy calculations for each fan are based upon agreed upon hours	$\text{Annual Fan Savings (KWH)} = \text{Bin Run Hours} \times (\text{Pre Fan KW Measurement} - \text{Post Fan KW Measurement})$ $\text{Annual Fan Demand Savings (KW)} = \text{Demand Months} \times (\text{Pre Fan KW Measurement} - \text{Post Fan KW Measurement})$ $\text{Annual Dollar Savings (\$)} = \text{KWH Savings} \times \text{KWH Rate} + \text{KW Savings} \times \text{KW Rate}$
Chiller Replacement 	B	Electric savings resulting from a chiller replacement are realized by improving the operating efficiency (kW/ton) of the proposed machine over the existing. The post -retrofit chiller plant efficiency (kW/tonpost) is calculated from continuously trending chiller plant electric demand (kWpost) and plant tonnage (Tonspost). This post-retrofit efficiency is compared to the pre-retrofit chiller plant efficiency (kW/Tonpre), which is normalized for outdoor temperature conditions, to determine energy savings. All data points are continuously monitored through BAS trending.	$\text{Chiller Load (Tonnage)} = (\text{Supply Temp} - \text{Return Temp}) \times \text{Chiller Loop GPM} \times 8.346 \text{ lbs/gallon} \times 60 / 12,000$ $\text{Annual Chiller Savings (KWH)} = (\text{kW/Ton Pre} - \text{kW/Ton Post}) \times \text{Baseline Chiller Load} \times \text{Bin Hours}$ $\text{Annual Chiller Savings (KW)} = \text{Monthly Sum of (Pre Chiller Peak KW} - \text{Post Chiller Peak KW)}$ $\text{Annual Dollar Savings (\$)} = \text{KWH Savings} \times \text{KWH Rate} + \text{KW Savings} \times \text{KW Rate}$
Controls 	B	Electric savings resulting from a controls improvements are realized by operational changes including scheduling changes, setpoint and setback modifications, improved sequence of operations, calibration of sensors, etc. The measurement and verification approach is specific to the implemented controls improvements. As an example, the following would be the approach methodology taken towards verifying savings through continuous run time trending for the modification equipment schedules.	$\text{Annual electric energy (kWhpre)} = \text{Pre-retrofit annual operating hours (AOHpre)} \times \text{Unit electric demand (kW)}$ $\text{Post-retrofit operating hours (AOHpost)} = \text{Post-retrofit annual operating hours (AOHpost)} \times \text{kW}$ $\text{Total annual electric savings (kWhS)} = \text{kWhpre} - \text{kWhpost}$ $\text{Total annual cost savings (\$S)} = \text{kWhS} \times \text{\$/kWh}$ <p>Where: $\text{\\$/kWh}$ = incremental unit price for electricity</p>
Motor/VFD 	A	Verification of the energy savings associated with the installation of VFDs are achieved through 15-minute, continuous, annual trending of the consumption (kWh), power draw (kW), and speed (Hz) to verify expected operation of the VFDs. Annual post-retrofit electric consumption for each VFD/motor combination are compared to the pre-retrofit electric consumption, with the difference being the measured and verified savings.	$\text{Annual post retrofit electric consumption } \text{[kWh]}_{\text{post}} = \text{Cumulative } \text{[kWh]}_{\text{End}} - \text{Cumulative } \text{[kWh]}_{\text{Start}}$ <p>Where:</p> $\text{Cumulative kWhEnd} = \text{Trended kWh value at end of Annual Period}$ $\text{Cumulative kWhStart} = \text{Trended kWh value at start of Annual Period}$ $\text{Annual post-retrofit kilowatt-hour savings } \text{[kWh]}_{\text{s}} = \text{[kWh]}_{\text{pre}} - \text{[kWh]}_{\text{post}}$ $\text{Total annual cost savings (\$}_\text{s}) = \text{[kWh]}_{\text{s}} \times \text{\$/kWh}$ <p>Where:</p> $\text{\$/kWh} = \text{contracted unit price for electricity}$

FIM	M&V Option	Methodology	Formulas Used
HVAC Replacements 	A	<p>Energy and cost savings are achieved by replacing existing HVAC systems with higher efficiency HVAC systems. Savings are verified by comparing pre and post electric demand (kW) measurements of the existing (kWpre) and installed (kWpost) equipment. Measurements are taken as a one-time verification and are usually centered toward condensing unit operation and efficiencies. Fan motors can be taken into further consideration but are usually measured separately as part of a different scope as listed before.</p>	<p>Pre-Retrofit electric consumption (kWh pre) = Annual Operating Hours per Year * Pre-Retrofit unit electric draw (kWpre)</p> <p>kWpost = one-time measurement of the unit's electric draw (kW) by means of measuring amperage, voltage, and power factor of 0.9</p> <p>Post-Retrofit electric consumption (kWhpost) = AOH * kWpost</p> <p>Total annual electric savings (kWhs) = kWhpre – kWhpost</p> <p>Total annual demand savings (kW) = kWpre – kWpost</p> <p>Total annual Costs Savings (\$s – kWhs) * \$/kWhx + kWx * \$/kWx</p> <p>Where</p> <p>\$/kWh = [contracted or blended or incremental] unit price for electricity</p>
Solar PV 	B	<p>The Savings associated with this measure are avoided electrical consumption due to the production of power by the PV system</p>	<p>Annual Difference = Actual Generation - (Expected Energy x Weather Adjustment)</p> <p>Where "Weather Adjustment" means the following ratio:</p> $\frac{POAIM}{POAIT}$ <p>Helioscope simulation will be performed.</p>

Savings Calculation Process

Depending on the FIM and selected M&V option, energy savings will be calculated as the baseline period energy usage minus reporting period energy usage, combined with applicable adjustments per the following general equation:

$$\text{Energy Savings} = (\text{Baseline Period Energy} - \text{Reporting Period Energy}) \pm \text{Adjustments}$$

To determine the cost savings created by a FIM, the post-installed measured energy usage is subtracted from the pre-installed energy usage, with the energy price applied to this marginal savings figure. The goal of measurement and verification is to keep the energy savings calculations as simple as possible, however for some FIMs, the simple energy savings equation cannot be used.

In certain circumstances, calculated savings may need to be adjusted for variations in energy consumption due to:

- Changes in year to year local weather conditions
- Changes to occupancy levels or hours of operation
- Structural modifications or modifications to energy consuming equipment
- Damaged or malfunctioning equipment
- Variances from proposed operating schedules and strategies affecting energy usage

- Change of energy source (e.g. conversion from electric to natural gas)
- Change in utility service level or rate structure

Detailed information on how the energy savings will be calculated and which variables will be measured, along with the frequency of the measurement, will be specified in the Performance Contracting Agreement. To ensure that our energy accounting method is accurate, objective and auditable, we will use a combination of commercially available energy accounting programs and standard engineering calculations. Weather data is obtained for the local area from the National Weather Service.

Performance Assurance Service Program

To measure and verify ongoing guaranteed saving, Siemens requires an annual Performance Assurance Service Program (PASP). This agreement details the project's performance assurance scope of services and covers Siemens' cost of periodic monitoring of the installed systems and equipment, along with the determination of whether systems and equipment are being operated in compliance with the guarantee document. It also covers the cost of the annual monitoring and measurement and verification report associated with the guarantee. Siemens PASPs are developed to accomplish the following objectives:

VERIFY: Confirm actual achieved savings against performance guarantees. Annual verification reporting serves as the basis for determining if Siemens' project guarantees have been met.

MAINTAIN: Over time, systems and equipment and drift out of operational specifications. Vigilant monitoring of system KPIs can proactively identify and address potential system performance and operational risks to sustain savings throughout the guarantee term.

IMPROVE: Based on the principles of continuous improvement cycles. Continuous performance evaluation can help identify opportunities for ongoing system improvements to drive additional savings for the City over the systems' lifecycles.

We leverage our Digital Service Center (DSC), which is staffed by a centralized team of M&V specialists, energy engineers, and digital service specialists to provide our customers with continuous, cloud-based access to their project's performance via their Navigator Dashboard. Each Dashboard comes standard with the following applications:

- Dashboard to trend energy savings performance and identified KPIs
- Portfolio overview including site map, improvement measure details, and annual savings report
- Utility history database for tracking and reporting progress towards target bookmarks
- Project documents such as contracts, annual reports, interval reports, etc.
- Activity log tracking status and outcomes of all PASP scope activities

Each customer's Dashboard can be customized to include enhanced, automated monitoring capabilities such as improvement measure specific dashboards and automated fault detection and diagnostics (FDD) for various building control and distributed energy strategies, which can be combined with remote services to ensure a fast response when facility changes have a negative impact on savings.

When building-level energy monitoring is desired, utility bill information and site-level sub-metering data can be automatically imported into the Navigator platform. As part of this service, customers can access their utility data through their Navigator Dashboard account and, in addition to supporting continuous monitoring



Bin Zheng, our local performance assurance engineer, will lead the M&V phase of your project.

of energy use and savings, can also include Energy Benchmarking and Greenhouse Gas Reporting to help customer's monitor and meet their sustainability targets.

Utilization of the Navigator platform promotes a more collaborative and proactive approach to M&V, far outstripping the limited value created through traditional, reactive, annual reporting process offered by many of our competitors.

Post-Installation Measurement & Verification

Post-installation M&V activities are conducted as part of system commissioning for each improvement measure. Post installation activities confirm equipment function, proper operation and key parameter settings. Verification methods may include inspections, spot measurements, sub, and automated monitoring and trending of the facilities' automation system.

Your post-installation M&V report will be included with project commissioning and closeout documents and include the following information:

- Project description
- Detailed list of installed equipment
- Details of any changes between the final proposal and as-built conditions
- Documentation of all post-installation verification activities and performance measurements
- Performance verification—how performance criteria were met
- Documentation of construction-period savings
- Status of any rebates or incentives
- Projected first year savings

Continuous Performance Monitoring

Siemens' use of digital tools and automated technology allow for cost effective continuous monitoring of utility bill and submetering data and other key operating parameters associated with implemented improvement measures. Established Key Performance Indicators are tracked and reported through the Navigator dashboard, allowing the City anytime access to project performance data. Ongoing and continuous engagement has been proven to be the best way to ensure persistence of savings and identify new opportunities to further reduce building operating costs.

Continuous tracking combined with immediate access to data provides the City the highest level of transparency and control allowing you to actively participate in the performance assurance process as a program partner instead of a passive observer. Navigator can be enabled with fault detection and alarming features to notify the city and Siemens's digital services team to quickly identify and correct performance issues preserving your energy savings.



Quarterly Interval Reporting

Miramar's PASP will include quarterly online review meetings as a regular touch base between City Stakeholders and Siemens' Performance Assurance Professionals. This quarterly engagement allows for a review of the project's overall performance and to address any questions or concerns that the City might have. The interval reporting from this proactive monitoring approach will provide you with:

- Expert review of FIM performance by our remote engineers in the Digital Service Center
- Summary report with actionable insights for optimizing FIM performance
- Review of summary reports to help develop an action plan

- Summary of new FIMs that could be implemented to further reduce energy use
- Pdf version of summary reports stored in your PA Navigator Dashboard

Biannual Site Visits

In addition to tracking automated trending data, occasional boots on the ground information is also required for a complete picture of the project's overall performance. Siemens' will schedule twice a year site visits to inspect installed systems, take any required spot measurements, and meet with facilities and operational staff. These visits allow the Siemens team to collect additional information to help maintain savings and identify opportunities for improving system performance.

Annual Verification Reporting

At the conclusion of each annual period of the guarantee term, Siemens will provide a detailed annual savings report. The annual report will include a summary of all PASP activities, measured performance data, and documented energy savings calculations for the performance year.



Section A-2 Observations And Opportunities For The City Of Miramar Facilities

Siemens Industry, Inc.

City Buildings

- ✓ LED Lighting
- ✓ HVAC Replacements
- ✓ Pumps & Drives
- ✓ Pool Geothermal
- ✓ Water Conservation
- ✓ Building Envelope
- ✓ Enlighted Internet of Things (IoT) Building Platform
- ✓ HVAC & Controls Retro Commissioning
- ✓ Digital Facility Management & Energy Analytics Platform
- ✓ Central Chiller Plant Expansion
- ✓ Distributed Solar Photo Voltaic & EV Charging Sytems
- ✓ LED Street Lighting



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West Water Treatment Plant

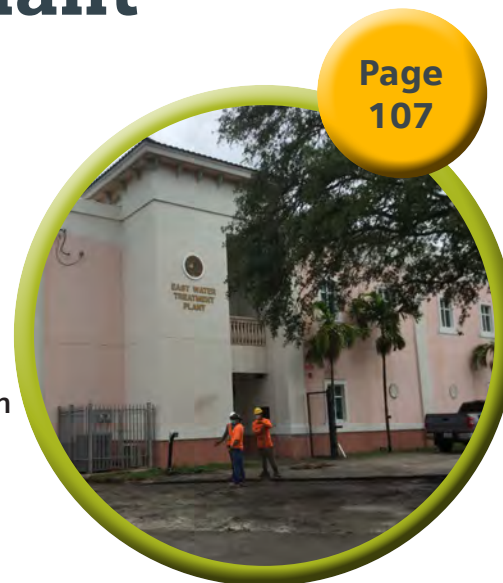
- ✓ Bypass degasifier
- ✓ Turn off degasifier blowers
- ✓ Reduce second stage permeate backpressure
- ✓ Interstage boost pumping
- ✓ Reduce concentrate flow throttling
- ✓ Increase energy recovery efficiency
- ✓ Replace nanofiltration membranes
- ✓ Evaluate reverse osmosis membranes
- ✓ Replace or de-stage the nanofiltration feed pumps
- ✓ Optimize pump efficiency
- ✓ Optimize blower efficiency
- ✓ Lower electric bill through procurement and demand management



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East Water Treatment Plant

- ✓ Turn off a blower and still maintain alkalinity
- ✓ Consider pretreatment pH control
- ✓ Test alternative scale inhibitors
- ✓ Develop a membrane cleaning plan
- ✓ Optimize pump efficiency
- ✓ Operate inline or with inline boosting in the distribution system
- ✓ Optimize pump efficiency at the remote pump station
- ✓ Use hydraulic model to optimize distribution system operations
- ✓ Lower electric bill through procurement and demand management



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Wastewater Reclamation Plant

- ✓ Consider biological trickling filters for odor control
- ✓ Consider activated sludge diffusion for odor control
- ✓ Optimize aeration process and blower efficiency
- ✓ Implement airflow-based control and most open valve
- ✓ Upgrade aeration control and diffusers
- ✓ Simultaneous nitrification and denitrification
- ✓ Consider activated sludge densification
- ✓ Optimize RAS flow rates and RAS and WAS efficiency
- ✓ Optimize process pump efficiency
- ✓ Evaluate existing digesters and biogas utilization
- ✓ Pretreat WAS to increase digester capacity and biogas production
- ✓ Optimize existing belt filter presses
- ✓ Replace belt filter presses with high-solids centrifuges
- ✓ Optimize existing gravity belt thickeners
- ✓ Retrofit the existing Dynasand filters with EcoWash
- ✓ Lower electric bill through procurement and demand management



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A-2 OBSERVATIONS AND OPPORTUNITIES FOR THE CITY OF MIRAMAR FACILITIES

PROVEN PROJECT SOLUTIONS

Guaranteed savings performance contracts are typically composed of multiple smaller standalone scopes of work often called Energy Conservation Measures (ECMs) or Facility Improvement Measures (FIMs). Each FIM can be evaluated by its own individual cost, savings, and payback performance. The best overall project is developed by bundling identified FIMs into a package that achieves the highest value set of solutions for the City.

As part of our guaranteed savings performance contracting programs, Siemens offers the widest portfolio of solutions in the energy services industry. The following provides an overview of the improvement measures that Siemens' will investigate at each of the City's facilities and plant sites during the audit phase. Though not an exhaustive list, this section provides a brief introduction to the types of technologies that may be proposed for the City of Miramar and the philosophy behind their application.



Brian Montenegro, Siemens Energy Engineer, will support the team in the development of improvement measures.

Mechanical/Electrical Systems



Lighting: Indoor and Outdoor. Lighting can account for nearly one-third of the total energy consumption in a non-residential facility. Rapidly changing technologies have made lighting equipment and control more efficient than existing equipment in most facilities. Siemens lighting solutions provide upgrades and enhancements to existing lighting systems to increase energy and operational efficiencies and reduce building utility and operational costs.



HVAC. Many buildings contain mechanical (HVAC) equipment that is inefficient, inoperable, or nearing the end of its useful life. Siemens will identify mechanical equipment in need of an upgrade and provide repairs, retrofits or replacements to increase energy and operational efficiencies and reduce building utility and operational costs.



Controls and Building Automation. Most buildings contain some level of building control and automation, but do not incorporate advanced energy management control strategies. Siemens solutions provide upgrades and enhancements to the Building Automation Systems (BAS) to increase energy and operational efficiencies and reduce building utility and operational costs. Solutions may include Time-of-Day Scheduling, Demand Control Ventilation, Start/Stop Time Optimization, Hot and Chilled Water Reset, Air Side Economizer and Peak Demand Limiting.



Pumps & Drives: High efficiency pumps and Variable Frequency Drives (VFDs) can significantly reduce the electrical costs associated with most pumping processes including chiller plants, water and wastewater treatment processes, lift stations, etc. Siemens will investigate all pumps for opportunities to retrofit with higher efficiency motors and add VFDs.



Indoor Air Quality Issues. There is a direct relationship between indoor environmental quality (IEQ) and occupant health and productivity. The term indoor air quality (IAQ) is also used widely, but IEQ is a broader term that includes issues beyond air quality. Siemens Indoor Environmental Quality Survey offering has two stages – investigation and remediation. During investigation, Siemens develops, analyzes and documents information about building conditions known to impact occupant comfort, productivity and health. The information can be used to address occupant concerns, or as part of a continuing, proactive building management program. Remediation involves fixing adverse conditions once they are found. The remedy can be as simple as cleaning an air handler, or as complex as installing a new controls system.



Pool Geothermal: Geothermal heat pump systems use relatively constant ground water temperature as a heat source/heat sink to provide required heating loads at very low costs. This application is very effective for providing pool heating for municipal pools and aquatic centers.



Water-Consuming. As the need for water grows faster than the U.S. population and more states are seeing shortages, water conservation is becoming a necessity. The need to conserve water has also impacted the price for a commodity that once was not even metered. Siemens' solutions can reduce the amount of water consumed by domestic fixtures, irrigation, heating and cooling systems, and process applications.



PV Solar: Solar photovoltaic cells transform sunlight into electricity. These cells consist of layers of silicon film under a thin glass layer that create an electric voltage collected by a series of wires contained in the panel. System inverters convert electric production to AC before being feed into a net meter serving the facility. Solar photovoltaic systems require minimal maintenance producing carbon neutral electricity reducing energy purchased from the local utility.

Building Envelope



Weatherization. Many older buildings have infiltration and/or exfiltration air leakage issues. Siemens' solution would include replacing worn or missing weather seals on exterior doors; resealing and caulking windows and skylights; caulking and sealing pipe and flue penetrations through exterior walls and roofs; and caulking joints between walls, ceilings and foundations.



Insulation. Insulation is an integral part of a building's envelope. Missing, disturbed or substandard insulation can greatly affect space conditions and occupant comfort. Siemens' solution would include replacing missing insulation, adding insulation in areas not currently insulated, and increasing insulation R-values where applicable and feasible.

Energy Management Systems



Energy Management: An innovative and strategic energy plan can help you manage your utility budget without compromising the operation of your facility or the comfort of your employees. Siemens will professionally evaluate and manage your organization's critical energy supply. Our experts have the industry knowledge and the technical tools to guide you through this complex market — allowing you to focus on your business, manage risk, budget effectively and ensure least cost energy supply. Siemens energy services can include:

- ✓ Strategic energy assessment and planning
- ✓ Energy procurement and management
- ✓ Alternative fuel research and options



Utility Bill Auditing and Bill Payment: Verifying the accuracy of supplier invoices is a prudent step in any energy management process and one that can yield an immediate return. Siemens will search for errors by applying a series of systematic validation checks based on anomalies related to usage and cost patterns for each facility type. Utility invoices that fail validation checks are flagged and evaluated by a trained energy analyst. Irregularities identified by this auditing process routinely include higher-than-average usage or dollar amounts, meter misreads, duplicate invoices, overlapping service dates and utility billing errors. When invoice discrepancies arise, Siemens works directly with the supplier on the customer's behalf to ensure that all utility invoices are corrected and erroneous fees avoided.



Commissioning/Re-commissioning: Siemens recognizes the need to have energy conservation measures thoroughly commissioned in order to guarantee maximum efficiency and operational payback. We view commissioning as a three-step process:

- ✓ Commissioning through value engineering during the design
- ✓ Static commissioning while the project is under construction
- ✓ Dynamic commissioning by testing the systems during operation, and measuring and monitoring over the life of a guaranteed performance contract



Maximization of Utility Rebates and Incentives: As part of our performance contracting analysis, Siemens will estimate the availability of rebates, grants and incentives that will be available based upon the final project size. Siemens will then process all applications to ensure that the customer receives all possible funding toward the energy project.

SITE VISIT OBSERVATIONS & CONCEPTUAL IMPROVEMENT MEASURES

As part of our preparation to respond to the City’s RFQ, the Siemens team had the opportunity to review provided utility bill info and visit a few Miramar facilities and utility plants. Based on initial observations and other available data, the Siemens project team along with our sub-consultants have developed conceptual reviews of potential improvement measures that should be more deeply explored as part of the Investment Grade Audit phase.

Utility Usage History

The City provided basic utility expenditures for the most recent 12 months of billings, as well as detail electric utility usage data for the Wastewater Reclamation Plant and the 2 water treatment plants. The following reviews some of our team’s initial observations from the high-level summary data. We discuss our more detailed review of the data from the 3 plants later in this section.



Electric Bills

The provided electric utility summary data itemized the invoiced and paid amounts for the City’s monthly electric bills between May 2019 and May 2020. The provided data did not include individual account numbers, so our observations are largely based on aggregate. Payment methods included 16 individual check payments and one single “ACI Payment” per month. Siemens, suspects that this may indicate that each of the 16 city sites (not including the 3 utility plants) identified in the provided HVAC inventory has their own master account and the ACI payment may represent the total monthly utility enterprise fund’s electric expenditures:

Payments made by check from May 2019 through April 2020 total:	\$1,625,411
Payments identified as “ACI Payments” during the same 12-month period total:	\$3,001,833
Total electric payments from May 2019 through April 2020:	\$4,627,244

Historically, Siemens has been able to identify opportunities to reduce energy expenditures by 20% or more indicating a potential to save the City of Miramar roughly \$1 million a year in electrical costs.

During an Investment Grade Audit, Siemens will perform an in-depth analysis of each facility’s dedicated

electric meter, account, and corresponding billing rate structure. Siemens utilizes this data in order to better understand the electric usage profile of each building. From the electrical energy consumption and the total building square footage area, an Electrical Consumption Index (ECI) will be determined, with the units of kWh/sf/year, for each facility. This metric is used to establish an understanding of building performance compared to national databases, such as the Commercial Buildings Energy Consumption Survey (CBECS), in order to help identify areas of greatest need or potential.

Natural Gas Bills

Summary natural gas utility data detailed the invoiced and paid amounts for natural gas usage between May 2019 and June 2020. The account descriptions were identified either by an account number or a descriptive comment. Siemens grouped paid totals by these categories in order to assess these expenditures by account.

NOTE: the provided information does not include addresses or building names and therefore it cannot be determined which facility each account references.

The following is a summary of the natural gas spend over the most recent available 12-month period.

Account	Comment	Amount
2936541009	Utility Bill	\$1,012.55
632000250	Utility Bill	\$1,120.15
1009	Utility / Commercial	\$1,158.36
250	Utility / Commercial	\$1,143.86
-	Gas for MSC Stove and Oven	\$679.00
-	FUEL, OIL, GREASE AND LUBRICANT	\$1,846.09
-	FLORIDA CITY GAS SERVICE	\$1,249.78
12-Month Total		\$8,209.79

During the Investment Grade Audit, a more detailed analysis will be conducted taking into consideration rates, end-user usage of gas, and usage profiles. In addition to investigating opportunities to improve the efficiency of existing natural gas applications, Siemens will also investigate the opportunity to reduce overall energy costs by converting certain systems from electrical to natural gas such as domestic water heaters and HVAC reheat systems.

Water Bills

Summary water utility data included the paid amounts for the City's various water bills. The provided data did not include individual account numbers or specific billing dates, so our observations are largely based on aggregate.

Based on the data provided, the City spent \$790,897 over the last 12 month on water utilities for domestic and irrigation needs.

During an Investment Grade Audit, Siemens will perform an in-depth analysis of each facility's water usage, corresponding billing rate structure (potable, reclaimed, sewer charges, etc). Siemens utilizes this data in order to better understand the usage profile at each site and identify opportunities to reduce consumption.

GENERAL FACILITY IMPROVEMENT MEASURES

The initial site visits were conducted at the Miramar City Center and included City Hall, the Development Services Building, the Cultural Arts Center, the Police Station, and Garage Areas. Because of ongoing concerns related to COVID-19, access to these sites were somewhat limited. Our team was able to make some general observations around existing lighting, HVAC, building automation, domestic water systems, and based on that information made some high-level assumptions that shaped our conceptual recommendations described below. These conceptual discussions are intended to be of the types of ideas and opportunities that we would expect to find across the city's facilities. However, additional information would be required during the Investment Grade Audit process to validate these assumptions and generate basic designs to confirm the feasibility of these and any other potential improvement measures.



FIM-1

Siemens Internet of Things (IOT) Solution

GUARANTEED OUTCOMES

- ✓ Energy savings
- ✓ Extended lifecycle
- ✓ Task light level tuning
- ✓ Daylight harvesting
- ✓ Occupancy / vacancy detection
- ✓ Space utilization analysis
- ✓ Asset tracking
- ✓ Time-of-day dimming scheduling
- ✓ Real-time energy savings reports
- ✓ Contact tracing

OBSERVATIONS AND OPPORTUNITIES

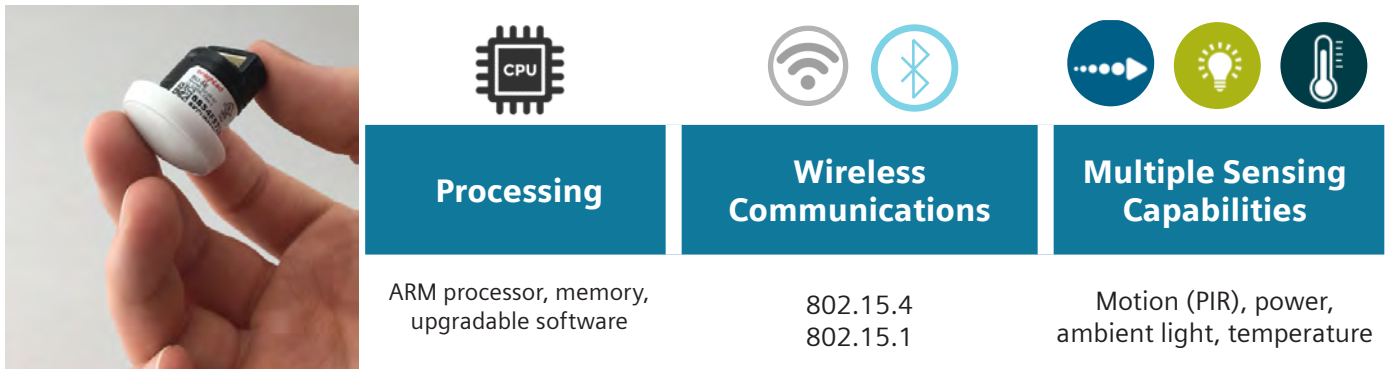
The current interior lighting scheme at the toured facilities mostly consists primarily of 28 and 32-watt T8 fluorescents in 2, 3 & 4 lamp configurations with presumably instant start ballasts. Fixture types include fluorescent lay-in, volumetric and wrap fixtures. There are also various recessed cans primarily lit with 2-lamp, 2-pin compact fluorescents. The building exteriors and roadway areas, such as at Miramar Town Center, are lit with either metal halide or high-pressure sodium fixtures.

Typically, we find that facilities utilize limited applications of occupancy sensors in larger common areas such as break rooms and conference rooms. Due to the limited facility access during our site visit, the Siemens team was not able to fully assess the City's existing lighting controls system. However, we observed several areas in Development Services, City Hall, and the Cultural Center; that were lit, but appeared to be unoccupied.



LED lighting retrofits are a tried and true improvement measure included in almost every performance contract performed by every energy services company in the industry. A complete LED lighting upgrade would be a central component of the Siemens project with the City of Miramar as well. However, most other energy services providers miss the opportunity to also integrate new smart cities technologies into your

new LED lighting system. Siemens' proposed LED replacement would include the option of deploying an integrated, networked IOT platform that offers advanced lighting controls, deeper insights into the operational performance of your facilities, and customized applications to enhance the occupant and visitor experience.



TECHNICAL FEASIBILITY

Turn your lighting system into an IoT Platform

Siemens, an industry leader in autonomous building technologies, is not just focused on improving efficiency, but is also focused on making your buildings smarter. The Internet of Things (IoT) is a rapidly advancing technology that will enable our customers to improve operating efficiencies, reduce energy consumption and provide a superior customer and employee experience. Our Enlighted IoT solution delivers a technology platform for smart buildings via the lighting infrastructure. Our sensor technology and scalable network provide real-time data collection and an ecosystem of high value applications. In addition, the platform provides advanced lighting controls and likely will qualify for a higher lighting rebates from the local utility.

Each LED fixture will include an integrated Enlighted sensor. Each sensor can detect light levels, motion, and temperature. Sensors track and report the fixture's operation and energy consumption and space occupancy. Sensors are also Bluetooth enabled and networkable. Sensor data is collected wirelessly and accessed via a web-based portal allowing the Enlighted IOT platform to provide a rich ecosystem of advanced data applications:

- Lighting controls
- Energy management
- Space utilization
- Location services
- Health and safety applications.

Enlighted Applications

Advanced lighting controls allow our customer to enhance the energy savings of the new LED lighting systems beyond basic occupancy sensors by adding the following lighting control capabilities:

- Task light level tuning
- Daylight harvesting
- Occupancy/vacancy detection
- Auto and advanced demand response programs
- Time-of-day dimming schedule
- Real-time energy savings reports

Combining the Enlighted Platform with the installation of your new LED lighting system creates an opportunity to harvest energy savings to fund a facility wide IoT network and platform. In addition to direct energy savings, the data collected can be used for a variety of purposes. A few developed applications that can be useful to the City of Miramar are discussed below:

OUR SPACE APPLICATION provides a way to collect data on occupancy and utilization rates in buildings. The data can be used to measure occupancy rates, identify traffic patterns, improve workflows and monitor building level metrics. It can help facility owners and managers use data to identify the need for additional facility space or provide opportunities to use existing space more efficiently.

THE WHERE APPLICATION introduces asset management and security. Combining Enlighted's Bluetooth enabled technology with smart tags, badges, and other enabled devices to provide real time location services for both assets and people. This application has many advantages such as tracking visitors and personnel, helping with time management for the location of shared equipment, and providing geo-fencing capabilities that can provide alerts if equipment or people move out of or into certain areas.

WAY-FINDING APPLICATIONS can be enabled within facilities, garages, or across campuses enhancing the visitor and employee experience. As examples, the Enlighted sensor network can guide guests to the appropriate garage for visitor parking, to the correct building within a complex, or specific areas (reception desk, conference room, restrooms, emergency exit, etc.) within the facility.

COMFY — A workplace experience app that gives employees personal control over their work environment. Comfy helps users control their temperature, adjust lighting throughout the day, find and book available rooms and desks, and share immediate feedback with workplace teams. Comfy improves workplace experience and satisfaction, while delivering the operational results that facilities management and workplace teams need.

COVID 19 APPLICATIONS — Most recently we have developed applications that help our customers come back to work with confidence after COVID 19 shutdowns.

- ✓ **Support Physical Distancing:** Sensors identify high occupancy areas and monitor if physical distancing plans are working. Application generated heat and motion trail maps can provide real time data to help customers adjust strategies as needed. These maps can also be used to inform janitorial services of areas in need of cleaning. Connected with badges or other enabled devices, the Enlighted platform is able to alert managers and occupants when maximum occupancy is exceeded in a certain room or area.
- ✓ **Contact Tracing:** Enlighted sensors coupled with employee or visitor badges or other devices can support contact tracing applications. Contract tracing data can provide building owners and occupants valuable information to help protect their health and safety. Reporting data can also provide insights for improving processes and procedures for maintaining the safest work environment possible.





Enable contact tracing for individuals who tested positive



Create a targeted sanitization and surface disinfection strategy



Monitor office occupancy for density and safe distancing



The Future of IOT Enabled Facilities

IOT platforms are a continuously developing technology. Every day, Siemens engineers, third party technology partners, and our customers are developing new use cases for expanding the capabilities and generated value of the Enlighted platform. The platform was designed to be open to other applications to encourage innovative and customizable uses of the technology. With an available API development guidebook and a collaborative network of application developers and end users, we are excited to work with the City to see what additional uses we might identify as we move through the development of the project.

PROPOSED SCOPE OF WORK

Siemens will conduct a room-by-room audit of all lighting fixtures, both interior and exterior in order to determine the most appropriate LED changeout solution for each space, fixture type, and use application. The audit will allow for appropriate equipment specification and selection, energy savings calculations, and pricing. Implementation is turnkey including any required permitting, labor, material (including warranty stock), disposal and/or recycling of removed fixtures, set up, programming, and training of the Enlighted platform, and all project closeout documentation.

Design and installation of the IOT network includes LED door kit fixtures with built in Enlighted sensors. Enlighted sensors communicate to an Energy Manager through Gateways using a wireless communication protocol that includes AES encryption to ensure secure links. The communication between the Energy Manager and the Gateway is done using SSL (TLS) encryption over Ethernet (TCP/IP).

Sensor installations adhere to full visibility of a building's area. The use of a wireless switch can be applied for rooms where manual control is desired. The wireless switches allow for a wide variety of configurations and groupings to meet the control needs for the space.

Most sensors will be installed to communicate to gateways utilizing a wireless signal between the sensors and gateways. The Enlighted Energy Manager can be located on premise and connected to the Enlighted Cloud (eCloud) or can reside in the cloud as an EMC (Energy Manager in the Cloud).

Post installation the system will undergo a room-by-room commissioning process that will include City Facilities Staff. Each area will be programmed for correct task area lighting levels utilizing trim, daylight harvesting, and occupancy scheduling features. All additional enabled applications will be programmed, and City staff will be trained on the full operation and utilization of the system.

SAVINGS AND PERFORMANCE

The resulting work will yield reduced wattage and extended system life from the new LED technology, but the system will also provide a communicative network with advanced data analytics, interactive applications

benefiting facility operations, occupants and visitors.

Typical savings associated with the above stated lighting improvement include:

- 50% reduction in wattages associated from converting from fluorescent to LED technology
- 15% ancillary reduction in wattage by leveraging task light level tuning and daylighting control
- 66% increase in projected lamp life result in reduced maintenance costs
- Provide quality and quantity of light required for a given task more efficiently
- Improved occupant environment

Savings are based on efficiency gains from new lamps and fixtures as compared to the existing lighting system. The typical measurement and verification approach is a before and after amperage reading of fixtures to empirically quantify the reduction in energy. Savings resulting from reduced hours of operation will be measured by pre and post trending of lighting operations.

FIM 2: HVAC & Automation Retro-Commissioning (RCx)

GUARANTEED OUTCOMES

- ✓ Improved equipment performance
- ✓ Increased O&M Staff Capabilities and Expertise
- ✓ Extending Equipment Lifecycle
- ✓ Energy savings
- ✓ Improved Occupant Comfort
- ✓ Improved indoor environmental and air quality (IEQ & IAQ)

OBSERVATIONS AND OPPORTUNITIES

Mechanical Systems

The majority of the HVAC equipment observed during our site visits as well as many of the systems listed in the HVAC inventory provided in the RFQ solicitation are currently in mid-lifecycle. Observed equipment appears to be well maintained, and the City should expect several years of additional dependable operations from your systems that are in these age ranges and conditions. In such cases, newer equipment may only generate modest gains in energy efficiency that does not financially justify a full system replacement, especially when considering the remaining life and residual value of the existing units.

As HVAC systems age they often do not operate as originally intended. Over time components fall out of optimal performance: sequences of operation that have been overridden, dampers with disconnected actuators, valves without actuators eliminating any means of proper space control, and unmaintained filters prohibiting proper air flow are just a few examples. Each of these deficiencies negatively impact efficiency, performance, and life expectancy of the existing equipment. When visiting the Town Center complex, many AHUs were found well maintained coils, belts, and newly installed variable frequency drives. However, even well maintained systems often present opportunities for cost effective operational and efficiency improvements. For HVAC units not in need of replacement, our retro-commissioning program will bring every HVAC system across the City to their best performance standard.



Automation Controls

Commercial buildings frequently undergo operational and occupancy changes that challenge the mechanical, electrical and controls systems, hindering optimal performance. Additionally, in today's complex buildings,

systems are highly interactive with sophisticated control systems that can create a trickle-down effect on building operations – small problems can have big effects on performance. Unfortunately, most buildings have never gone through any type of commissioning process, and even well-constructed buildings experience performance degradation over time. No matter how well building operators and service contractors maintain equipment, if it operates ineffectively, energy waste and reliability problems can occur.

We were unable to review trend data, point catalogs, implemented sequences, or other building controls data during the site visits. Typically, we find control strategies in municipal facilities utilizing time-of-day scheduling, temperature setpoint limits and in some cases temperature setbacks during evening and weekend hours. As part of an in-depth analyses, controls sequencing and trending data will be gathered and reviewed to identify any automation commissioning requirements.



TECHNICAL FEASIBILITY

For newer HVAC systems that do not warrant full replacement, Siemens has developed a systematic HVAC & Automation Retro Commissioning and Refurbishment process that generates significant energy, maintenance, and operational benefits at a fraction of the cost of a full system replacement. Retro Commissioning improves system efficiency and can also greatly improve indoor air quality and occupant comfort while extending the overall lifecycle of the equipment. This retro-commissioning approach will also address the existing control system's operational strategies and control devices that may have fallen out of commission. Siemens will retro-commission all applicable HVAC mechanical systems and associated building automation controls not

recommended for replacement during the Investment Grade Audit process.



The in-depth analyses will include HVAC system conditions, ductwork integrity, air balance, automation sequences, and point-to-point functionality testing. The goal of retro-commissioning (RCx) is to return building systems to their designed parameters and provide the tools to support continuous efficiency and performance improvements over time. Siemens incorporates the following recommissioning actions to improve HVAC and automation system operation.

Mechanical Recommissioning

The Mechanical recommissioning scope and process includes the following activities:

■ Chiller plants, air-handlers and RTUS

- Coil cleaning and coating
 - ◇ Rejuvenating marginally deteriorated coils and copper tubes with an application of a unique polyurethane coating
- Clean fan motor and fan blades.
- Replace older motors with new high efficiency motors
- Clean and coat all non-insulated interior surfaces including overflow pans.
- Point-to-point functionality testing of system devices
 - ◇ Temperature sensors
 - ◇ Damper actuators
 - ◇ Valve actuators
 - ◇ Differential pressure sensors / flow indicators
 - ◇ Airflow monitoring stations

■ Ductwork and air distribution system

- Clean ductwork
- Duct seal testing
- Seal identified leaks in air-distribution network
 - ◇ Sealing ductwork of potential air leaks from the inside out
 - ◇ Vinyl acetate polymer sealant
 - ◇ Sealing the leaks up to 5/8 inches across

■ Test and balance

- Provide pre-refurbishment air flow measurement and balance post-refurbishment air flow to meet or exceed the pre-measured values.

- Minor repairs needed to complete system test and balancing

In some cases, equipment modifications can also be implemented to generate additional efficiencies including:




- Converting constant volume constant capacity RTUs to variable capacity systems specifically designed for RTU retrofits
- Modulate server room air-conditioning units to continually match cooling output to actual cooling demand
- Reset minimum airflows at terminal boxes, optimizing outside air intake, supply air static pressure, and implement volumetric tracking return air control

Indoor Air Quality Enhancements

In the middle of the current COVID-19 crisis, indoor air quality has never been of greater concern. There are several categories of proven technologies that can be integrated into your HVAC systems during retro commissioning that help to improve and maintain indoor air quality standards. Our goal is to provide indoor air quality solutions and strategies that lead to healthier occupants, increased productivity and clean, fresh, healthy environments.

BIPOLAR IONIZATION: O2Prime's™ advanced plasma air purification technology works to safely clean the air inside commercial and residential buildings. The patented technology uses a precise electronic charge to create an electrical field filled with high concentrations of ions. When injected into the airstream, ions break down passing pollutants and gases into harmless compounds like oxygen, carbon dioxide, nitrogen, and water vapor. When these ions encounter harmful pathogens such as virus, bacteria, or mold, they steal away hydrogen molecules from the pathogens. Without hydrogen, the pathogens are left without an energy source and die.

UV LIGHTING: The use of UV lamps in HVAC systems is another method of keeping cooling coils free from contaminants and unwanted biological growth. Lamps are installed adjacent to the coils and are kept in use 24/7. An installed switch located outside the unit allows for shutting off the light when maintenance needs to be performed inside the unit. UV lamps aid in improved indoor air-quality through the continuous prevention of coil build up.

 <p>Reduce bacteria, fungus, and some viruses with fast and safe ultraviolet (UV) technology</p>	<p>Pulsed Xenon Ultraviolet Light Powered by Violet Defense Technology</p>
 <p>Render molecules in contaminants harmless with non-ozone producing ionization technology</p>	<p>Needlepoint Bipolar Ionization Powered by O2 Prime Technology</p>
 <p>Combine technology with HVAC maintenance strategies to help reduce spread of pathogens</p>	<p>Precise System Control + Maintenance Room Pressurization + Compliance Services</p>

ADVANCED FILTRATION - ENVERID HLR TECHNOLOGY: EnVerid's molecular air cleaning system is an air scrubber technology that effectively removes all known molecular contaminants from indoor air. Removing these hard-to-capture contaminants decreases the required volume of outside air ventilation and provides more control over air quality. The advanced filtration system functions in a two-phase process of absorption

and regeneration.

In its “adsorption” mode of operation, the HLR® system utilizes a combination of novel, efficient adsorbents to capture molecular contaminants and clean the inside air. This simultaneously reduces the amount of outside air needed to be brought into buildings and reduces the load on the HVAC system to heat or cool the air.

During regeneration mode, the HLR module releases the contaminants collected by its adsorbents outside, leaving the adsorbents clean and ready to absorb at their original capacity. enVerid’s adsorbent mix regenerates at a low temperature of 130-150 degrees Fahrenheit. This enables the HLR module to regenerate the adsorbent automatically, typically 1-2 times per day. During regeneration, the released contaminants are automatically purged outside of the building via the building exhaust. Regeneration takes about an hour and is fully automated, usually scheduled early in the morning so that a fresh set of cartridges are available for the day. A second regeneration will sometimes occur during the lunch hour to provide additional afternoon capacity. Alternatively, HLR modules can schedule their regeneration based on a comparison the HLR’s inlet and outlet carbon dioxide readings, which show when the adsorbents are nearing saturation.

Building Automation Retro-commissioning

Automation retro-commissioning includes the point-to-point functionality tests performed on mechanical system devices such as temperature sensors, actuators, pressure sensors/flow indicators, and airflow monitoring stations. However, the test procedure becomes centric to the accuracy and effectiveness regarding device communication, data received by the automation system, and their programmed operational sequencing. Required retro-commissioning scope is based on system testing results and may include some or all of the following activities:

Adjusting Ventilation Rates: HVAC units serving spaces with variable (occupancy based) outside air requirements can be optimized by modulating outside air (OA) volume to match the space’s actual, real time OA requirements. This method of control known as “Demand-Controlled Ventilation” (DCV) ensures appropriate levels of outside air supply utilizing the least amount of energy. DCV avoids over-ventilation that increases heating and cooling loads driving higher energy consumption. CO2 sensors are used to regulate the OA dampers to meet but not exceed required outside air volumes.

Night Setback (Based on data collected during IGA): Reduces energy consumption during unoccupied hours by lowering the heating space temperature set point and raising the cooling space temperature set point. For example, the space temperature can be reduced from the normal inside design temperature (70°F -74°F) to a higher space temperature (78°F - 80°F) during the unoccupied periods.

Dynamic VAV Optimization (DVO): Dynamic VAV Optimization, or DVO, utilizes a patent-pending, cloud-based, machine-learning solution to optimize HVAC systems. DVO strategies allow for operating the system in different modes based off facility needs. Depending on mode, the system can be set to optimize for energy efficiency, occupant comfort, or occupant health. The DVO platform integrates to your existing automation controls and can be deployed without requiring physical upgrades to your HVAC system.

Energy Savings



In a review of Siemens customer data, Dynamic VAV Optimization generated an average HVAC savings of approximately 25% in facilities with no existing reset.

In facilities that had reset strategies in place, savings of 10% were still achieved.

PROPOSED SCOPE OF WORK

The initial objective of a retro-commissioning approach is to assess and document the baseline operating conditions through trending of performance measurements and conducting functional performance testing

of the equipment. Once this analysis has been complete, the results will dictate the best combination of replacements, adjustments, corrections and potential add-ons that will:

- Optimize control systems through calibration/replacement of critical sensors
- Identify energy related operational and maintenance enhancements
- Improve energy efficiency and occupant comfort
- Identify any non-energy related preventive maintenance issues
- Identified any operation and maintenance staff training needs

SAVINGS AND PERFORMANCE

The extent of energy related savings resulting from both mechanical and automation retro-commissioning depend on the resulting capacity to improve equipment conditions and functional operation of an HVAC system. Improvements primarily result in increases in equipment coefficients of performance, heat transfer efficacy, and reduced run hours due to optimized control strategies. A few quantified benefits are as follows:

- Coil Cleaning and Coating
 - Total post-cleaning energy savings from treatments range from 23% to 32% per unit
 - Savings are verified by measuring the pre and post coefficient of performance (COP) of the units
- Automation Retro-Commissioning
 - Typically see a 2% improvement in overall HVAC system usage and energy cost reduction

The retro-commissioning process also results in additional benefits to both building occupants and Facility maintenance personnel. By returning air flows back to design conditions, the overall indoor air quality of affected facilities improves. This yields non-energy related savings that, working with the City, Siemens can quantify and account for as part of the life cycle analysis of this recommendation. Below are just some of the benefits associated with the above applications

- Reduced initial costs compared to new equipment purchases
- Renewed and extend equipment life
- Minimalized disruption and downtime

Verification of energy and non-energy savings will vary depending on the desired level of detail required by the City. The energy management system can be leveraged to trend and monitor as many points as necessary to conduct ongoing spot checks of devices and verify intended operations are conserved. In some cases, savings verifications will take the form of post construction commissioning reports certifying the correct completion of automation applications and improved equipment functions. Regarding any identified operational and/or maintenance savings, additional training can be provided to educate personnel to on how to make sequence changes, when necessary, that will ensure the continued maximization of system efficiency.

FIM 3: Integrated Building Management & Analytics Platform

GUARANTEED OUTCOMES

- ✓ Accurate, real-time energy monitoring
- ✓ Granular reporting of facility energy data
- ✓ Data driven decisions to optimize energy performance
- ✓ Identify and eliminate wasted energy
- ✓ Fault Detection & Diagnosis predict maintenance needs
- ✓ Single application access across all automation systems
- ✓ Aggregate all facility operational and energy performance data
- ✓ Advanced analytics providing insight into building performance

OBSERVATIONS AND OPPORTUNITIES

The City of Miramar facilities currently utilize a combination of three different building automation systems (BAS): Trane Ensemble, Johnson Controls, and DisTech; creating a situation where users must use multiple platforms in order to manage the City's facilities without a common interface to review and evaluate data across your full portfolio.

Despite the challenges of having to work across multiple automation platforms to control and manage your portfolio of facilities, it is usually impossible to cost justify the investment required to pullout and replace each and every building automation system to achieve full standardization. Where practical, Siemens can offer a set of digital solutions that combine the existing field devices into a singular system Front End called Siemens Desigo CC.



TECHNICAL FEASIBILITY

As a leader in autonomous building innovation, Siemens has developed a wide range of industry leading digitalization tools such as Desigo CC and Navigator. Desigo CC is Siemens' open, integrated building management platform to improve the performance of a facility. Navigator is Siemens' cloud-based advanced analytics and reporting platform designed to track and benchmark facility KPIs across your entire building

portfolio.

For the City of Miramar, the Siemens team will investigate opportunities to implement our Desigo CC facility management platform to integrate the City's disparate collection of existing building automation systems and Siemens Navigator facility performance analytic platform to reduce energy spend, maximize operational efficiency, and achieve sustainability targets.



Siemens Desigo CC

Desigo CC is an integrated building management platform that provides a single face to the customer for building Automation, Fire Safety and Security systems, across multiple systems and manufacturers. Desigo's open design can communicate to and control any existing system, in real time from one platform, thus relieving the burden of having to access multiple systems. The platform offers scalability of configuration allowing need-based expansion from small to large, complex systems. Desigo supports remote access to all facilities regardless of whether utilizing your existing Trane, Johnson, or DisTech controllers. Deployment of Desigo is a cost-effective method of introducing a single platform approach to accessing all system platforms currently deployed across the City's facilities and will improve the overall automation infrastructure for years to come.

Desigo features the latest in graphics and user-friendly functionality providing a comfortable, easy and efficient approach to operate, monitor, supervise, optimize and manage all automation systems in your facilities. Web client options reduce maintenance costs over the entire life cycle. With its future-oriented and discipline-independent approaches, Siemens designs its system to be backward and forward compatible simplifying future upgrades. Desigo's design and architecture enhances and protects your investments today and in the future.

Siemens Navigator

Navigator is Siemens' cloud-based advanced analytics platform designed to help you optimize the performance of your buildings. The Navigator platform adds a layer of intelligence for continuous monitoring, allowing you to achieve your energy, sustainability, and system performance targets. It seamlessly integrates complex

sources of data from energy procurement, energy consumption, system performance, and sustainability helping you make sense of it all. Navigator advanced analytics helps to turn facility data into tangible results:

- Gain Valuable Insight to Improve System Performance
- Make quick and confident decisions that drive results
- Track performance improvements over time
- Identify outliers and drill down to their causes
- Compare actual vs. predicted performance
- Generate detailed reports as needed
- Leverage the latest Fault Detection and Diagnostics technology

Platform Enabled Digital Services

With the addition of an integrated digital platform into your existing building controls system, Siemens can also provide a suite of digital services to find new improvement measures; remote services to proactively maintain the systems; and monitoring to immediately diagnose critical alarms and if possible, resolve them remotely.



REMOTE SERVICES: Our teams of remote service specialists transform the customer's business by leveraging digital tool sets for new and existing service offerings. This enables us to be more predictive and prescriptive in servicing our customers. Studies show that when a customer shifts their operations and maintenance strategy from reactive (wait until it fails) to predictive (prevent failure), their buildings are ranked as top performers compared to their peers. This results in cost savings on energy and operations and maintenance budgets while extending the overall life of building systems and equipment.



REAL-TIME ENERGY MANAGEMENT (RTEM) — a cutting-edge technology that continuously sends a building's live and historical performance data to an advanced cloud-based system where it is transformed into actionable insights for facility managers and occupants.



FAULT DETECTION & DIAGNOSTICS (FDD) — a methodology used as part of a reliability centered maintenance approach. This methodology uses rules based logic to predict fault conditions in building systems. Fault conditions can predict impending system failure or inefficiency in system operation. From a market perspective, FDD is part of the Big Data/Data Analytics movement.



ONGOING COMMISSIONING — A cloud-based system continually monitors a building's systems by using combined advanced capabilities such including fault detection and diagnostics, predictive analytics and performance optimization to ensure that energy is used more intelligently throughout a building.



CLOUDFIM — Siemens Fault Detection & Diagnostics paired with Remote Resolution offerings make buildings smarter by proactively collecting and analyzing data to identify, diagnose and take action on building issues before they negatively impact performance.



UTILITY BILL MANAGEMENT — UBM offering converts a burden for our customers into a value-added management program that has potential to achieve significant utility savings. Savings are realized through utility bill error identification and resolution, tariff optimization, tax and fees avoidance, and resource redeployment.

SAVINGS AND PERFORMANCE

Unlike other previously discussed modifications to mechanical and automation systems, the implementation of a single platform energy management system does not yield stand alone energy savings. Instead, improved workflow, facilitated operating updates, reduced troubleshooting response times, and other such intangible savings are the resulting benefits.

- ✓ Remote monitoring reduced O&M costs
- ✓ Data gathering and analysis supports intelligent and proactive decision making regarding O&M vs. reactive decisions
- ✓ We will customize analytics tools to support customer KPIs
- ✓ Provides means for transparent M&V in support of performance guarantees

Siemens will work with the City of Miramar to identify and quantify these improved outcomes and determine methods to verify successful implementation.

FIM 4: District Chiller Plant

GUARANTEED OUTCOMES

- ✓ Improved of kW/ton production efficiency
- ✓ Improved HVAC resiliency / redundancy for city facilities
- ✓ New revenue stream for City
- ✓ Reduced carbon footprint of Town Center Complex

OBSERVATIONS AND OPPORTUNITIES

In March 2000, the City of Miramar purchased 54-acres of land bordered by Miramar Parkway, Red Road, Hiatus Road and Miramar Boulevard. This parcel was developed into what is now called Miramar Town Center; a mixed-use complex consisting of the 87,000 square foot City Hall facility, a public library, the Cultural Center and Police Headquarters. The project also resulted in retail, office and residential components. The City Hall Grand Opening Celebration was held in December 2004.

The Town Center site visit included tours of the 475-ton capacity chilled-water plant that serves the City Hall and Cultural Center facilities as well as the 240-ton capacity chilled-water plant that serves the Police Headquarters. The remaining retail, office, and residential spaces are currently conditioned by what appears to be over 300 various standalone HVAC units totaling an estimated additional 1,000 tons.

Siemens believes there is an opportunity to connect and expand the City's existing chilled-water plants into a decentralized district cooling plant that would serve the City's onsite facilities and facilitate the sale of chilled water to serve the development's business and residential tenants.

Modifying and combining existing chilled water plants into a decentralized or virtual chiller plant to improve efficiency, reliability, and resiliency is not a novel concept. Siemens has had previous success with similarly designed solutions. As part of a project at Naval Air Station, Whiting Field, located north of Pensacola, Florida, Siemens developed a design to combine several of the base's single-building chilled water plants into one "virtual chiller plant." As part of the upgrade and redesign, one of the older chillers was replaced with a new high-efficiency, heat recovery chiller before being connected to the virtual plant. This single new high efficiency chiller drove improved efficiencies across all the connected buildings. The new virtual chiller plant reduced the base's HVAC energy costs by 43% achieving overall performance efficiencies as low as 0.33-kW/T. The success of the new virtual plant earned Whiting Field the Department of Energy's Federal Energy and Management Program Award in 2018 and contributed to it winning the top award from the Secretary of the Navy for Energy Excellence for Small Shore Installations.

TECHNICAL FEASIBILITY

The intent is to create a district or virtual cooling plant to provide efficient HVAC for all condition spaces at the Miramar Town Center by:

- Connecting & expanding existing chiller plants to approximately 2,000 ton capacity to serve the entire development
- Configuring chiller capacity and operation sequences to meet varying load demands while maintaining optimal efficiency
- Installing district piping loop to allow for connection of loads throughout the development
- Converting existing DX systems serving the retail, and residential spaces to chilled-water AHUs

The cooling efficiency of DX systems typically average 1.0 kW/ton of cooling depending on efficiency ratings. Chilled-water systems improve this per ton production efficiency on average by more than 50%. This improved cooling production, in turn, reduces energy costs and the carbon footprint of the entire complex.

Equipment operational life expectancy also improves. ASHRAE estimates that the life expectancy of residential and commercial heat pumps, roof-top units, and package systems averages 15 years. The Town Center complex has reached this milestone and existing DX equipment might be scheduled for replacement in the coming years. The life expectancy of chiller-water equipment, such as chillers, cooling towers, and pumps, averages between 20 and 25. This creates a unique opportunity to capitalize on investing in longer life cycle equipment selection and improving future maintenance costs associated with comparable DX equipment.

Expanding the plant to meet the load requirements from the entire complex will greatly reduce the current energy and operational costs for cooling the retail and residential spaces. These improvements will yield reductions in current costs that can benefit the City. In principle, Miramar would have the opportunity to sell less expensive cooling to retail and residential tenants generating additional revenue for the City. The exact structure of this transaction would be explored during project development and will depend on several variables including: building and/or land ownership rights, specifics of current rental or leasing agreements, current means of metering and/or charging tenants for utility expenditures, and established maintenance processes and responsibilities of the existing DX equipment.

The following illustrates what the decentralized plant and piping path could look like.



PROPOSED SCOPE OF WORK

The construction of the Virtual Plant will include all required plant expansion / modification, installation of the district loop, and converting existing DX to chilled water AHUs. Plant design will focus on optimized configuration and operational sequencing and control will achieve maximized efficiencies based on cooling demand and usage schedules. Detailed analysis, modeling, and design will be required as part of the development process to fully evaluate this improvement measure. These activities will include:

- Identify Existing Agreements
 - Siemens will work with the City to clarify all leasing, rental, and maintenance agreements associated with the City owning Town Center complex.
- Determine Total Load Capacity
 - An inventory of all HVAC equipment will need to be conducted in order to determine what the required total plant capacity will be.
- Model Load Demand Profile
 - City facilities, Police Headquarters, retail spaces and residents all have different hours of operation. While City Hall may be able to shutdown equipment at the end of the day, residents and Police Headquarters are 24-hour operations. Also, retail spaces experience varying peak times depending on whether they are commercial retail or food services. A load profile will need to be conducted in order to establish tonnage production requirements throughout a given year.
- Equipment Sizing
 - Once total tonnage capacity and load demand profiles are determined, sizing selections will be established for pipes, pumps and additional chiller equipment.
- Piping Loop and Connections
 - Underground utilities will be identified in order to structure the best path for proposed underground piping.
- Loading and Operation
 - In order to maximize efficiency output of the proposed plant, the plant will require a detailed sequence of operations to be structured.

SAVINGS AND PERFORMANCE VERIFICATION

Converting to a virtual or district plant as the primary source for cooling will result in improved efficiencies across all onsite HVAC systems, reduced maintenance costs, improved equipment operation, extended lifecycles, and an additional revenue source for the City.

Savings generated by installing a district or virtual plant can be determined by trending key parameters, such as kW draw, chilled-water flow, chilled-water supply and return temperatures, chilled-water pump speeds (VFD), condenser water supply and return temperatures, condenser water pump speeds (VFD), and cooling tower fan speeds (VFD). Ongoing measurement of these key parameters allows for a continuous monitoring of plant operations in order to quickly identify and address performance issues which lead to proactive troubleshooting and maintenance.

FIM 5: Solar Distributed Energy

GUARANTEED OUTCOMES

- ✓ Reduced environmental impact of operations
- ✓ Increased Energy Security / Resiliency
- ✓ Reduced Cost of Energy
- ✓ Cost Effective & Sustainably EV Charging

OBSERVATIONS AND OPPORTUNITIES

The City has expressed interest in developing a strategy for the design and implementation of certain distributed energy solutions including solar photovoltaics and e-Mobility infrastructure. Based on observations made during facility visits and other available information, Siemens and our solar partner AGT performed preliminary analyses of two potential distributed energy solutions as examples of what could be included as part of a Miramar's performance contracting project:

- Installation of Solar PV at Miramar Town Center and the Advanced Wastewater Treatment and Reclamation Facility
- Renewable energy powered EV charging infrastructure for the Miramar Town Center

During the Investment Grade Audit, Siemens would investigate opportunities for similar renewable and distributed energy solutions at each of the city's facilities and plants.

TECHNICAL FEASIBILITY

Solar

Having deployed 21 GWs of wind and 1.6 GWs of solar, Siemens is a true global leader in clean, renewable energy. Delivering projects for more than 30 years, Siemens has continued to innovate, with our latest generation of manufactured solar modules and inverters installed in some of the largest utility scale projects around the world. Over the last few years, Siemens has become increasingly focused on a downstream solutions-based business model, where we implemented distributed generation solar projects for our global client base as well as our own facilities.



With its costs declining and technology advancing, more organizations are turning to solar as a leading option for power generation. As experts in on-site generation, Siemens and AGT can help the City implement solar power solutions designed to support your goals now and into the future. Power reliability and sustainability remain key drivers to support a digital, always-on business environment and to meet sustainability goals. It's this shifting landscape that is accelerating the adoption of solar power across the United States and globally. It's also brought about new challenges – implementing the right solar project for your organization requires a partner well-versed in technology, financing, and energy management.

EV Charging Stations

While the world of e-motility infrastructure and EV charging is an emerging issue for many of our customers, Siemens has a long history of designing and supporting the electrical infrastructure for these applications. For over 170 years, Siemens has been designing and deploying electrical infrastructure in projects of all sizes — from single-family homes to hospitals, airports, and office buildings. Siemens can provide complete EV infrastructure solutions even in the most challenging environments.

Given this experience, Siemens has become a world leader in the EV market with an extensive lineup of AC and DC chargers, cloud-managed services and experienced personnel to help design, start-up, and support your installation. To support the increasing demand for Electric Vehicles (EV) of all kinds, Siemens can provide a comprehensive PlugtoGrid™ EV solution for the city of Miramar.



Siemens incorporates Open Charge Point Protocol (OCPP) in all products providing an any Electric Vehicle Service Provider (EVSP) platform without the fear of replacing chargers as technologies evolve. Siemens can also provide on- site backup power solutions using our lineup of battery storage products from Fluence.

A few locations have already been identified as good locations for EV charging stations. The primary and most public facing platform includes the visited areas within the Miramar Town Center.

PROPOSED SCOPE OF WORK

Solar

Preliminary evaluations at both the Advanced Wastewater Treatment and Reclamation Facility and the Miramar Town Center have been conducted by Siemens and AGT to assess the potential of installing Solar PV applications as part of this project. The analysis includes multiple design and module mounting applications intended to maximize available space.



ROOFTOP SOLAR The wastewater treatment and reclamation facility includes numerous buildings providing usable roof space for mounting solar modules. Detailed structural analysis will be conducted in order to verify suitability for the photovoltaic systems' load requirements. Specialized racking systems will be installed using optimal layouts for maximum energy production, access to equipment for operation and maintenance purposes, and sound structural installation. The photovoltaic modules will be installed at ideal angles and connected to inverters and transformers the module generated DC power into AC power that can be directly supplied to facility via an interconnect that the facility's main meter.



CANOPY Open parking areas present great opportunities for solar installation with the added benefit of providing shading for parked vehicles. Detailed structural and geotechnical analysis of the site will be performed to verify load and force requirements for the designed canopies. Canopy design will meet all necessary height regulations pertaining to this type of structure. The photovoltaic modules will be installed at ideal angles and connected to inverters and transformers the module generated DC power into AC power that can be directly supplied to facility via an interconnect that the facility's main meter.



GROUND-MOUNTED The wastewater treatment and reclamation facility site includes a few open areas that could accommodate a significantly sized solar array. Detailed structural and geotechnical analysis will be conducted to verify load capabilities of the soil as well as to identify any underground utilities that will affect construction. As with roof-top installations, a specialized racking system will be placed in an optimal layout for maximum energy production and access to equipment for operation and maintenance requirements. The photovoltaic modules will be installed at ideal angles and connected to inverters and transformers the module generated DC power into AC power that can be directly supplied to facility via an interconnect that the facility's main meter.

During development, the final sizing of all combined solar systems will be scaled to match the total electric requirements of the facilities. The intent is not to produce more electric energy than is required, but to correctly supplement the needs of the facility. The sizing approach involves using the site analysis data to determine the installation cost per watt for each module location and then selecting the lowest overall cost per watt for the required system size. This process ensures the most cost effective system for the identified application.

Advanced Wastewater Treatment and Reclamation Facility

Various roof-top installations have been identified for assessment at different buildings throughout the plant. The current system, illustrated below, is designed to have combined total of 328.6 kW capacity meant to supplement, but not exceed, electrical needs.

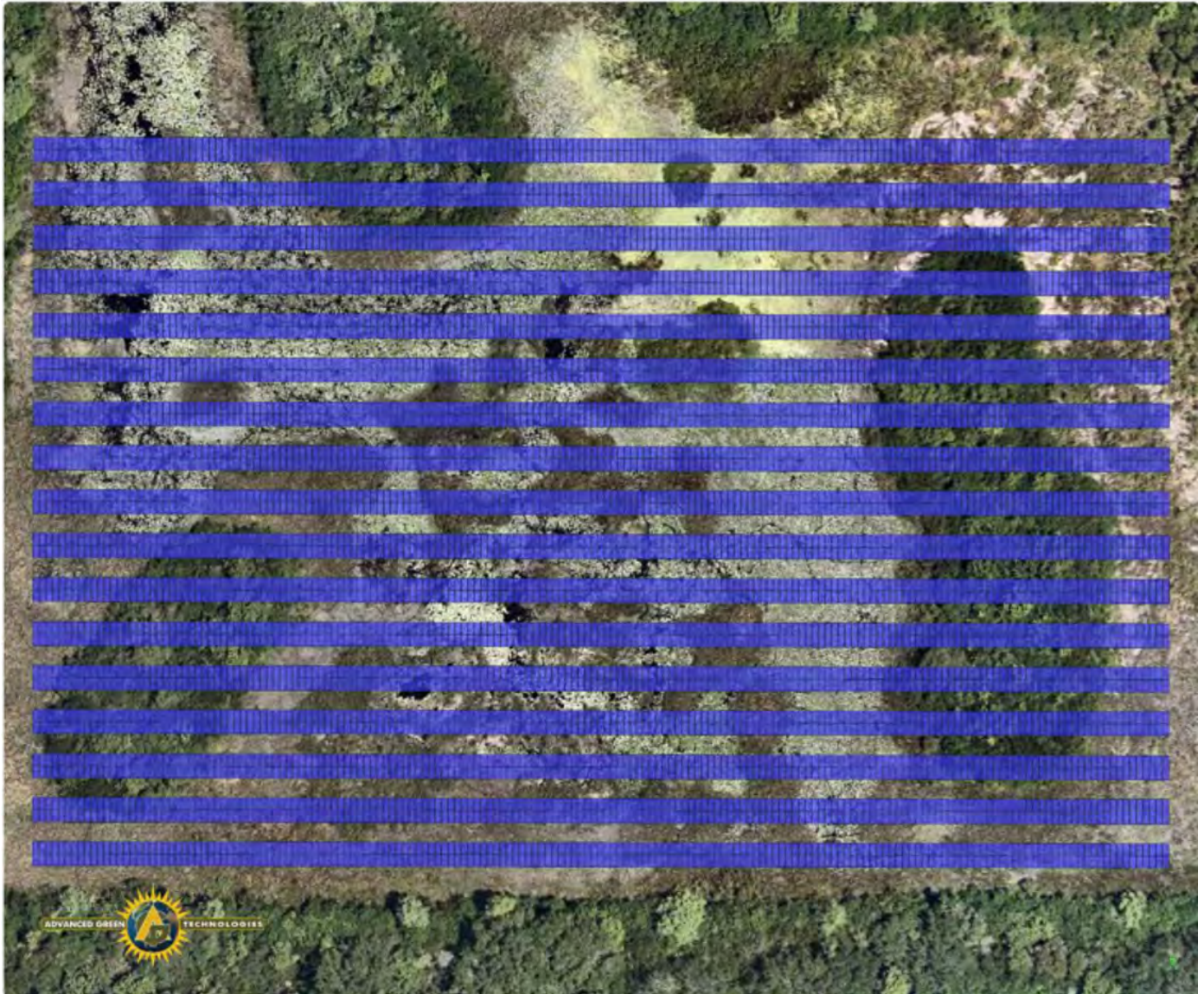


Aerial of rooftop-mounted solar PV arrays at the Wastewater Treatment Facility

GROUND-MOUNTED SOLAR

Additionally, a parcel of land located in the southwest quadrant of the facility has been identified as the potential site for a ground-mounted array. This undeveloped section of land can be converted into a 2.35 MW capacity solar array.

It should be noted that prior wetlands designation on this site could affect the efficacy of this option. Siemens will review all prior permits which regulate wetlands on this site prior to conducting any analysis.



Detail of ground-mounted solar PV array proposed for the indicated region in the previous aerial image

CARPORT CANOPY SOLAR

The Miramar Town Center includes a large open-air parking lot well suited for a multi-canopy, solar carport solution. The canopies will be built in an area of high energy intensity to displace as much energy needed from the utility grid as possible. Once complete, the canopies will meet all necessary height regulations pertaining to this type of structure. The canopies will offset facility utility costs, reduce the complex’s carbon footprint, and shade visiting customers’ vehicles. Below are renderings of the proposed solar layout for this facility, totaling 727.6 kW in potential capacity.



Proposed solar carport locations in the City Hall parking lot



Solar Carports, Siemens Corporate Research Headquarters, Princeton, NJ

EV Charging Stations



Various locations for EV charging stations have been identified at Miramar Town Center. The most prominent involves integrating rows of charging stations as part of the solar carport design and installation. This introduces EV charging as the primary electric user for the canopy before distributing remaining available electric power to the rest of the complex.

In addition, standalone EV stations can be installed at various parking spaces located in front of City Hall and Police Headquarters. The selected charging stations can vary in size to accommodate different vehicle charging types and capacities; including potential future law enforcement vehicles.

SAVINGS AND PERFORMANCE

Energy and cost savings associated with solar projects are developed using a modeling program. The software includes a detailed and comprehensive library of solar panels and inverters, which allows for the modeling of any number of system configurations and incorporates TMY3 weather data provided by the National Renewable Energy Laboratory for the location nearest the site. In total the reviewed areas have the potential to net a total system capacity of just over 3.4 MW resulting in almost 5.23 GWh of projected annual production:

Roof-mounted	500,600 kWh
Ground-mounted	3,686,000 kWh
Solar Carport	1,106,000 kWh
Totaling	5,292,600 kWh

Solar projects with Siemens include a Data Acquisition System (DAS) to collect and store data for asset operations analysis and provide control points to manage the solar asset's day-to-day operations. Since Siemens uses string inverters, solar asset performance data are collected at the inverter level. In addition to interfacing with the inverters, data is gathered from weather stations mounted in the array area to monitor

site meteorological conditions and PV panel temperature in real-time, and revenue-grade meters at the solar site. This data is used to verify panel performance ratios (production efficacy) based on available conditions.

The DAS interface can be a wireless or a wired connection via a site IT network to a Remote Control Center (RCC). The RCC is a web-based application monitoring all relevant data through a single interface for all of the City's solar assets. This data and specific algorithms provide critical metrics and status in order to identify and report malfunctions or anomalies immediately to the customer.



LONGEVITY AND SUSTAINABILITY

Carbon footprint reduced by clean electrical energy production.

Solar systems have 25+ year life

- ✓ Twenty-Five (25) year limited guarantee on power output modules
- ✓ Ten (10) year guarantee on inverters
- ✓ Two (2) year warranty on materials and labor

FIM 6: LED Streetlights

GUARANTEED OUTCOMES

- ✓ Utility bill savings
- ✓ Extended lifecycle
- ✓ Reduced maintenance cost
- ✓ Improved light levels and color characteristics
- ✓ reduction in light spillage and light pollution

OBSERVATIONS AND OPPORTUNITIES

The City of Miramar has reported both interest and intent in moving forward with an LED conversion of existing streetlighting. Ownership of these lights, within city limits, varies between FPL, Broward County, FDOT and the City of Miramar itself. The wattage used in road and street lighting varies typically between 50- and 400-Watt lamps.

LED streetlighting is becoming more prevalent and advantageous in today's market; not only from an economic perspective but also the advantages of incorporating Smart City technologies that would improve the quality of life in the years to come.

This opportunity explores converting the current street lighting system to LED technology.

TECHNICAL FEASIBILITY

LED Technology vs High Pressure Sodium

LED streetlighting has a long life expectancy with fixtures rated at greater than 60,000-140,000 hours of operation until end-of-life in contrast to the 10,000 - 50,000 hours expected from high-pressure sodium lamps. The low energy consumption and zero-maintenance advantage of LED lighting provides a significant reduction in operational costs and greenhouse gas emissions. Resulting wattage reductions can reach 50-60% over high-pressure sodium and metal halide lamps. Also, the optical design eliminates glare and light trespass while providing superior pole to pole uniformity.

Smart Cities

The ability to remotely control and monitor streetlights in real time offers a powerful tool for maximizing the public safety benefits of streetlights, and ultimately creates a means of generating additional energy savings. Goals to reduce energy use and associated costs, while maintaining equivalent lighting performance, along with advances in communications technologies, have linked the growth of the controls market to that of the LED street lighting market. Therefore, during LED streetlight conversion projects, additional considerations are taken to determine the ability to integrate dynamic controls within the IoT space, especially for municipalities. This approach involves embedding sensors into streetlights to ensure that additional energy savings and safety benefits are being made available as part of the system upgrade.

Safety benefits can include:

- Surveillance camera networks for selected locations
- Gunshot detection via a network of streetlight-based microphones
- Air quality sensors

- Beacon mode for lights, in case of and emergency for pedestrians and emergency vehicles, for quick location.

Additional smart cities applications can include:

- Parking sensors. Availability of spaces is sensed and pushed to an app allowing drivers to find spaces and minimize congestion associated with looking for parking. The app can also be used for parking payment and monitoring by enforcement personnel for overtime parking and lack of payment.
- Parking space vacancies
- Scheduled dimming or “trimming” application in less frequently populated areas
- Public trash receptacle sensors for trash compacting locations so crews are only sent when the receptacle is approaching capacity
- Telecomm “booster.” Streetlights could operate as microcells with available bandwidth leased to telecomm providers to either augment or replace existing antenna networks to cost-effectively deliver “last mile” bandwidth to meet customer demand for video streaming, etc.

PROPOSED SCOPE OF WORK

Siemens proposes conducting an audit of all existing streetlights and performing design, permitting and selection of optimal lighting fixtures and rate.

Owned and Operated	Quantity
Owned and Operated by City	479
Owned and Operated by FPL	3,177
Owned by FDOT and Operated by City	309

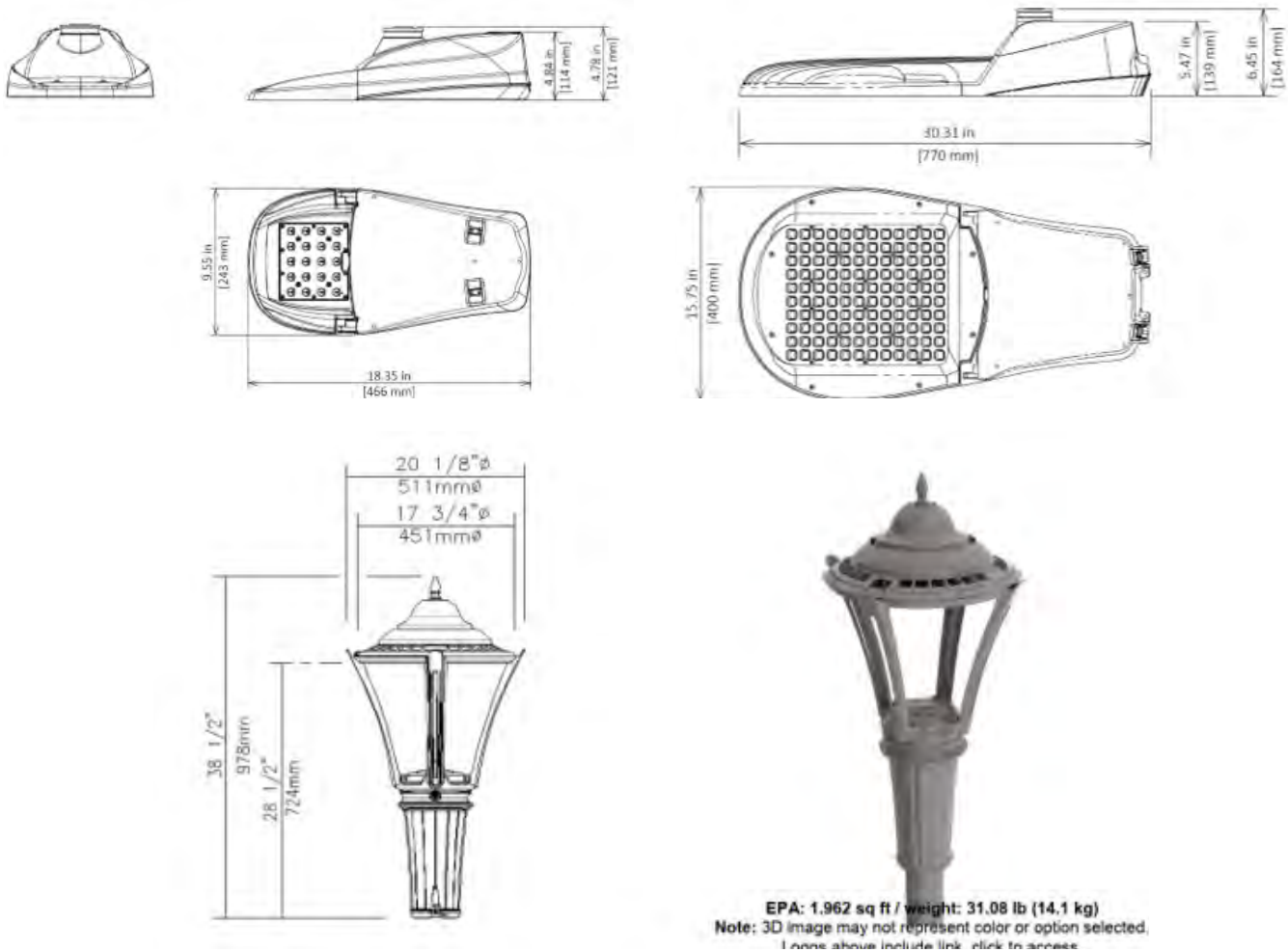
LED Conversion of City Owned Lights

The City of Miramar estimates owning and operating a total of +/- 479 streetlights. Electric billing for these lights can be done by direct metering or under a fixed monthly tariff. If streetlights are metered, they are connected to an FPL meter with associated electric account. The Street Lighting Meter Service (SL-1M) rate, monitors the electric consumption (kWh) of all services and bills the customer based on usage by applying a charge per kWh. Demand (kW) charges are not applied.

Non-metered lights utilize the SL-1 Street Lighting Tariff. This rate structure can apply for lights that are FPL-Owned or Customer-Owned. In this case, the City pays a fixed, monthly service charge depending on the type of luminaire installed (high pressure sodium, mercury vapor, etc.) and the associated wattage for each fixture. The tariff is a reduced amount from the FPL-Owned version as it does not include any maintenance or upkeep services. This responsibility resides solely with the City.

When converting to LED technology, the City directly benefits from both reduced electric and maintenance costs. For metered lighting, the monthly consumption total (kWh) reduced is due to the lower wattages associated with LED fixtures. If billed under the SL-1 Street Lighting Tariff, as a customer, you can opt to change to the LED Lighting LT-1 rate structure. The new LED fixtures rates result in a lower monthly charge per fixture. At this point, you can decide whether to continue to maintain these lights and either include or exclude provided services under this new rate structure.

A streetlighting assessment also provides the opportunity to assess and correct improper fixture type and light level issues. Siemens will work closely with the city to select the desired manufacturer, style, optimal lumen output, light distribution, and wattage for these replacement fixtures.



LED Conversion of FPL Owned Lights

FPL-owned fixtures are normally mounted on poles of FPL's existing distribution system and served from overhead wires. The City estimated the total number of lights to be +/- 3,177. The City pays a fixed, monthly service charge depending on the type of luminaire installed (high pressure sodium, mercury vapor, etc.) and the associated wattage for each fixture. FPL's SL-1 Street Lighting Tariff itemizes these charges by fixture. The service provided under this rate structure includes lamp renewals, patrol, energy from dusk each day until dawn the following day and maintenance of the FPL-owned street lighting systems.

As a customer, you can opt to convert all lights to LED and change to the LED Lighting LT-1 rate structure. The new LED fixture rates result in a lower monthly charge per fixture and provides the opportunity to assess, and potentially correct, fixture and wattage selections. FPL's changeout program provides customers options from a provided inventory list to select which fixture types to convert to. Siemens will work closely with the city to select the best solution; however, the following depicts a few of the potential selections that could be implemented for this conversion.



Assumed Area Lighting Selection:

As an example, the following represents potential existing fixtures along with the associated new monthly charges.

- 113-Watt fixtures - \$8.7 per fixture per month charge
- 225-Watt fixtures - \$12.9 per fixture per month charge

Similarly, the following are some of the potential options most likely to be selected for the new LED fixtures.

- 40- and 47-Watt fixtures - \$4.9 per fixture per month
- 76-Watt fixtures - \$5.3 per fixture per month
- 118-Watt fixtures - \$5.7 per fixture per month



LED Conversion of FDOT Owned Lights

The City estimates a total of +/- 309 lights that are owned by FDOT and operated by the City. Siemens has successfully converted FDOT fixtures over to LED fixtures on previous projects. The process includes adhering to specific design criteria and mandates specific to FDOT requirements. These criteria are more stringent than that of the FPL street lighting system; however, the billing process is the same and paid to FPL under the same rate structures mentioned earlier.

Siemens is both prepared and experienced the design and permitting process associated with converting FDOT fixtures to LED technology.

SAVINGS AND PERFORMANCE

The resulting work will yield reduced wattage and extended system life from the new LED technology, but the savings are directly attributed to the fixed cost reduction in the monthly fixture rate that is currently paid by the City to FPL per fixture type.

The typical measurement and verification approach is a before and after amperage reading of fixtures to empirically quantify the reduction in energy.

Water Treatment Plant FIMs

Our team was able to review detailed utility billing data and visit both the East and West Water Treatment Plants, but ongoing concerns related to COVID-19 somewhat limited access to these sites. Leveraging Hazen's existing knowledge and experience with these plants' equipment and operations, the Siemens and Hazen team has been able to identify an extensive list of potential improvement measures for each site. Additional information will be required during the Investment Grade Audit process to validate these assumptions and generate basic designs to confirm the feasibility of these and any other potential improvement measures. Partnering with Hazen, allows our collective team to develop these opportunities more quickly and at the lowest costs. These efficiencies directly translate to stretching Miramar's guaranteed savings dollars to invest in more project work with better returns.

WEST WATER TREATMENT PLANT

The Miramar West Water Treatment Plant (WTP) was constructed in 1996 with an initial capacity of 4.5-mgd using nanofiltration treatment. In 2003, the plant was expanded by 3-mgd, to a total of 7.5-mgd. In 2007, construction of plant modifications increased the total plant capacity to 9.25-mgd. The most recent expansion, bringing on-line new Floridan wells and reverse osmosis (RO) membrane treatment, was operational in 2012 and expanded the total plant capacity to 11.75-mgd. The plant utilizes both a low-pressure membrane softening process (nanofiltration) and a medium pressure brackish water reverse osmosis (RO) process and blends the two permeate streams together before distribution. The largest energy consuming equipment at the West WTP are the nanofiltration membrane feed pumps, RO membrane feed pumps, deep injection well pumps, transfer pumps and high service pumps.

Hazen’s team of water and energy management experts have identified the following savings ideas for the Miramar West WTP. Our team’s experience with the detailed design of the 3-mgd expansion of the West WTP brings a unique perspective and technical knowledge of the facility’s systems.



West Plant Utility Data Analysis

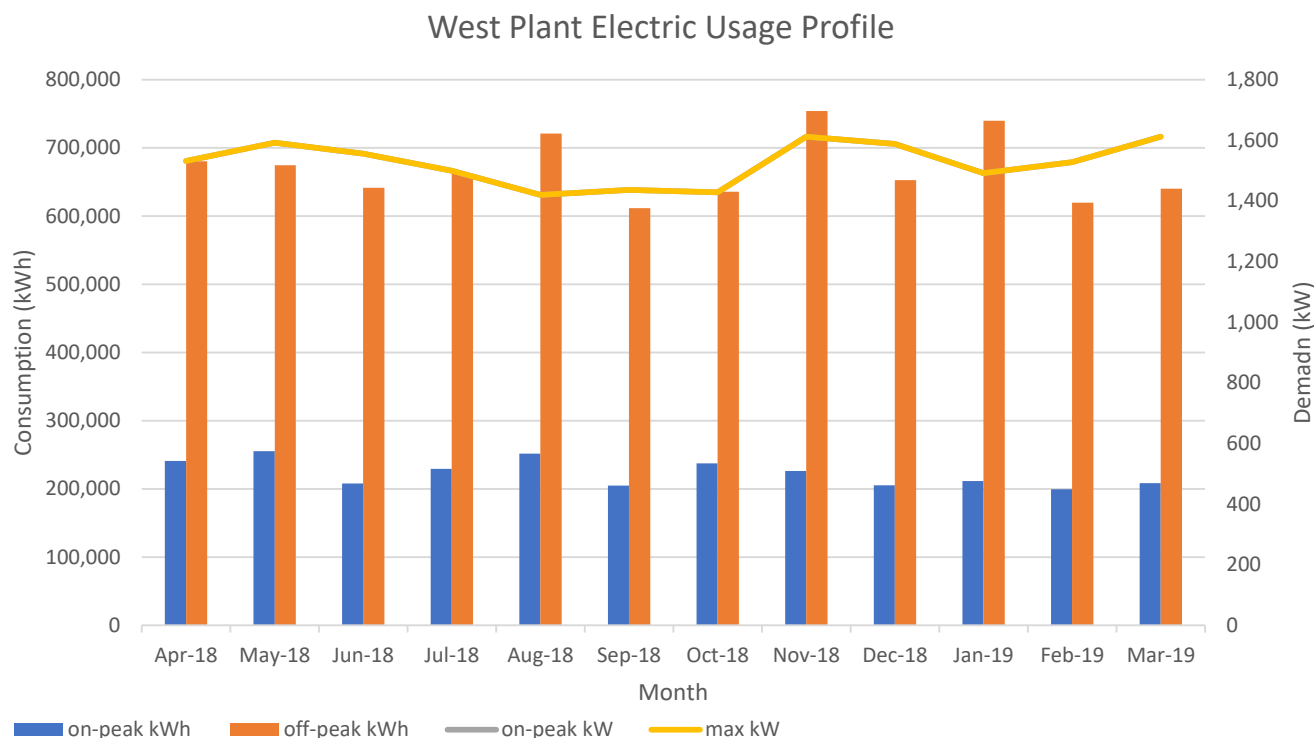
This facility is billed under the High Load Factor Time of Use (HLFT-2) electric rate tariff. This rate structure is applied to electric services for commercial or industrial facilities who have established a measured demand in excess of 20kW.

Similar to the GSLDT-2 rate utilized at the wastewater plant, the HLFT-2 rate also applies different consumption (kWh) charges depending on “on-peak” and “off-peak” metered values. However, the approach to demand (kW) charges differs where there is a different rate applied to each the maximum metered “on-peak” value as well as the overall maximum demand value for that billing period.

For this response, Siemens performed a preliminary analysis of the provided utility data for this facility; the following is a summary of the results.

Address:	4100 South Flamingo Road
Meter No.	MV87057
Rate Structure:	HLFT-2
Identified 12-month period:	April 2018 – March 2019
Total kWh consumed:	10,712,800 kWh
Maximum kW measured:	1,612 kW
Total billed amount:	\$763,086.36

The selected 12-month period was plotted graphically for further analysis.

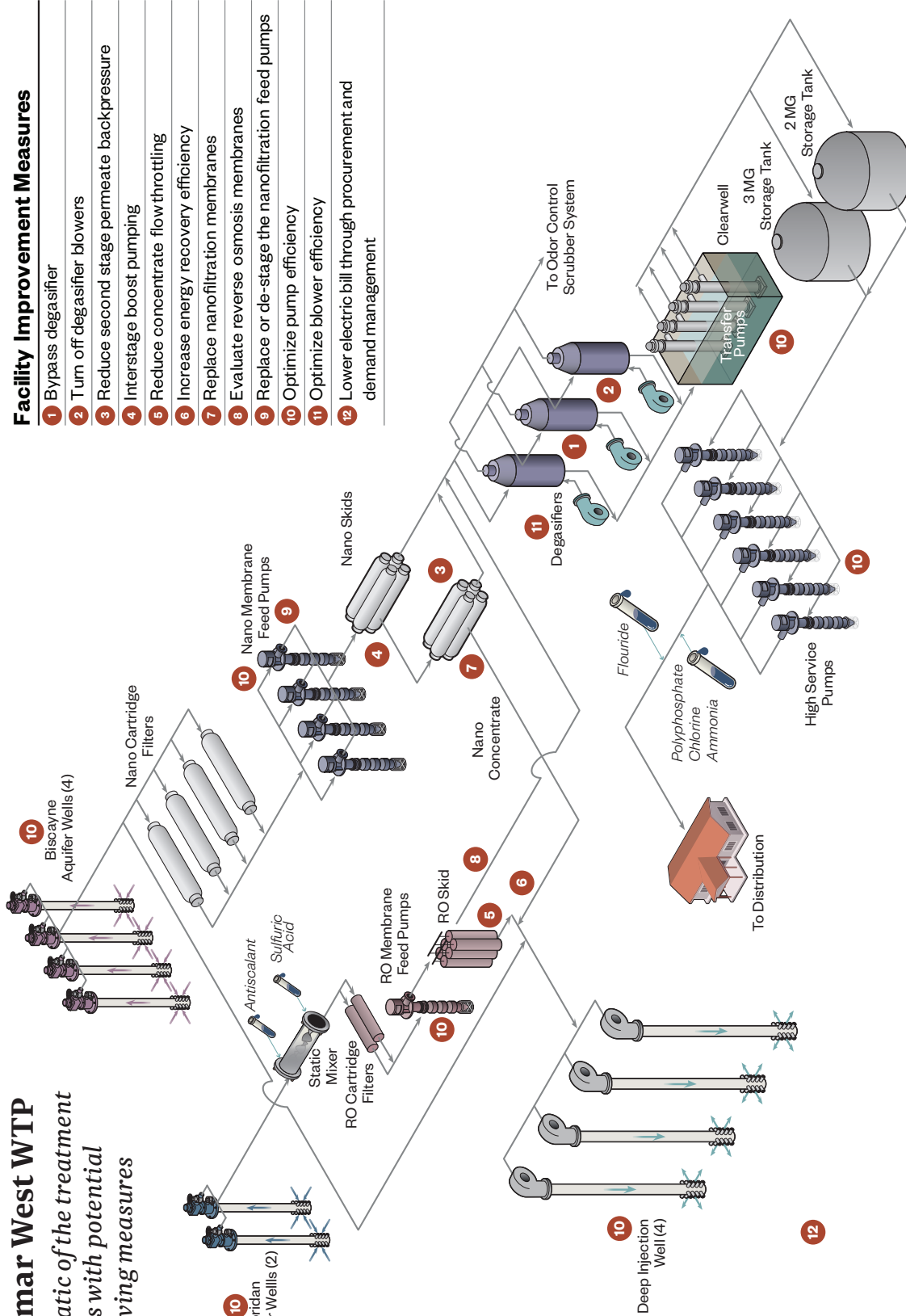


The following are some of the observations derived from the graph and resulting action items requiring a detailed investigation.

- **Electric usage peaks occurred in August, November and January**
Weather does not seem to play a factor in plant operation. Investigate why production increased so significantly in these months.
- **75% of the total electric consumption occurs during the “off-peak” period.**
Aids in understanding current plant process and equipment operation.
- **8% of the electric charges are attributed to taxes and fees**
Verify that this correlates with findings at the other plants.
- **This facility’s peak demand always occurs during the “on-peak period”**
Investigate demand peak shaving as well as applying methods to shift peak demand occurrences to non on-peak hours.

Miramar West WTP

Schematic of the treatment process with potential cost saving measures



Facility Improvement Measures

- 1 Bypass degasifier
- 2 Turn off degasifier blowers
- 3 Reduce second stage permeate backpressure
- 4 Interstage boost pumping
- 5 Reduce concentrate flow throttling
- 6 Increase energy recovery efficiency
- 7 Replace nanofiltration membranes
- 8 Evaluate reverse osmosis membranes
- 9 Replace or de-stage the nanofiltration feed pumps
- 10 Optimize pump efficiency
- 11 Optimize blower efficiency
- 12 Lower electric bill through procurement and demand management

WEST WATER TREATMENT PLANT IMPROVEMENT MEASURES

1. **BYPASS DEGASIFIER:** Degasifiers are used to remove carbon dioxide, hydrogen sulfide and other containments, if needed. We propose to study the costs and benefits of bypassing the nanofiltration degasifier if water quality can be maintained. Bypassing the nanofiltration degasifier would reduce the permeate back pressure. This would require siphonic recovery in the bypass pipe down to the clearwell water level. The caustic soda dosage would increase but this allows adequate alkalinity in the product without exceeding the target pH.



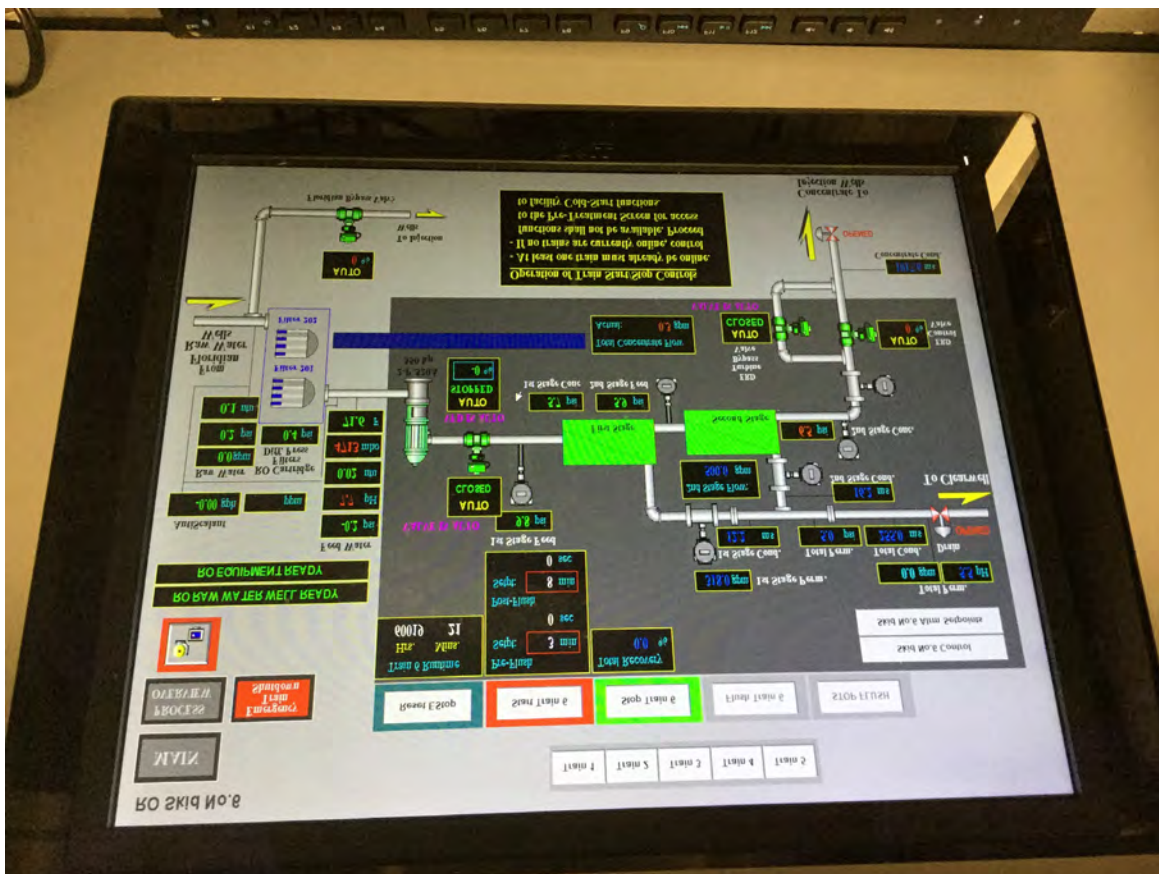
Degasifiers

2. **TURN OFF DEGASIFIER BLOWERS:** Alternative to FIM #1 would be to turn off the degasifier blower. This could be done with no capital costs and without bypassing the degasifiers.
3. **REDUCE SECOND STAGE PERMEATE BACKPRESSURE:** This alternative would shift more production to the second stage of the nanofiltration trains, allowing a decrease in feed pressure. This would reduce energy wasted by throttling the first stage permeate.



Nanofiltration Membranes

- 4. INTERSTAGE BOOST PUMPING:** There is an opportunity to use an interstage boost pump to eliminate first stage permeate throttling on the nanofiltration trains. It would balance stage flux and recovery, allowing a 20 psi reduction in feed pressure and is partially offset by the energy consumed by the interstage pump which maintains second stage production.
- 5. REDUCE CONCENTRATE FLOW THROTTLING:** Nanofiltration recovery can be controlled with concentrate booster pumps instead of concentrate flow control valve throttling. This would reduce concentrate throttling loss from more than 60 psi to about 10 psi (still necessary because of variation in individual trains). A most open valve strategy would be employed in conjunction with concentrate booster pump speed control to minimize concentrate throttling. The capital cost could be very low if it only requires a control change. This would increase plant concentrate manifold pressure and reduce RO train energy recovery.
- 6. INCREASE ENERGY RECOVERY EFFICIENCY:** An alternative would be to modify the energy recovery turbine control on the reverse osmosis train to increase energy recovery efficiency. Capital cost may be low if only a control valve and software need to be changed.



Reverse Osmosis Control

- 7. REPLACE NANOFILTRATION MEMBRANES:** Membrane fouling increases over time. Feed pressure varies from 90 psig for new membranes up to over 130 psig by year 7 or 8. We propose to evaluate the increase in pressure by stage over time by normalizing the data to initial operations conditions. Each 10 psi increase in feed pressure costs 200 kWh per day per 1.5 MGD nanofiltration train.

- 8. EVALUATE REVERSE OSMOSIS MEMBRANES:** The reverse osmosis membranes foul more slowly than the nanofiltration membranes, but are still about 10 years old and may be reaching the end of their useful life. We propose to evaluate the change in pressure over time to estimate the energy savings of cleaning or replacing the membranes.



Reverse Osmosis Machines

- 9. REPLACE OR DE-STAGE THE NANOFILTRATION FEED PUMPS:** The nanofiltration feed pumps are multistage vertical turbines in cans. We propose to evaluate the energy savings of removing one of the stages. An impeller could be removed, which would leave the bowl in place and require no other internal changes. For more energy savings and limited additional cost, the bowl and impeller could be removed and the shaft could be shortened or the column could be made longer. The pumps may need to be replaced if the operational needs are significantly different than the design flow or pressure.

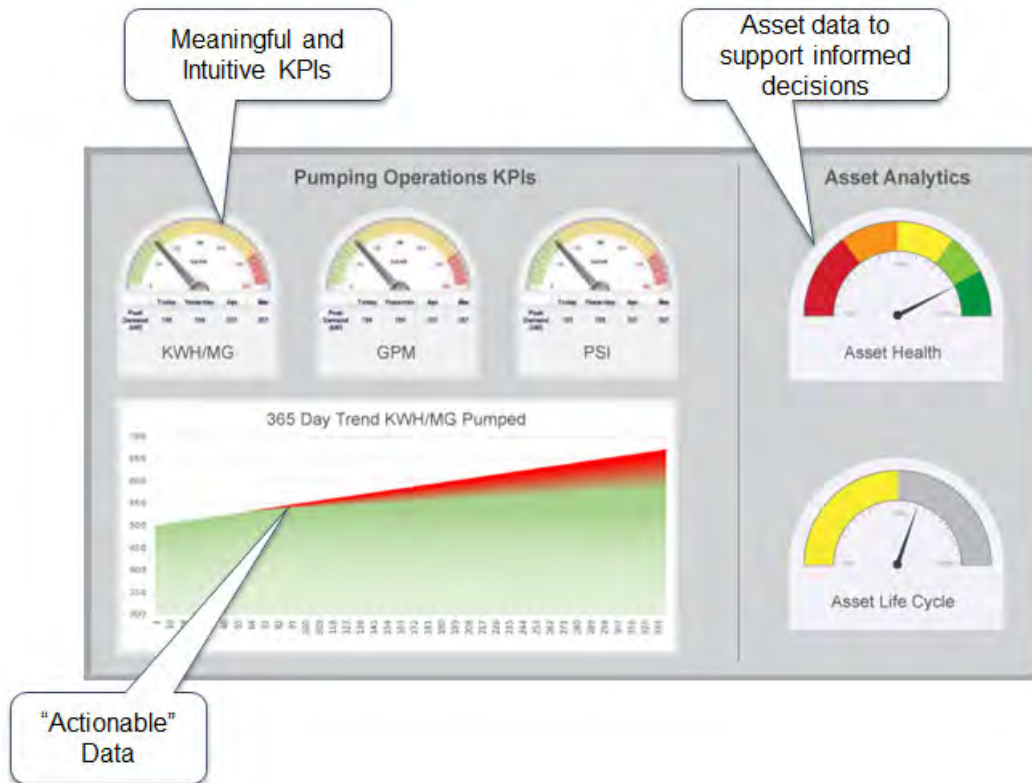


Multistage Vertical Turbine Pump (Image from Pumpproducts.com)

10. OPTIMIZE PUMP EFFICIENCY: We propose to conduct pump efficiency tests on the water supply wells, nanofiltration feed pumps, reverse osmosis feed pumps, high service pumps, transfer pumps, and concentrate booster pumps to injection well. The tests would compare current performance to new or rehabilitated conditions. We also propose to test the well performance which may be impacted by sand and organics over time. In some cases, no or low cost improvements to controls could result in savings. For example, we would review the sequences and controls on the high service pumps to identify potential energy and equipment savings. As part of long term energy management, we propose to install power metering on the larger equipment and develop a pump energy dashboard that would support staff driven optimization. The dashboard would allow operators to optimize process efficiency, maintenance staff to track equipment health and conduct proactive maintenance, and management to track progress towards energy and operational goals.



High Service Pumps



Pump Energy Dashboard

- 11. OPTIMIZE BLOWER EFFICIENCY:** We propose to conduct blower efficiency tests on the degasifiers. We would check the airflow rate compared to the design capacity. There may be an opportunity to change the ratio on the belt drives to slow down the blowers to use less energy. We propose to evaluate if the nanofiltration blowers are oversized because that air no longer has to go to odor control. We propose to study the process to evaluate the impacts to carbon dioxide, alkalinity and hydrogen sulfide.



Degasifier Blower

12. LOWER ELECTRIC BILL THROUGH PROCUREMENT AND DEMAND MANAGEMENT: We have reviewed the City's electric bills and identified opportunities to lower the electric bill at the West WTP by switching to an alternative Florida Power & Light (FPL) electric rate schedule and shifting electric load to off-peak hours. The West WTP is currently on FPL's "High Load Factor – Time of Use" tariff which charges an additional fee for the maximum demand set at any time during the billing month. We propose to evaluate the cost savings of switching to FPL's "General Service Large Demand - Time of Use (500-1999 kW)" which only charges for the demand set during on-peak hours. We would evaluate the opportunities to shift electric load to off-peak hours, such as optimizing the runtimes of the pumps and blowers and leveraging the finished water storage capacity. We would also review demand response programs that could generate additional revenue through curtailing load or using existing onsite generators.



Comparison of alternative electric tariffs and demand reduction

EAST WATER TREATMENT PLANT

The Miramar East WTP, originally constructed as a lime softening treatment facility in the 1950s, has undergone many modifications and expansions. Over the past two years, this facility was modernized with the construction of 6-mgd low-pressure membrane technology (nanofiltration) as a replacement for the lime softening process. The membrane process at the East WTP was placed into operation in May 2019. The process is configured to permit controlled bypass and blending of raw water with permeate to enhance treated water stability and efficiency of source water utilization. The old lime softening facility (5.7-mgd capacity) has now been decommissioned and demolished. The largest energy consuming equipment at the East WTP are the nanofiltration membrane feed pumps, transfer pumps and high service pumps.

The Miramar East WTP is still under construction, so the retrofit opportunities are less than an older facility. However, there is always room for optimization of new systems. Building on Hazen's initial involvement with converting the East WTP from lime softening to membrane softening, Hazen's team has identified the following savings ideas.



East Plant Utility Data Analysis

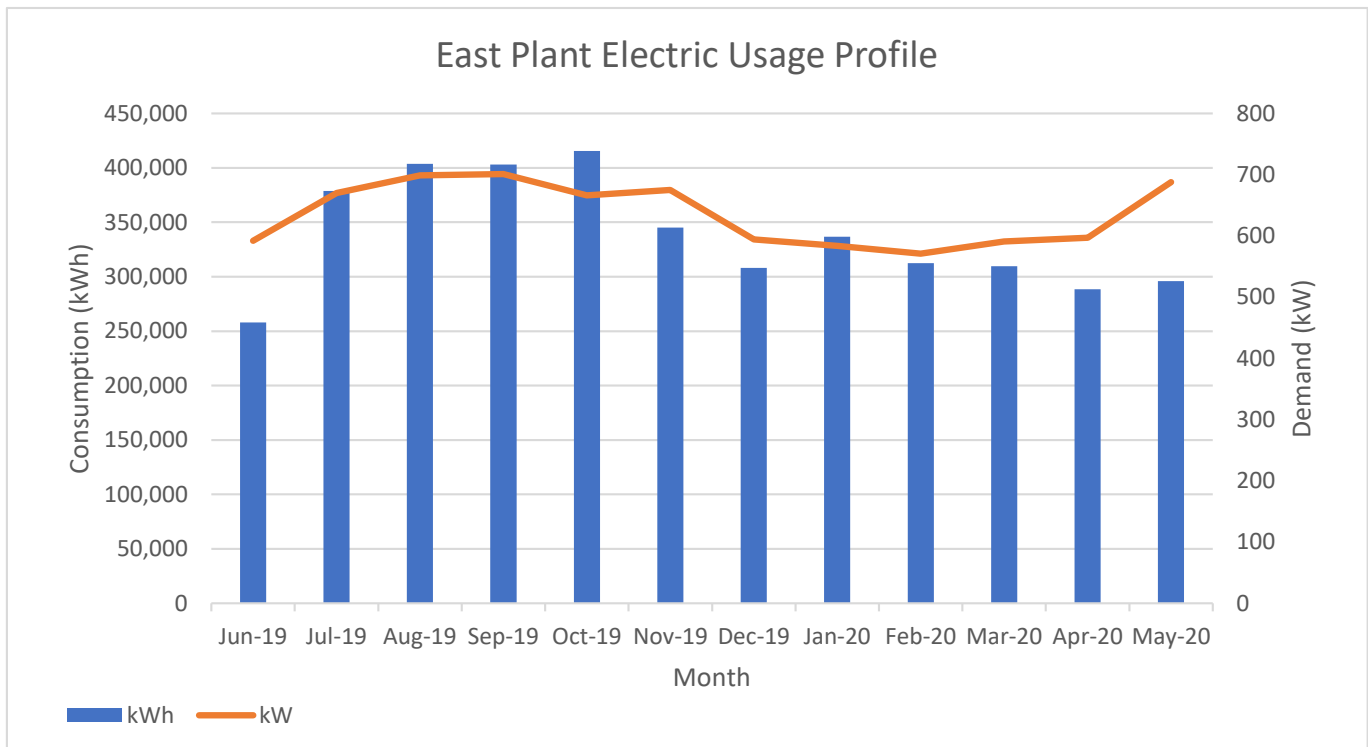
This facility is billed under the General Services Large Demand (GSLD-1) electric rate tariff. This rate structure is applied to electric services for commercial or industrial facilities who have established a measured demand of 500 kW and less than 2,000 kW.

This structure does not take advantage of varying time of use option rate options. Therefore, there is a single rate applied to each the total consumption (kWh) and maximum demand (kW) values, respectively.

For this response, Siemens performed a preliminary analysis of the provided utility data for this facility; the following is a summary of the results.

Address:	2600 SW 66th Terrace
Meter No.	PV83347
Rate Structure:	GSLD-1
Identified 12-month period:	June 2019 – May 2020
Total kWh consumed:	4 055 600 kWh
Maximum kW measured:	701 kW
Total billed amount:	\$297,022.51

The selected 12-month period was plotted graphically for further analysis.



The following are some of the observations derived from the graph and resulting action items requiring a detailed investigation.

- **The profile indicates an increase in electric usage during summer months**
Consider the effects of weather and heavier rainfall on plant operation.
Compare to West Plant and determine why there is a difference despite similar operations.
- **8% of the electric charges are attributed to taxes and fees**
Verify that this correlates with findings at the both West plant and the wastewater plant.

Miramar East WTP

Schematic of the treatment process with potential cost saving measures

Facility Improvement Measures

- 1 Turn off a blower and still maintain alkalinity
- 2 Consider pretreatment pH control
- 3 Test alternative scale inhibitors
- 4 Develop a membrane cleaning plan
- 5 Optimize pump efficiency
- 6 Operate inline or with inline boosting in the distribution system
- 7 Optimize pump efficiency at the remote pump station
- 8 Use hydraulic model to optimize distribution system operations
- 9 Lower electric bill through procurement and demand management

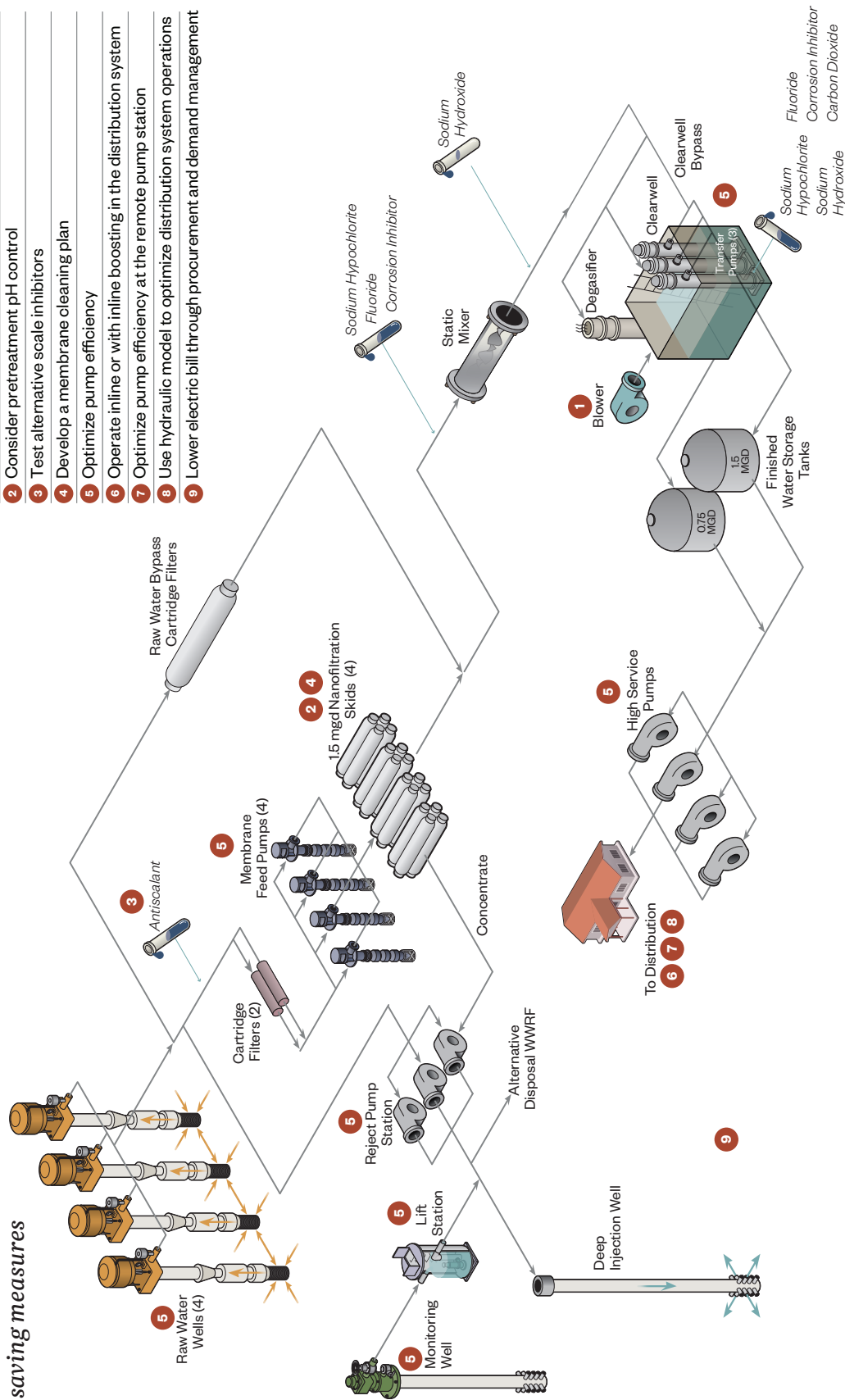
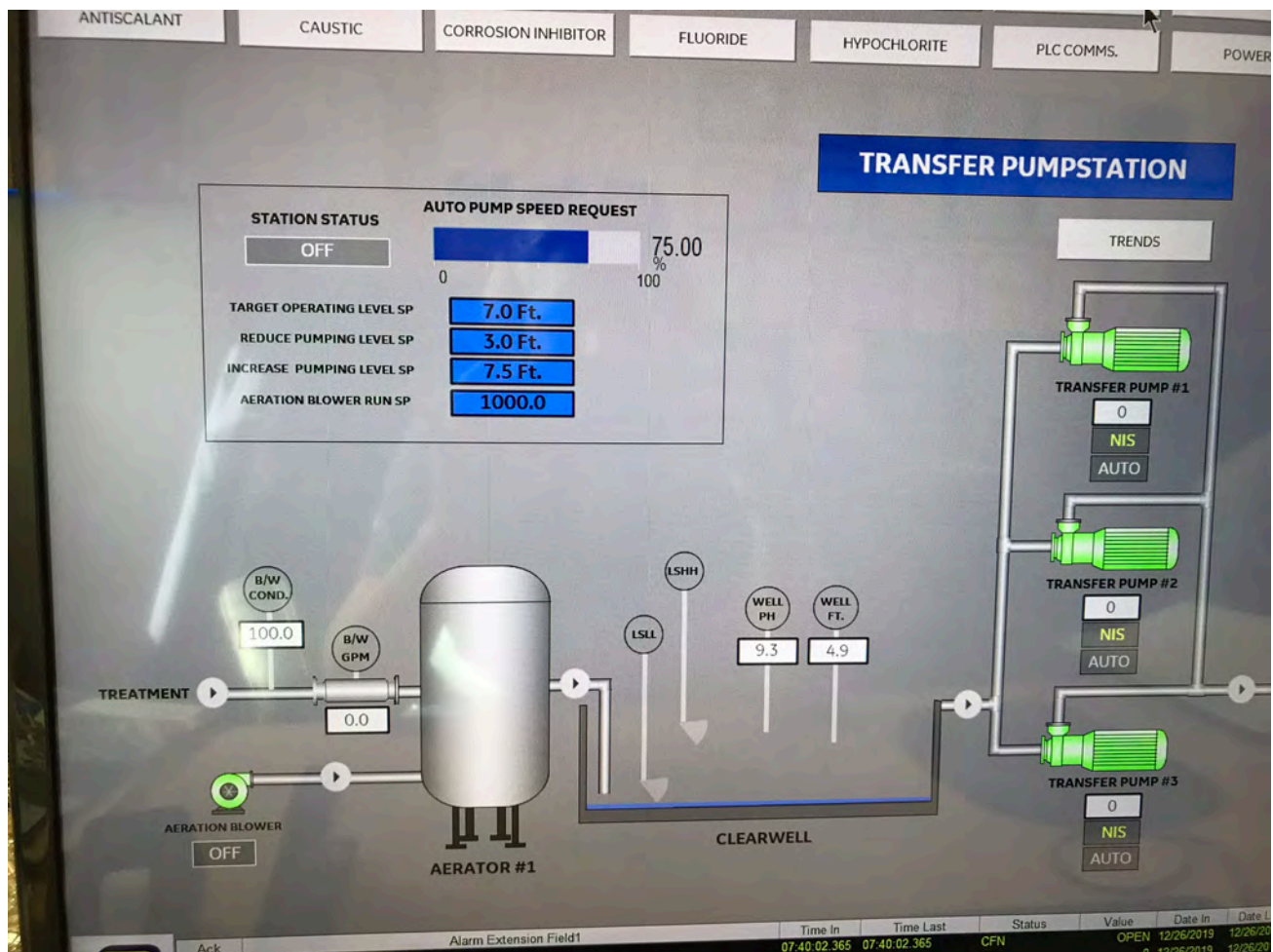


Figure x-x

EAST WATER TREATMENT PLANT IMPROVEMENT MEASURES

- 1. TURN OFF A BLOWER AND MAINTAIN ALKALINITY:** Degasification systems for membrane softening plants in south Florida are typically designed to remove hydrogen sulfide and potentially petroleum product related contamination, if required. After degasification, the dissolved carbon dioxide residual in the water is reduced to an equilibrium with the atmosphere, so there is not much left to create alkalinity. At that point, carbon dioxide needs to be reintroduced and sodium hydroxide (caustic) needs to be added to form the alkalinity needed. We propose to conduct retro-commissioning to determine if hydrogen sulfide removal is not required and if there is an opportunity to increase alkalinity and improve water quality by reducing carbon dioxide venting in the degasification tower. Chemical costs are reduced by not venting the carbon dioxide and energy is saved by turning off the degasifier blower. We propose to determine the energy savings, chemical savings and operational benefits of changing the forced draft of the degasification tower.



Degasifier Control

- 2. CONSIDER PRETREATMENT PH CONTROL:** There may be a benefit to using pretreatment pH control if the existing water supply wells are being reused. Pretreatment pH control can prevent abnormal issues with iron fouling that are very detrimental to the membrane life cycle. The upgraded facility may not

have been designed with pretreatment pH control depending on which scale inhibitor was selected. Pretreatment pH control may inhibit iron fouling on the membranes reducing energy costs, cleaning costs and reducing potential membrane wear that can accelerate membrane replacement. Pretreatment pH control also may allow increased recovery which reduces system pumping energy. We propose to evaluate the life cycle costs and benefits of using pretreatment pH control to determine the feasibility of this option.



Nanofiltration Skids

3. TEST ALTERNATIVE SCALE INHIBITORS: Typically, the selection of a scale inhibitor for new plants is not exhaustive and new products may be available by the time the plant is built. We propose to review which scale inhibitor is being used and determine if a better or more cost-effective product is available. We propose to conduct a small pilot study to test different suppliers and evaluate the operational benefits and cost savings. For example, we tested six different scale inhibitors at Plantation and found one to be much better than the rest. It resulted in reduced pressure, which saves energy savings, and less frequent cleanings and extended membrane life.



Scale Inhibitors (Image from ecoionics.com)

- 4. DEVELOP A MEMBRANE CLEANING PLAN:** The effectiveness of membrane cleaning directly affects the average feed operating pressure and therefore the energy demand. New facilities need to develop a cleaning plan compatible with their membranes and raw water quality issues. We propose to study the state of membrane fouling and optimize a membrane cleaning plan to keep feed pressures low and reduce energy costs. We propose to evaluate generic cleaners, such as hydrochloric acid and sodium hydroxide, as well as proprietary chemicals that may improve performance. Hazen developed a high pH/ low pH membrane cleaning plan for the City of Hallandale Beach that resulted in feed pressures and general performance parameters to return to almost initial baseline conditions after cleaning.



Membrane Cleaning System

- 5. OPTIMIZE PUMP EFFICIENCY:** We propose to conduct pump efficiency tests on the water supply wells, membrane feed pumps, transfer pumps, high service pumps, reject pump station, monitoring well and lift station. The tests would evaluate if the pumps are operating as designed. We propose to determine if there is an opportunity to optimize operations, including checking the programming, VFD operation and controls for all the pumps. Typically, contractors do not fine tune pumps at the time of plant commissioning. We propose to retro-commission the pumps to optimize the hydraulics of the well pumps and feed pumps and controls to maximize efficiency. We also propose to install power metering and a pump energy dashboard as a continuous improvement tool for the operations, maintenance and management teams.



High Service Pumps

- 6. OPERATE INLINE OR WITH INLINE BOOSTING IN THE DISTRIBUTION SYSTEM:** There is an opportunity to save energy costs by bypassing the water storage tanks in the distribution system and instead operating inline or with inline boosting. Filling water storage tanks requires that volume of water to be repumped, which uses more energy than feeding a zone with the water pressure of the main distribution system or directly pumping into a zone using an inline booster pump. This approach may allow the discharge pressure of the high service pumps at the WTPs to be reduced and save energy. We propose to conduct a study to evaluate the benefits of feeding remote areas of the distribution system with inline interconnections or inline boosting. The recommendations would depend on the current level of service and configuration of the tanks, pumps and piping between distribution system zones.



West Pump Station

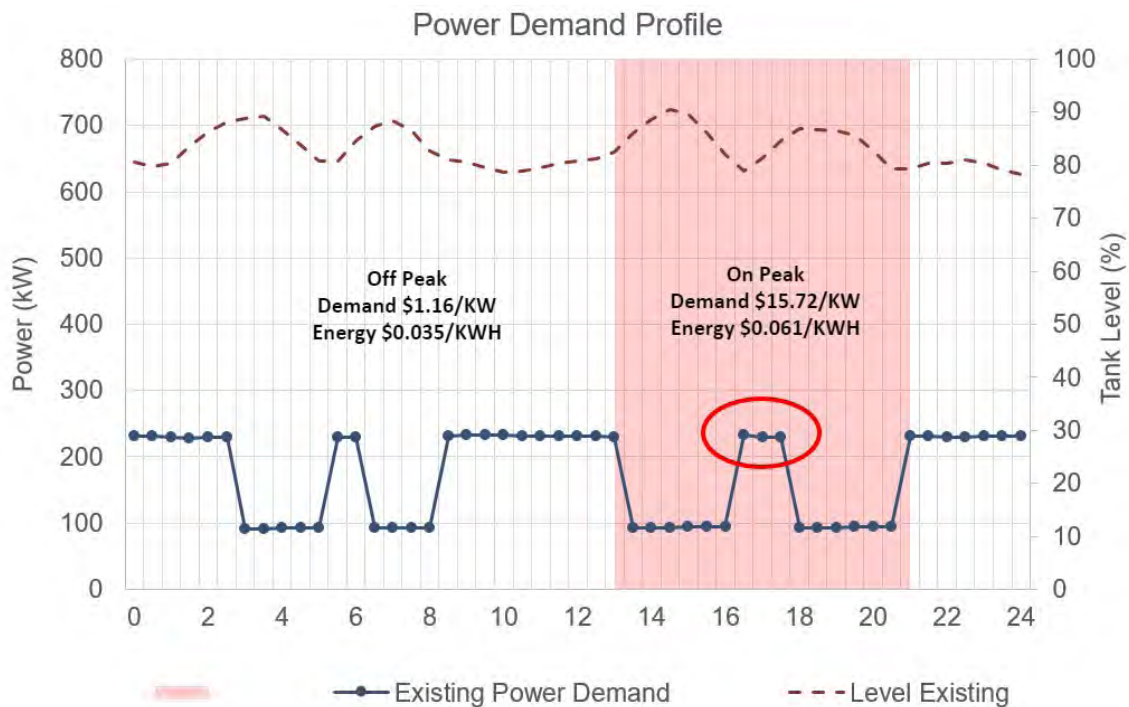
- 7. OPTIMIZE PUMP EFFICIENCY AT THE REMOTE PUMP STATION:** We propose to conduct pump efficiency tests at the East and West Pump Stations to determine the payback of rehabilitating or replacing the pumps. Pumps typically degrade in efficiency 1% per year. We propose to compare the current pump efficiency with the original manufacturer's efficiency to estimate the potential energy savings. We also

propose to install power metering and a pump energy dashboard as a continuous improvement tool for the operations, maintenance and management teams.



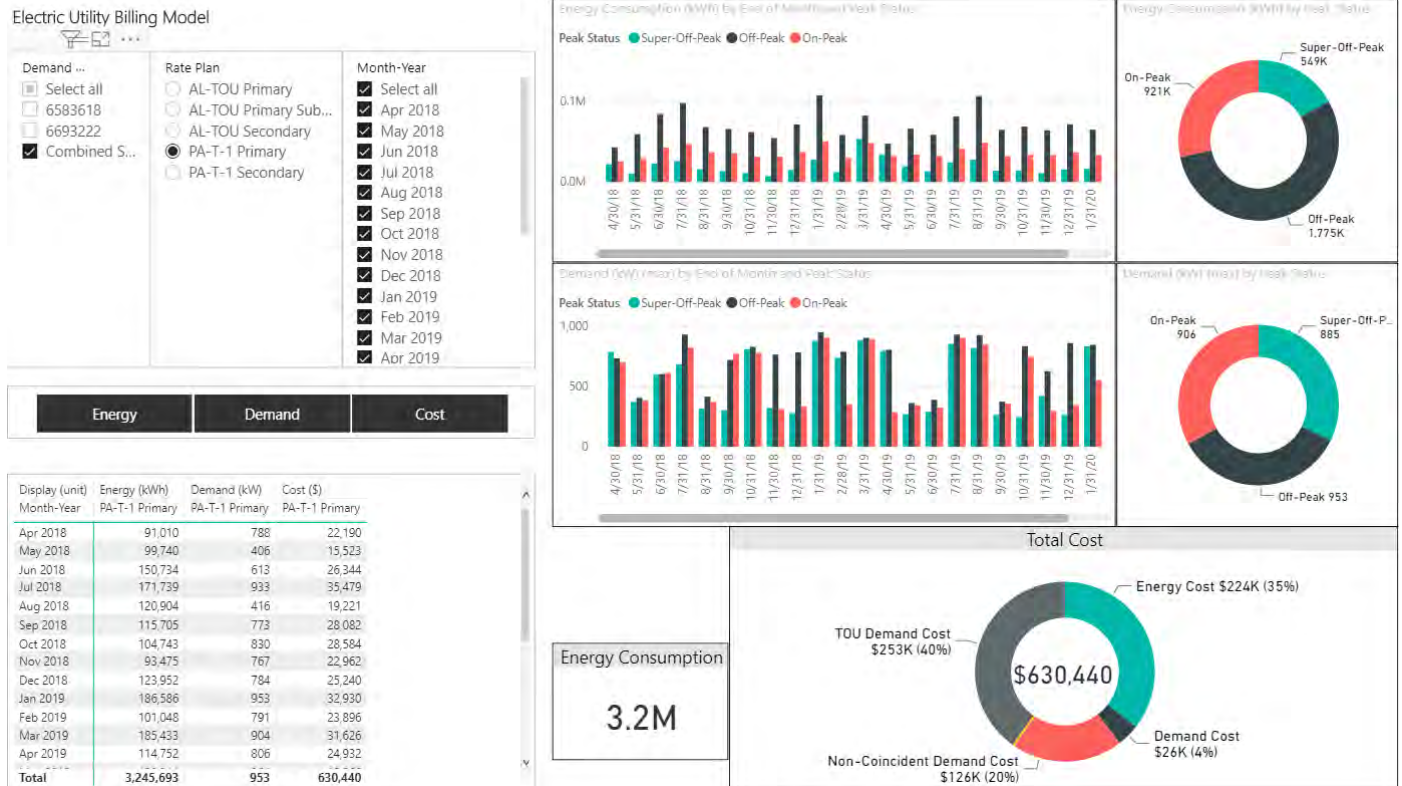
East Pump Station

- 8. USE HYDRAULIC MODEL TO OPTIMIZE DISTRIBUTION SYSTEM OPERATIONS:** We can use an extended period simulation (EPS) hydraulic model to develop demand profiles and use billing rate models to calculate actual energy costs of different operations scenarios and electric tariffs. These models can simulate the energy savings of load shifting pumping to lower cost times of day, changing electricity rate schedules, lowering tank levels, operating more efficient pumps, or changing VFD speeds. Most of the optimization opportunities identified with the models can be implemented at no or low capital costs.



Reduce on-peak electric demand charges

9. LOWER ELECTRIC BILL THROUGH PROCUREMENT AND DEMAND MANAGEMENT: The East WTP is currently on FPL's "General Service Large Demand (500-1999 kW)" electric rate schedule. We propose to evaluate the cost savings of switching to FPL's "General Service Large Demand - Time of Use (500-1999 kW)" tariff. The time of use tariff only charges for electric demand set during on-peak hours, so there could be savings by shifting the electric load to off-peak hours. We would use our Electric Utility Billing Model to compare electric rate schedules and opportunities to shift off-peak, such as optimizing the runtimes of the pumps and blowers and leveraging the finished water storage capacity. We would also review demand response programs that could generate additional revenue through curtailing load or using existing onsite generators.



Hazen's Electric Utility Billing Model

WASTEWATER RECLAMATION FACILITY

The Miramar Wastewater Reclamation Facility (WWRF) provides wastewater treatment, disposal and reclaimed water for the City’s residents. When constructed in 1997, the facility was permitted for 7.4-mgd on an annual average day flow (AADF) basis. Today, it is permitted to treat up to 12.7-mgd on an AADF basis. The liquid treatment process consists of pretreatment, conventional activated sludge, and effluent disposal via deep injection wells. A portion of the effluent is also diverted to a reuse water system, consisting of sand filters and disinfection. The solids treatment processes include sludge thickening, digestion, dewatering and disposal. The largest energy consuming equipment at the WWRF include the aeration blowers, return activated sludge pumps, deep well injection pumps, reuse filter feed pumps and reuse high service pumps.

Hazen has worked with the City on all phases of the Miramar WWRF – from inception to the latest reuse facilities expansion from 4-mgd to 7.4-mgd. That experience gives our team a unique ability to quickly identify savings measures. We will prioritize projects that help the City solve existing operations and maintenance challenges. The following opportunities are a snapshot of the potential to save cost while improving operation and maintenance (O&M) at the Miramar WWRF.



Wastewater Reclamation Plant Utility Data Analysis

This facility is billed under the General Services Large Demand Time of Use (GSLDT-2) electric rate tariff. This rate structure is applied to electric services for commercial or industrial facilities who have established a measured demand of 2,000 kW or more at least once over a 12-month period. The time of use provision of this tariff applies different rates to electric consumption (kWh) metered at different times during the day. The following identifies these "on-peak" and "off-peak periods".

On-Peak: November 1 through March 31: Mondays through Fridays during the hours from 6 a.m. to 10 a.m. and 6 p.m. to 10 p.m. excluding Thanksgiving Day, Christmas Day, and New Year's Day. April 1 through October 31: Mondays through Fridays during the hours from 12 noon to 9 p.m. excluding Memorial Day, Independence Day, and Labor Day.

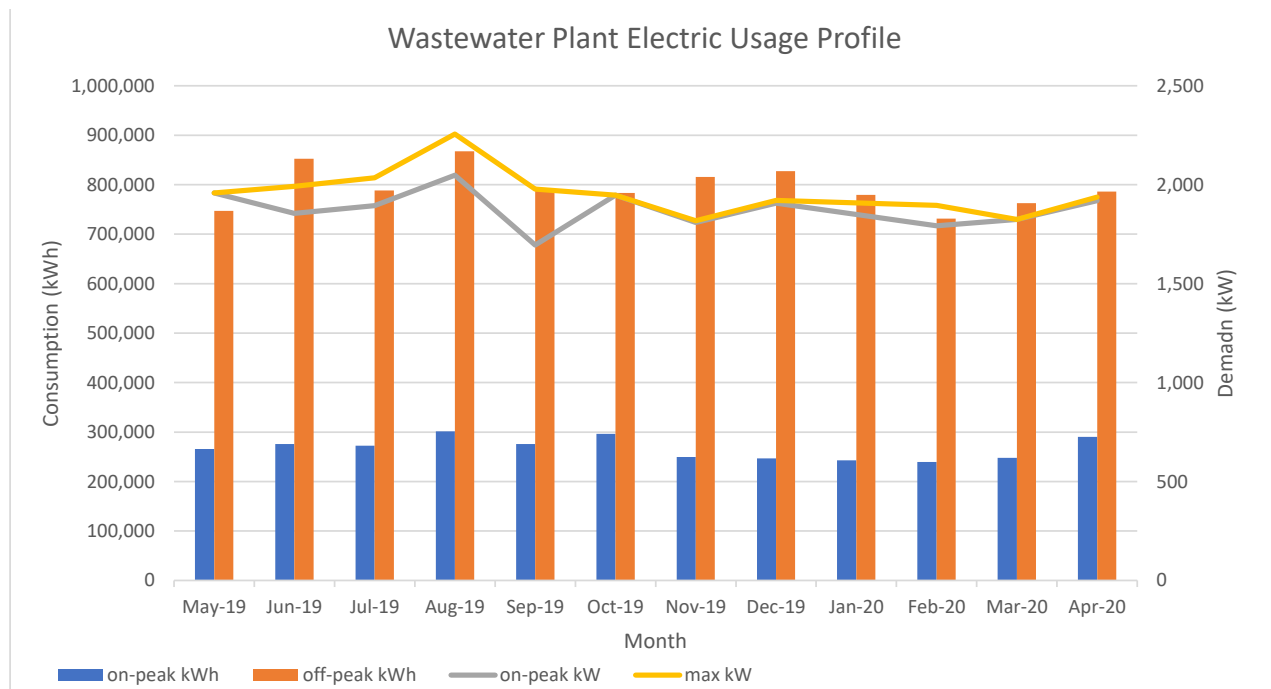
Off-Peak: All other hours.

Electric demand (kW) is billed as a single rate to the maximum metered kW value occurring during the "on-peak" period.

For this response, Siemens performed a preliminary analysis of the provided utility data for this facility; the following is a summary of the results.

Address:	13900 Pembroke Road
Meter No.	PY17034
Rate Structure:	GSLDT-2
Identified 12-month period:	May 2019 – April 2020
Total kWh consumed:	12,735,600 kWh
Maximum kW measured:	2,256 kW (only billed for 2,048 kW)
Total billed amount:	\$903,098.07

The selected 12-month period was plotted graphically for further analysis.



The graph above depicts the energy usage profile for this metered account over the provided 12-month period and provides many insights to how a facility is operating. The following are the observations derived from the graph and potential actions to be taken during a detailed investigation.

- **The profile indicates an increase in electric usage during summer months**
Consider the effects of weather and heavier rainfall on plant operation.
- **74.8% of the total electric consumption occurs during the “off-peak” period**
Aids in understanding current plant process and equipment operation.
- **8% of the electric charges are attributed to taxes and fees**
Ensure that energy savings are based on accurate electric billing totals.
- **Nine (9) months of the year, the plant was able to shift peak demand usage occurrence outside of the chargeable “on-peak” period**
Investigate demand peak shaving as well as further shifting peak demand occurrences to non on-peak hours.

In addition, an analysis of the physical bills also carries with it additional insights.

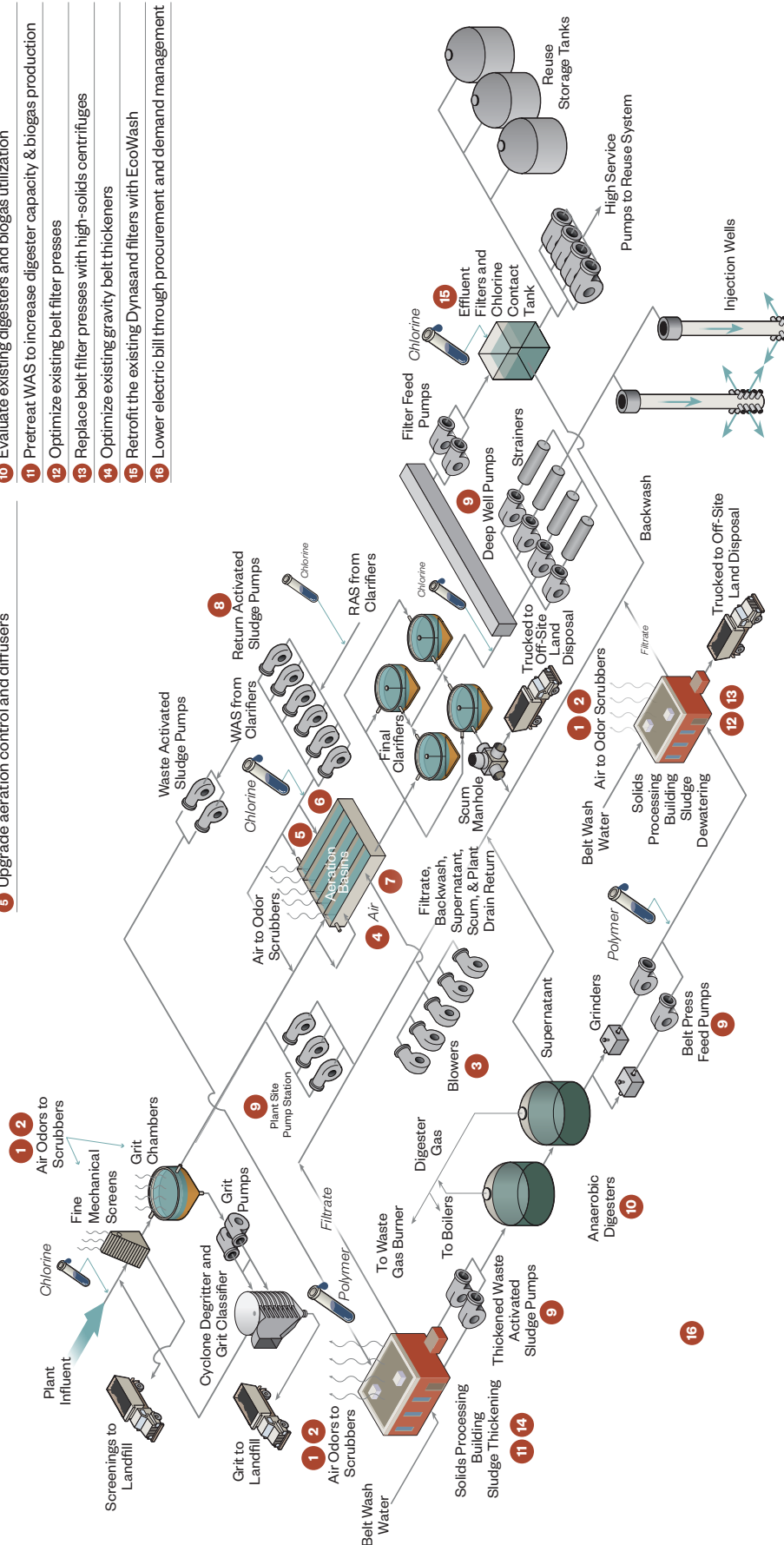
- **Every month the City carries a balance from the previous bill averaging \$78,700**
Investigate whether this incurs penalties and if a Utility Bill Management program is beneficial

Wastewater Reclamation Facility

Schematic of the treatment process with potential cost saving measures

Facility Improvement Measures

- | | | | |
|---|--|----|--|
| 1 | Consider biological trickling filters for odor control | 6 | Simultaneous nitrification and denitrification |
| 2 | Consider activated sludge diffusion for odor control | 7 | Consider activated sludge densification |
| 3 | Optimize aeration process and blower efficiency | 8 | Optimize RAS flow rates and RAS and WAS efficiency |
| 4 | Implement airflow-based control and most open valve | 9 | Optimize process pump efficiency |
| 5 | Upgrade aeration control and diffusers | 10 | Evaluate existing digesters and biogas utilization |
| | | 11 | Pretreat WAS to increase digester capacity & biogas production |
| | | 12 | Optimize existing belt filter presses |
| | | 13 | Replace belt filter presses with high-solids centrifuges |
| | | 14 | Optimize existing gravity belt thickeners |
| | | 15 | Retrofit the existing Dynasand filters with EcoWash |
| | | 16 | Lower electric bill through procurement and demand management |



WASTEWATER RECLAMATION FACILITY IMPROVEMENT MEASURES

1. CONSIDER BIOLOGICAL TRICKLING FILTERS FOR ODOR CONTROL: Odor control chemical scrubbers are installed at the Miramar WWRF to treat foul air from the headworks, aeration basins and solids handling process areas. This technology is proven and has been used for decades, however the units are approaching the end of useful life. Older wet scrubber technology can be characterized as follows:

- High chemical consumption and associated operating costs
- Storage and handling considerations for the required hazardous chemicals
- Increased operational attention required to ensure proper treatment efficiency and minimize scaling
- High labor requirements associated with maintaining chemical storage and feed systems (and periodic acid cleaning)
- Additional operational attention associated with the instrumentation and controls required to operate and maintain the scrubber (e.g. pH meters, ORP meters, flow meters, etc.)

We propose to evaluate the existing chemical scrubbers to determine their remaining useful life and ongoing operation and maintenance (O&M) costs to compare the scrubbers to biological oxidation odor control technologies.

Biological oxidation odor control (biofilters, biological trickling filters – or BTFs, and activated sludge diffusion) involves the use of microorganisms to oxidize hydrogen sulfide to sulfuric acid. While chemical scrubbers use chemicals to oxidize hydrogen sulfide (and potentially other odor causing compounds), biofilters and BTFs utilize naturally occurring bacteria and have several advantages as compared to chemical scrubbers:

- Simpler to operate and maintain
- Low operating and maintenance costs
- No handling and storage of hazardous chemicals
- Green technologies

We propose to evaluate the savings of converting the existing chemical scrubbers to biological trickling filters. The amount of chemical savings depends on the strength of the hydrogen sulfide in the foul air from the headworks and solids handling process areas. We would estimate the cost of replacing the chemical scrubbers with biological trickling filters and the associated payback. We have completed similar evaluations for the City of St. Petersburg, Florida at their Southwest Water Reclamation Facility.



Existing chemical scrubber

2. CONSIDER ACTIVATED SLUDGE DIFFUSION FOR ODOR CONTROL: Activated sludge diffusion (ASD) involves collecting foul air, directing it to the suction side of the aeration blowers, and diffusing it into activated sludge basins. The blowers then push the foul air through the fine bubble diffuser system and into the mixed liquor in the activated sludge treatment units. The odors are removed by a combination of mechanisms including absorption, adsorption, condensation, and biological oxidation in the basins. Typical odor removal efficiencies are reported in the 95 – 99% range. Odorous contaminants are absorbed into the activated sludge mixture due to the fine bubble diffusion and micro-organisms present in the activated sludge that convert the hydrogen sulfide.

The advantages of an ASD system include low capital and operating costs (when blowers and diffusers already exist), no chemical handling or storage, no spent media disposal, and the ability to accommodate wide fluctuations in hydrogen sulfide and other reduced sulfur compound loadings. For this option, the typical accumulation of grease in the blower internals can be managed by using protective coatings in the blowers and by installing grease filters upstream of the blowers. Periodic steam cleaning may also be required and would be accounted for in evaluations.

For the City of Plantation Regional Wastewater Treatment Facility (WWTP), Hazen implemented ASD for the headworks foul air instead of a two-state wet scrubber system, allowing the City to accrue savings of approximately \$800,000 in capital cost and \$60,000 in annual operating cost. A similar system was implemented at the Broward County North Regional WWTP.

We propose to evaluate the savings of discontinuing the use of the existing chemical scrubbers and instead sending the foul air to the aeration blowers for diffusion into the activated sludge. The blowers would need protective coatings and grease filters. This could be coordinated while the blowers are out of service if one or more blowers are due for rehabilitation or replacement. Moreover, we would pay careful attention to the potential of pH reduction in the mixed liquor and possible deleterious effects on treatment efficacy.

SUCCESS



Hazen's design of Plantation's aeration upgrades resulted in the following benefits:



\$ 800K

Savings in Capital

\$ 60K

Savings in Annual Operating Cost

\$ 100K

Savings in Annual Operating Cost

\$ 200K

Savings in Annual Operating Cost



Foul Air Treatment

Hazen implemented Activated Sludge Diffusion for the treatment of the headworks foul air instead of wet scrubbers



Selector Zone Design

A selector zone incorporated for sludge settling improvement and denitrification



Blower Installation

Multistage blower installation with sophisticated aeration control strategy to provide treatment control and energy savings



Fine Bubble Conversion

Surface aerators converted to more efficient fine bubble diffusers based aeration to improve oxygen transfer and reduce energy costs

Savings of activated sludge diffusion

3. OPTIMIZE AERATION PROCESS AND BLOWER EFFICIENCY: Process and energy modeling play a key role in optimizing WWRF energy efficiency. Hazen is a recognized leader in wastewater process modeling having calibrated and performed process simulations at over 150 WWTPs. Many of these projects have included process simulation to optimize energy usage throughout the wastewater treatment plant, particularly in the activated sludge process and aeration. BioWin™ is a wastewater treatment process simulator software that integrates biological, chemical, and physical process models. The latest version of

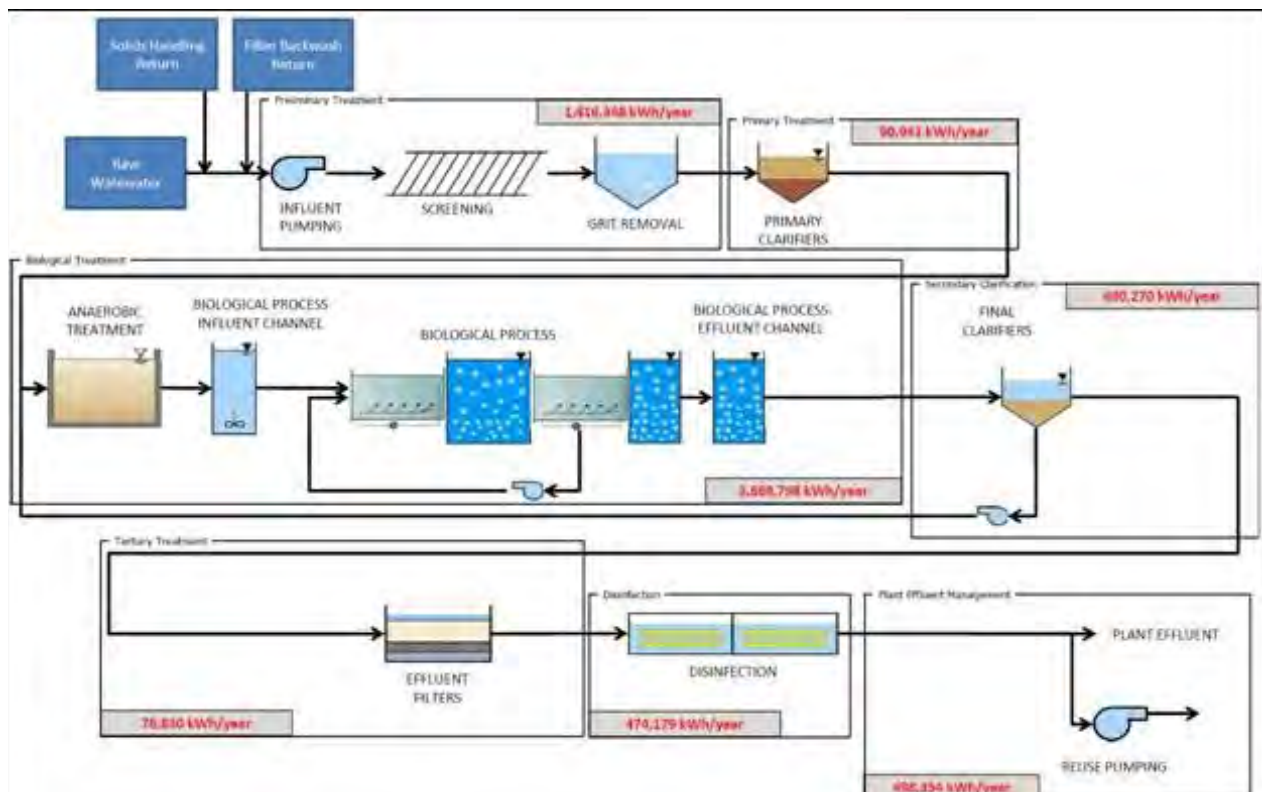
BioWin™ allows dynamic energy and power cost modeling (including plant-specific energy rate structure) and serves as a great tool to help identify energy optimization opportunities.

Hazen developed a whole-plant BioWin™ model for the Miramar WWRF during the most recent Basis of Design Report. We propose to update the BioWin™ model to evaluate the different process alternatives considered in this proposal. This effort would be led by Ron Latimer, who leads Hazen's Wastewater Process Modeling Group.

Our approach would include an in-depth evaluation to identify areas where the process energy usage is excessive for the process function. This task would be completed using BioWin™ and our "Hazen Energy Efficiency Tool" (HEET). HEET is a process energy modeling tool specifically designed to model the whole plant mass and energy balance giving us the ability to understand how optimization opportunities impact the energy performance of downstream processes. This tool provides an accurate assessment of the "whole plant benefits" for energy optimization projects by accounting for the overall plant energy balance. An innovative feature of this tool is the ability to work in parallel with BioWin™ so that the energy performance and the process performance can be modeled simultaneously.

We propose to use HEET and BioWin™ to develop energy and process performance benchmark data to set an economic baseline for the investment-grade energy audit. Once the models are calibrated to the existing conditions, we would use the models to identify the optimal energy performance for each major process. We would compare the actual and optimized energy usage for the major process areas and identify which processes have the highest potential for optimization.

By developing these models at the start of the investment-grade energy audit, we can quickly identify where the process energy optimization opportunities exist and focus our efforts on those opportunities.



HEET output, delineated by unit process area

Currently there are five 500 hp multi-stage centrifugal blowers installed at the Miramar WWRF for a total of 2,500 hp. Two of the Lamson blowers have been in operation since 1996. We propose to test the efficiency

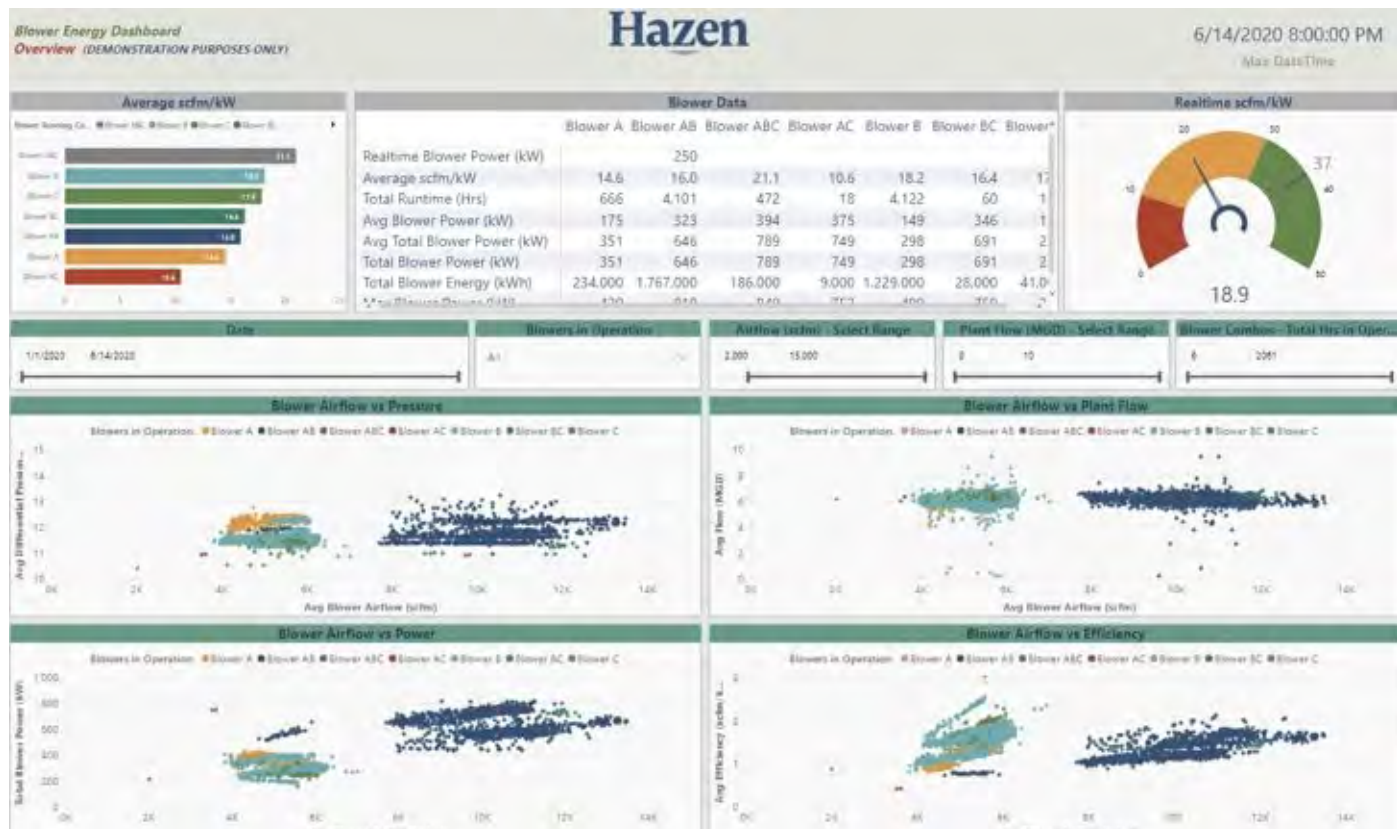
of all five blowers by measuring the real-time power draw, airflow, inlet and outlet pressure, and inlet and outlet temperature. This efficiency data is an indicator of the need for rehabilitation or replacement to return the blowers to the required design capacity and energy efficiency. We propose to evaluate the existing diurnal aeration air demands and blower curves to determine if modifications to the existing blower control strategy and/or a different blower technology (such as a single stage centrifugal blower or turbo type blowers) may offer overall energy efficiency improvements. This evaluation would incorporate the turn-down capabilities of the existing blowers to identify any “operational gaps” where blowers with additional blower turndown capabilities or “jockey blowers” would result in overall energy efficiency improvements. We would evaluate the remaining useful life of the blowers and ongoing O&M costs. If a different blower technology is considered, we would study advantages and disadvantages compared to the existing blowers and the new technology’s complexity and impact on O&M. Any recommendation would prioritize your long-term requirements for the ease of O&M.

There are 5 x 500 hp multi-stage centrifugal blowers installed at the Miramar WWRF.



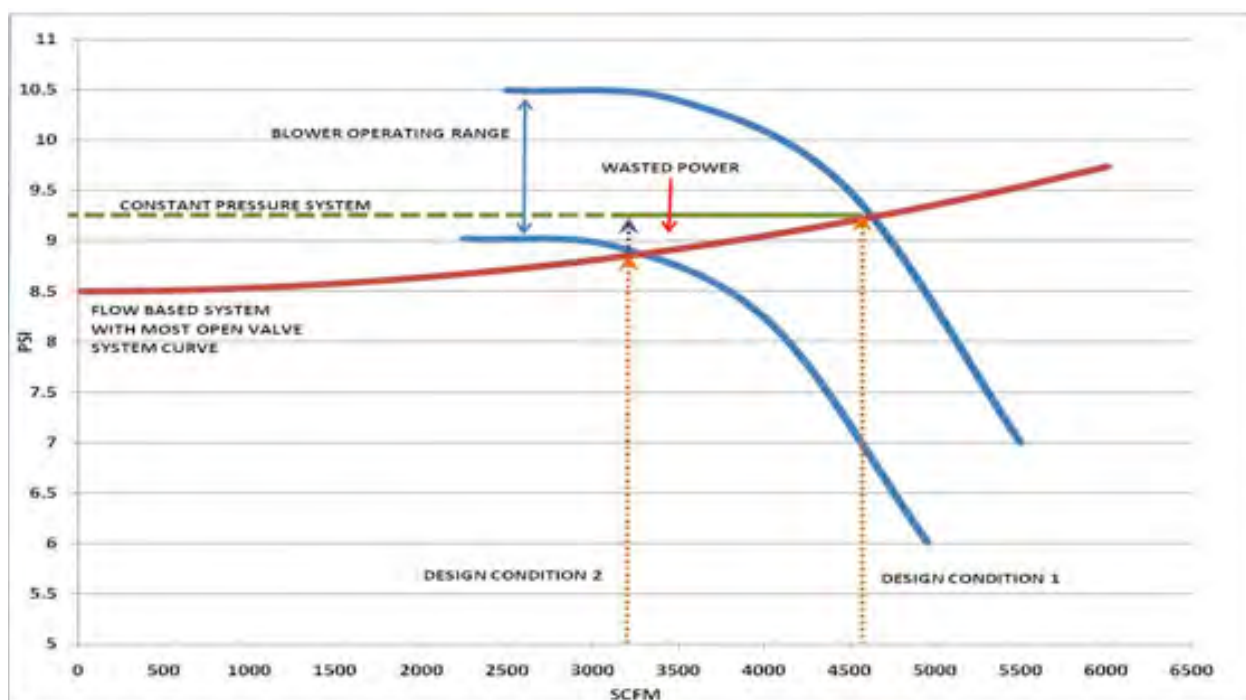
Existing aeration blowers

We propose to install power monitoring on the blowers and customize a blower energy dashboard to track blower mechanical efficiency and activated sludge process efficiency. The dashboard would be integrated into Navigator and customized to the needs of the City’s operations, maintenance and management staff. The objective of data visualization is to make complex data more accessible, understandable and usable. Presenting data visually makes interpretation easier. Patterns, trends and correlations can be seen more clearly. Data visualization should be designed to anticipate and answer the user’s questions, problems, needs and goals in a way that reveals valuable insights and corrective or proactive actions. Visualization of aeration data can be used to reduce energy, chemical and biosolids costs while meeting effluent permit limits. The dashboard facilitates staff-driven optimization.



Dashboards for tracking blower and process efficiency

4. IMPLEMENT AIRFLOW-BASED CONTROL AND MOST OPEN VALVE: We recently implemented airflow demand based control and most open valve control strategy for the City of Plantation fine bubble system and for the Broward County North Regional WWTP fine bubble project and would consider implementation of a similar control for the Miramar WWRF. A constant pressure-based control system typically wastes energy by producing more pressure than is required to maintain basin airflow in dissolved oxygen (DO) control strategies. Significant energy savings can be realized through the implementation of a most open valve (MOV) control logic, however, this strategy is difficult to implement and tune with a pressure-based aeration control system but very simple to implement and tune with an air flow demand-based control system. The MOV logic always keeps some basin flow control valves in a maximum position to minimize headloss and pressure. By eliminating pressure control, the air flow demand-based DO control strategy directly modulates basin flow control valves and blowers to attain desired airflow targets for each basin. This control combination typically results in optimum energy efficiency, simplified operation and improved process flexibility.



Energy efficient airflow based control with MOV compared to constant pressure control (Image from airbestpractices.com)

5. UPGRADE AERATION CONTROL AND DIFFUSERS: We propose to evaluate the existing dissolved oxygen (DO) strategy in coordination with the blower evaluation described above to identify DO control improvements that could reduce aeration demand without negatively impacting the activated sludge process. We propose to also evaluate the operation and performance of the anoxic zones to ensure there is adequate biochemical oxygen demand (BOD) uptake in this zone. Typically, an optimized anoxic zone can reduce aeration energy by 10-20%. It is anticipated that this evaluation would include the following:

- Identifying the minimum air needed to maintain basin mixing
- Identifying the minimum mixing energy needed in the anoxic zone
- Evaluating zone DO control and tapered diffusion strategies to better control air flow to each aeration basin
- Assessing DO set points and the need for additional control valves
- Considering redox potential (ORP) measurement in anoxic zones to further “dial-in” air requirements or use nitrate or ammonium analyzers for blower control (Ammonia Based Aeration Control – ABAC)

ABAC involves modulating the aeration blowers based on ammonium sensors installed in the aeration basins. ABAC is typically implemented in facilities that have to comply with specific nitrogen limits, which is not the case of the Miramar WWRP. However, it could be considered to actually prevent or reduce the aeration cost related to nitrification at this plant and to fine-tune the simultaneous nitrification and denitrification (SND) control strategy described in the next section.

HENRICO COUNTY WRF ABAC INSTALLATION

Hazen has successfully implemented ABAC at several plants, including the Henrico County WRF, a 75-mgd enhanced nitrogen removal (ENR) facility with anaerobic digestion and dewatering centrifuges. The facility is permitted to meet effluent TN and TP limit of 5 and 0.5 mg/L, respectively, but is planning to meet TN and TP limits of 3 mg/L and 0.1 mg/L in the near future.

A preliminary evaluation, completed in 2016, showed ABAC as an opportunity to reduce operating costs in the mainstream process.

Analysis determined that operating in SND mode at current conditions could offer the facility operational savings on the order of \$500,000 per year. The expected savings were confirmed by a pilot plant implemented in 2017. The pilot achieved a 40% to 50% reduction in carbon, while achieving nitrogen removal similar to, or better than, the control tank.



- Piloted ABAC and SND
- Full Scale Benefits = \$500,000/year in energy savings and 40% reduction in supplemental carbon.



Ammonia Based Aeration Control and Simultaneous Nitrification and Denitrification

The oxygen transfer of fine bubble diffusers decreases over time, which decreases the activated sludge process efficiency and wastes power. This can be overcome with the right cleaning technique and frequency. We propose to determine the optimum cleaning frequency and techniques to restore the system efficiency and reduce power costs. We propose to study the remaining useful life and long-term O&M costs of the diffusers compared with the capital costs of replacing the diffusers to evaluate the payback of replacing the diffusers. Any recommendations on diffuser cleaning or replacement would prioritize the ease of O&M of the diffusers.

- 6. SIMULTANEOUS NITRIFICATION AND DENITRIFICATION:** We propose to evaluate the potential benefits of operating the Miramar WWRF aeration basins in simultaneous nitrification and denitrification (SND) mode. Simultaneous nitrification and denitrification (SND) is a biological method that combines the activities of nitrifying and denitrifying bacteria to achieve near complete removal of BOD and nitrogen. This method is being used more because it is highly effective and inexpensive compared to other methods. In SND mode, DO is reduced from a conventional value of 2 mg/L to a range of approximately 0.2 to 0.5 mg/L. Operation in SND mode reduces aeration energy consumption while allowing the plant to achieve nitrogen removal as nitrification and denitrification occur

Hazen provided provisions to operate the West Palm Beach East Central Regional Water Reclamation Facility (ECWWRF) in SND mode.

simultaneously. The Miramar WWRF does not have a nitrogen effluent limit, however it is difficult to operate WWRFs with fine bubble aeration in Florida without partial or complete nitrification due to the low sludge retention time (SRT) required for warmer weather. Oxygen is consumed for both carbon removal and nitrification, therefore it is difficult not to waste air for nitrification. It is typically better to run a plant to achieve full nitrification than run in partial nitrification mode and produce nitrogen dioxide which could have a chlorine demand. Nitrification without denitrification also consumes alkalinity which could impact pH.



Simultaneous nitrification and denitrification at a 70 mgd WWRF

We propose to update the previously developed whole-plant BioWin™ process model of the Miramar WWRF to evaluate SND.

7. CONSIDER ACTIVATED SLUDGE DENSIFICATION:

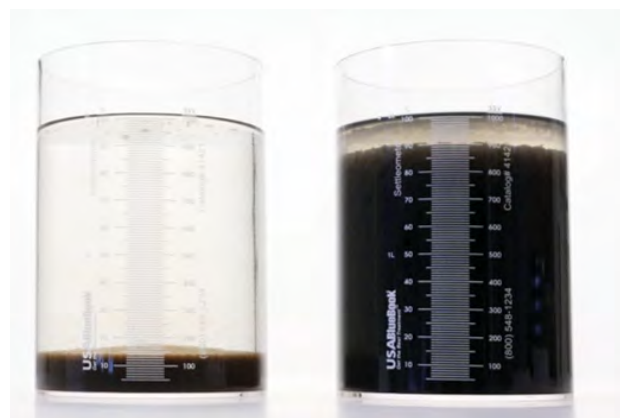
Activated sludge densification is an innovative, non-proprietary process that can be implemented within the existing basin configuration and could significantly increase plant capacity and reduce future capital and operational costs. The densification process results in superb sludge settleability.

We are currently working with seven facilities across the nation consistently achieving exceptionally low sludge volume index (SVI) values averaging 65 mL/g. The Miramar WWRF could achieve SVI values in that range by implementing activated sludge densification. Very low SVI values could unlock capacity at the Miramar WWRF allowing higher loading to the existing aeration basins and clarifiers, higher RAS/WAS concentrations and lower RAS/WAS rates. The lower WAS rates would potentially result in improved performance for the complete solids train. The reduced hydraulic loading to the gravity belt thickeners (GBTs) would potentially improve thickening, which would improve digestion and reduce dewatering and disposal costs. The actual plant capacity that can be achieved with sludge densification, without adding any additional infrastructure, is contingent to the hydraulic capacity of the plant. We propose to evaluate sludge

Densified sludge settles significantly faster than conventional sludge allowing higher MLSS concentrations in the aeration basins, higher loadings to the existing clarifiers and lower RAS and WAS rates, resulting in significant operational savings.

Densified Sludge

Conventional Sludge



Activated sludge densification

densification in conjunction with the actual hydraulic capacity of the plant to determine the extent of the benefits to the City. Hazen has already developed a hydraulic model of the plant that can be used to evaluate the actual hydraulic capacity.

- 8. OPTIMIZE RAS FLOW RATES AND RAS AND WAS EFFICIENCY:** The Miramar WWRF currently has six 20 hp return activated sludge (RAS) pumps installed and typically needs to run all pumps to maintain adequate sludge blankets in the clarifiers. RAS pumping is energy intensive and potentially a source of inefficiency at a plant if not optimized. We propose to evaluate the RAS pumping equipment and operations to identify opportunities to reduce energy usage. Specifically, we propose to determine the ideal RAS flow for different conditions of mixed liquor concentrations and sludge settleability. Automatic RAS control based on MLSS concentration, SVI and/or sludge blanket measurements using a sludge tracker device will indicate opportunities to improve sludge settleability and reduce the SVI. A reduced SVI allows the system to run with lower RAS rates, which can result in significant energy savings. As discussed above, we would consider incorporating a flexible approach that would allow the Miramar WWRF to transition to an innovative, non-proprietary sludge densification process that can result in very low SVIs. Operation in this densified mode may allow the peak RAS flow rates to be reduced by 40 to 60%.

**The 6 x 20 hp
RAS pumps at the
Miramar WWRF
are typically all in
operation.**



Return activated sludge pumps at the Miramar WWRF

We propose to conduct pump efficiency tests on the RAS and WAS pumps to determine the payback of rehabilitating or replacing the pumps. Sludge pumps typically degrade in efficiency faster than clean water pumps. We would compare the current pump efficiency with the original manufacturer's efficiency to estimate the potential energy savings. We propose to also compare the current technology with more efficient options. We propose to install power metering and a pump energy dashboard integrated into Navigator as a continuous improvement tool for the operations, maintenance and management teams.

- 9. OPTIMIZE PROCESS PUMP EFFICIENCY:** We propose to conduct pump efficiency tests on the injection well pumps, plant site pumps, thickened WAS pumps and belt filter press feed pumps. Since the reuse filter feed pumps and reuse high service pumps are new, it is not anticipated that these pumps have issues with efficiency. The tests of the existing pumps would evaluate if the pumps are operating as designed. We would determine if there is an opportunity to optimize operations, including checking the programming, VFD operation and controls for all the pumps. The efficiency tests may identify a quick payback by rehabilitating or replacing the pumps. We propose to conduct a life cycle cost analysis to compare different scenarios, including rehabilitating, replacing in kind, replacing with a newer technology and "no action".

Energy dashboards enable O&M teams to quickly gauge pump performance.



Injection well pumps

The ability to monitor energy usage patterns and trends is critical to effective energy management. We propose to install power metering to effectively monitor the major plant loads energy performance. We would customize energy monitoring graphical displays with "real time wire to water efficiency" and enable the operators to understand the facility's energy performance efficiency "at a glance" in Navigator. This capability enables plant staff to reduce energy usage and maintenance costs by proactively addressing inefficient operations before they result in lost revenue and high repair costs.

- 10. EVALUATE EXISTING DIGESTERS AND BIOGAS UTILIZATION:** We propose to evaluate options to increase capacity of the digesters through activated sludge densification, as discussed above. We propose to also study the payback of adding a new digester as part of a biogas utilization project. The project could include installing a combined heat and power (CHP) system that would use digester gas to produce electricity and heat. Digester gas could also be converted to renewable natural gas (RNG) for direct pipeline injection or vehicle fueling. The project could provide additional revenue from high strength waste (HSW) and fats, oils and grease (FOG) that would boost digester gas production. Receiving HSW and FOG may require a new digester. We propose to also study the existing digesters to determine

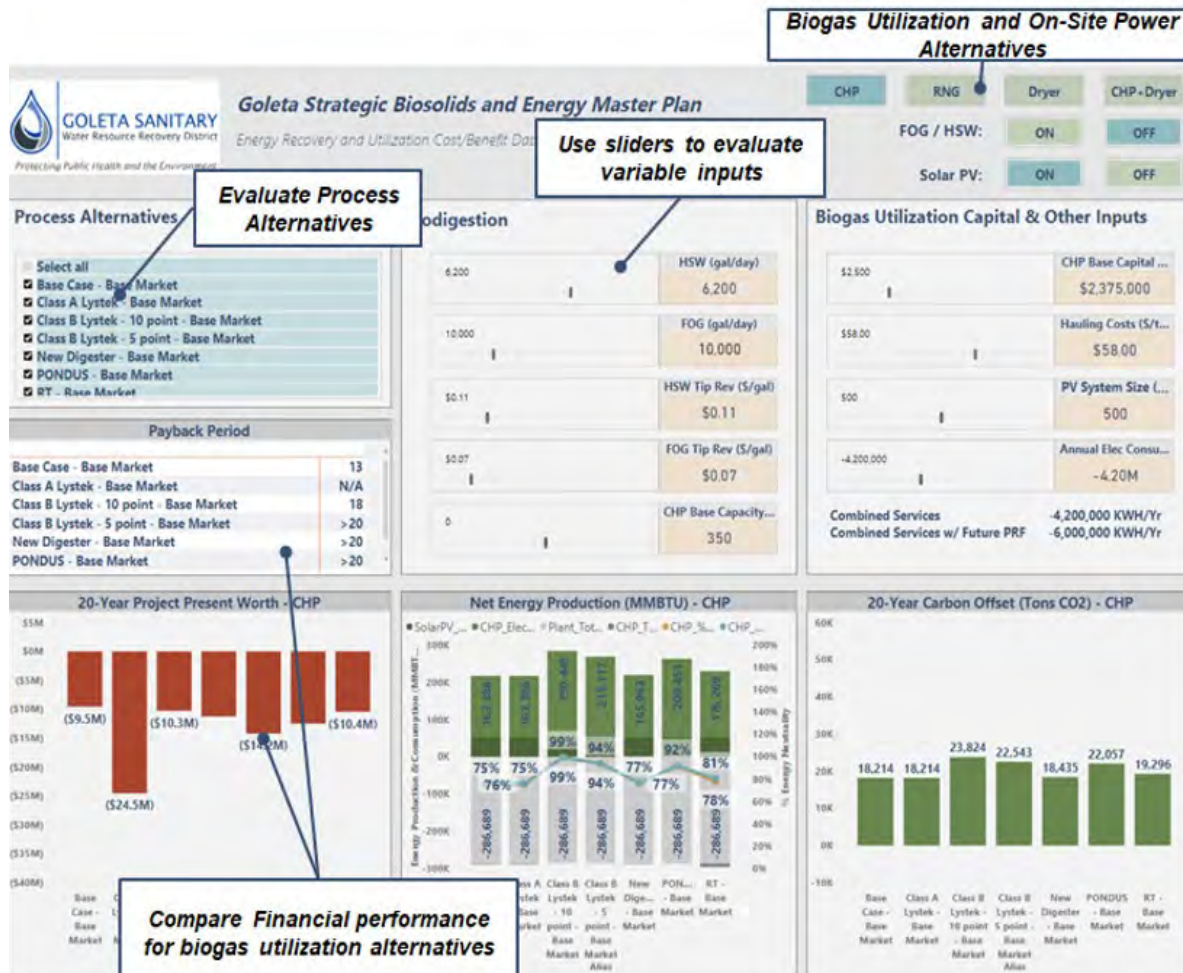
if they are at the end of their useful life and need to be rehabilitated or replaced. Improvement measures to the digesters may boost biogas production, such as improving the digester mixing. We propose to measure the quantity and quality of the biogas to establish a baseline to compare different improvement measures and biogas utilization options. We would prioritize long-term ease of operations and maintenance in any recommended scenario.

The digester gas is currently being used in boilers for heating the digesters. Excess gas is also being flared. There may be opportunities to increase the beneficial use of the digester gas.

Hazen and Sawyer has served as the lead engineer for the design and construction of biogas-fueled CHP systems throughout the country. These CHP systems generate electricity to offset some or all of the wastewater facility's energy consumption. The systems include engine water jacket and exhaust heat recovery systems to recover thermal energy to heat digesters. Our engineers are proficient at maximizing the beneficial use of the electrical and thermal energy generated to increase the overall value of these system.

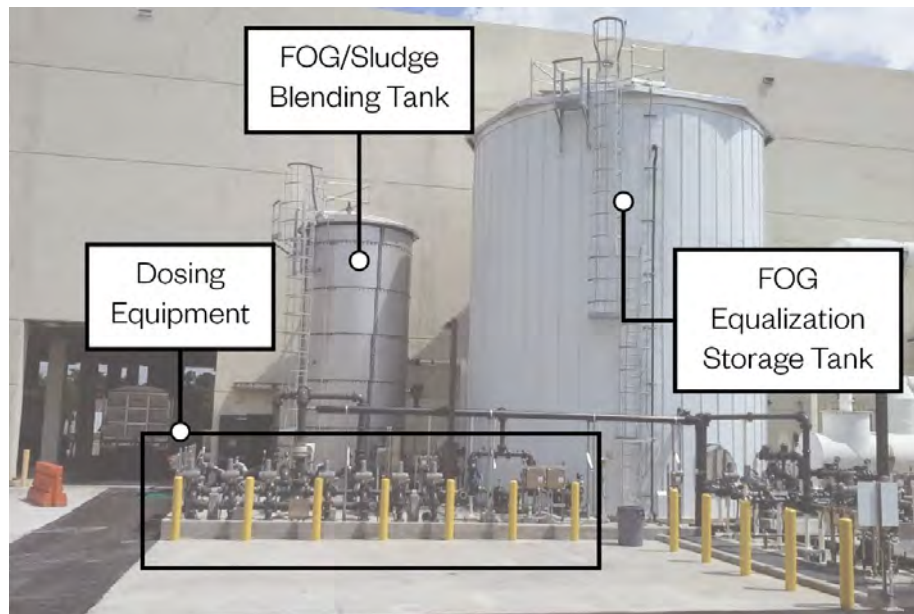
New digester gas utilization technologies such as RNG pipeline injection and renewable compressed natural gas (rCNG) for vehicle fueling and growing renewable energy markets are opening up new alternatives to conventional digester gas utilization methods. The growth in technologies and expanding energy markets has elevated the complexity of evaluating optimal long-term digester gas utilization strategies. In response, Hazen developed the Energy Balance and Analysis Tool (EBAT) to streamline the process of evaluating and identifying the long-term benefits of multiple digester gas utilization alternatives. The EBAT tool models the complex relationship between energy production, energy demands and energy costs to provide accurate long-term cost and benefit assessments for digester gas utilization alternatives such as CHP, vehicle fueling, pipeline injection, sludge drying and heat production. EBAT accounts for high and low market conditions so that the full range of economic outcomes can be understood.





Hazen's Energy Balance and Analysis Tool

All biogas utilization technologies benefit from increased biogas production. Co-digesting HSW and FOG greatly enhances biogas and energy production. We propose to study the regional market for HSW and FOG to determine the approximate quantities and qualities that could be received at the Miramar WWRF. Hazen and Sawyer served as the lead engineer for the design and construction of a FOG receiving facility and CHP system under a guaranteed savings performance contract at Broward County's North Regional Wastewater Treatment Plant (NRWWTP). Broward County is receiving approximately 40,000 gallons per day of FOG.



FOG receiving facility at Broward County's NRWTP

- 11. PRETREAT WAS TO INCREASE DIGESTER CAPACITY AND BIOGAS PRODUCTION:** Potential WAS pre-treatment includes a set of relatively new technologies that can significantly increase volatile solids reduction and biogas production in the anaerobic digestion process and also result in improved dewaterability. While some of these technologies are in the development phase, some, such as thermal hydrolysis, are relatively mature technologies with several installations. We propose to study the benefits and disadvantages of installing a WAS pre-treatment technology at the Miramar WWRF by evaluating the complexity of operations, the ability to produce Class A biosolids, and ease of implementation in the existing anaerobic digestion process.



Thermal hydrolysis pre-treatment of WAS (Image from researchgate.net)

12. OPTIMIZE EXISTING BELT FILTER PRESSES: The Miramar WWRF existing solids processing train consists of gravity belt thickening, followed by anaerobic digestion to meet Class B land application criteria, and belt filter press dewatering to remove excess water prior to off-site cake disposal. The sludge dewatering facility includes two belt filter presses (one duty plus one standby), polymer systems for sludge conditioning prior to dewatering, and sludge conveyance to truck loading.



Existing belt filter press at the Miramar WWRF

The belt filter presses were originally designed to achieve a dewatered cake solids concentration of 15% to 16%. Based on Monthly Operating Reports and discussions with plant staff, the belt presses are currently producing cake solids of 12%. Therefore, there is an opportunity to reduce off-site sludge disposal costs by increasing dewatered cake solids. We propose two approaches to improve sludge dewatering performance:

1. *Optimize Performance of the Existing Belt Filter Press Facility*
2. *Replace Belt Filter Presses with High Solids Centrifuges*

Option 1: Optimize Performance of the Existing Belt Filter Press Facility

We would mobilize an operational support team to conduct a detailed performance evaluation of the existing belt filter press dewatering operation. Our team would evaluate:

- Optimization of polymer conditioning through bench-scale testing of various polymers and full-scale dose-response testing to maximize cake solids concentration and cake solids capture
- Optimization of belt press operation, including belt speed, belt tracking and belt tensioning to maximize equipment performance

The goal of Option 1 is to improve cake solids from 12% to the original design criteria of 15% to 16% without expending capital costs. At 150 dry tons per month and an offsite disposal fee of \$40-60 per wet ton, improved belt press dewatering performance would save the City approximately \$150,000-\$200,000 per year.

13. REPLACE BELT FILTER PRESSES WITH HIGH-SOLIDS CENTRIFUGES: Under **Option 2**, the existing belt filter presses would be replaced with high-solids dewatering centrifuges. Hazen has implemented high-solids centrifuges for similar Florida facilities to achieve cake solids ranging from 18% to 22%. Belt presses could be replaced one at a time (since the facility operates with one duty and one standby unit), or a temporary contract dewatering operation could be procured to remove the belt press facility from service during the retrofit of centrifuges into the existing building.

We propose to conduct a life-cycle analysis of costs (retrofit construction, additional energy consumption) and savings (reduction in offsite disposal costs and polymer usage) to confirm net savings and payback period for a switch from belt filter presses to high-solids centrifuges. Performance contracts can be used to finance the installation of new technologies that avoid the capital costs of replacing equipment at the end of its useful life in kind.

Hazen completed planning, design, and construction oversight for similar biosolids improvements for the City of Sunrise. Improvements at the 20-MGD Sawgrass WWTP included retrofit of new centrifuge dewatering equipment within the existing belt press dewatering building to improve cake solids and reduce disposal costs. The payback period for changing from belt presses to centrifuges is estimated at 10 years.



High-solids dewatering centrifuges installed at the City of Sunrise Sawgrass WWTP

14. OPTIMIZE EXISTING GRAVITY BELT THICKENERS: The existing Ashbrook gravity belt thickeners (GBTs) are used to thicken WAS for feed into the digesters. The GBTs are nearing maximum capacity. They are currently run 24 hours per day, 4-5 days a week. We propose to conduct a detailed performance evaluation of the existing WAS thickening operation (similar to the approach of Option 1 for the BFPs), including the following:

- Optimization of polymer conditioning through bench-scale testing of various polymers and full-scale dose-response testing to maximize WAS thickening
- Optimization of the gravity belt thickening process to maximize solids concentrations to the anaerobic digestion process, which would improve digestion performance, and also reduce hydraulic loading rates to the belt filter presses

GBTs are generally an efficient and practical thickening technology, however we would evaluate alternative technologies that may improve O&M and reduce costs.



Existing gravity belt thickener at the Miramar WWRF

- 15. RETROFIT THE EXISTING DYNASAND FILTERS WITH EcoWash:** Dynasand filters are used as treatment for the water reuse system at the Miramar WWRF. We propose to investigate potential savings associated with retrofitting the existing Dynasand filters with EcoWash. EcoWash expands upon the DynaSand platform by allowing continuous filtration with intermittent sand washing. Operating in this mode, the system reduces the amount of reject water, increases filter performance, maximizes the compressed air service life, and potentially reduces maintenance time. A sand movement detection system and modifications to the existing airlift design and operation ensures consistent sand movement and reduces reject water and compressor operation time. We would evaluate the effects of slugs of high concentration backwash hitting the biological process by using BioWin™ to model the impacts on process.



Dynasand filters with EcoWash

16. LOWER ELECTRIC BILL THROUGH PROCUREMENT AND DEMAND MANAGEMENT: Effective energy procurement strategies are equally as important as energy efficiency strategies. Understanding “how” energy is billed can have as much impact on the energy costs as “how much” energy is used. The electric utility billing rate and demand management has a significant impact on the overall energy costs. We propose to evaluate current and future energy costs and billing structures to identify energy procurement strategies that may minimize long-term energy costs. We would request historic electric bill usage and cost data to develop the facility’s electric demand profiles. The facility’s electric demand profiles are critical to understanding variations in seasonality and time of use. Billing elements such as energy rates, demand charges, minimum billing charges, and facility charges can be significant depending on the facility’s electric demand profiles. There may be an opportunity to manage the facility’s demand during peak periods by leveraging the liquid and solids storage capacity to provide operational flexibility to avoid peak electric demand charges. There may be alternate electric billing rates that would reduce the City’s electric bill. We would also review electric utility and third-party demand response programs that could generate additional revenue through curtailing load or using existing onsite generators. On past similar projects, we have found that effective energy procurement and demand management can lower energy costs by as much as 20%.



Demand profiles to model how on-peak reduction may result in cost saving by switching electric rate schedules

Section B Background Information

Siemens Industry, Inc.

B. BACKGROUND INFORMATION

Provide relevant background information on your firm, including a brief history, firm ownership, and organizational structure, location of headquarters, and number and location of offices.



SIEMENS INDUSTRY, INC.

Siemens Industry comprises two Operating Companies: Smart Infrastructure and Digital Industries. These Operating Companies are leading suppliers of innovative and eco-friendly products and solutions for industrial customers. They focus on the needs of customers and enable an end-to-end offering from a single source – ranging from individual products and solutions to complete system integration and services.

Structure of Firm

Siemens Industry, Inc. is a C Corporation organized under the laws of the State of Delaware.

Date of Incorporation: November 28, 1972

Federal ID No. 13-2762488

Year Firm Established

Siemens Industry, Inc., Smart Infrastructure Division has operated under its present business name since 10/1/09.

Siemens Industry, Inc. Headquarters

Siemens Industry, Inc.
1000 Deerfield Parkway
Buffalo Grove, IL 60089

Responsible Office

3021 N Commerce Pkwy
Miramar, FL 33025

Years in the Energy Business

Siemens Industry, Inc. has been in the energy business since the company's founding in 1891. Today, our Smart Infrastructure team has grown to include over 140 energy engineers and more than 300 LEED® Accredited Professionals and Green Associates, all supported by our more than 100 U.S. locations.

The Smart Infrastructure Division of Siemens has been providing performance-contracting services for over 20 years.

Full-Time Personnel

The Smart Infrastructure Division of Siemens Industry, Inc. has approximately 16,500 employees company-wide. The Florida offices have over 6,500 full-time employees working out of 55 offices.

Siemens Miramar Office



South Florida Headquarters for 25 Years



200+ High Skilled Jobs



\$60 Million Annual Revenues



Support Local Charitable Initiatives



Serve Six Other Broward Government Entities

ENERGY ACCREDITATIONS

Siemens is one of the most recognized and highly accredited energy services company in the industry. Accredited since 1996, in November 2017 the Smart Infrastructure Division of Siemens Industry, Inc. attained our most recent NAESCO re-accreditation as an Energy Service Provider (ESP), the highest obtainable level of accreditation for companies serving the energy market. NAESCO is a national trade association comprised of energy service companies, utilities, equipment manufacturers and suppliers, financial institutions and other organizations. The association provides leadership in the energy services industry by examining economic factors, new policies and legislation, cutting-edge technologies, as well as the growth and development of the energy services industry as a whole.

The NAESCO accreditation is most relevant to the City of Miramar because in order to receive this accreditation, Siemens had to prove compliance with a set of ethics, as well as provide a significant number of project and customer-related information to verify its competency in project development, energy engineering, project implementation and financial solutions in areas such as energy conservation, co-generation and other demand-side services. The accreditation confirms that the governing board of the energy services industry recognizes Siemens as a reliable, ethical provider of energy products and services.

The committee looks at criteria including the following: the precise nature of the applicant's business; the range of measures and services offered to customers; the availability of a performance-based project approach; ethical business practice commitment; project engineering and design, financing, project management, operations, and maintenance capabilities; and the capability of verifying and monitoring energy cost savings.



Additional credentials and industry association memberships that Siemens is involved with on a national and local level include:



Siemens Employee LEED Credential • As green buildings continue to become the norm rather than the exception, we recognize the importance of earning and maintaining professional credentials throughout our organization. Across North America, over 320 Smart Infrastructure employees have earned their LEED Professional Credentials, demonstrating their commitment to helping our customers meet their green building needs.



U.S. Department of Energy • Siemens is listed on the U.S. Department of Energy's Qualified List of Energy Service Companies.



U.S. Green Building Council • Siemens is an active member of the U.S. Green Building Council (USGBC), a coalition of leading firms working to promote buildings that are environmentally responsible, profitable and healthy places to work. One of the Council's most visible programs is the LEED™ (Leadership in Energy and Environmental Design) project. Working in conjunction with other Council members, Siemens is dedicated to helping customers meet the requirements of LEED certification, a national consensus-based, market-driven building rating system designed to accelerate the development and implementation of green building practices.



ENERGY STAR • Siemens is an accredited ENERGY STAR business partner. The EPA's ENERGY STAR program is a nationally recognized energy performance rating system for a wide range of commercial and institutional building types and manufacturing facilities. The Siemens ENERGY STAR Label service provides customers with ENERGY STAR benchmarks, which allow them to compare their facilities' performance to similar buildings and then track performance over time. Siemens can provide benchmarking manually using the ENERGY STAR Portfolio Manager directly or automatically through our web-based Energy Monitoring system.



Association of Energy Engineers • Siemens is a member of the Association of Energy Engineers and many of our employees have earned professional certifications such as CEM (Certified Energy Manager) and CMVP (Certified Measurement and Verification Professional).

Other memberships include:

- International City Managers Association (ICMA)
- US Council of Mayors
- Alliance for Innovation
- Florida League of Cities (FLC)
- Florida City County Manager Association (FCCMA)
- Clinton Climate Initiative C40 Large Building Retrofit Program
- Alliance to Save Energy (ASE)
- National Leadership Circle Partner with the Building Owner's and Manager's Association (BOMA)
- The Green Grid
- National School Boards Association (NSBA)
- Association of School Business Officials (ASBO)
- National Association of College and University Business Officials (NACUBO)
- Association of Physical Plant Administrators (APPA)
- Second Nature
- International District Energy Association (IDEA)



SIEMENS' DIVERSITY ALLIANCE teams aid in sourcing diverse candidates, and the Siemens Supplier Diversity Program is fostering a culture that enables and promotes **innovation, supplier engagement and community impact**. Siemens has proudly joined a coalition of over 370 companies to stop hate crimes in Georgia. CEO Barbara Humpton recently joined Leaders in signing a commitment letter for the Partnership for New York City committing to diversity and inclusion among boards, executive leadership and the entire workforce.



Section C Subsidiary/Affiliate Company

Siemens Industry, Inc.

C. SUBSIDIARY/AFFILIATE COMPANY

List any subsidiary/affiliate company of the Proposer in the same business, the nature of the relationship, and the location of their office(s).

Tax ID	Firm Name and Address	% Owned
22-3788843	Siemens Government Technologies, Inc. 2231 Crystal Drive, Suite 700 Arlington, VA 22202	100%
93-0786033	Mentor Graphics Corporation 8005 SW Boeckman Road Wilsonville, OR 97070	100%
94-3319481	eMeter Corporation 4000 East Third Ave., Suite 400K Foster City, CA 94404	100%
46-1898620	Building Robotics, Inc. 1504 Franklin Street Suite 200 Oakland, CA 94612	100%
N/A	Industria de Trabajos Electricos S.A. de C.V. 7651 Calle AeroJuarez 2 Iparque Industrial AeroJuarez Ciudad Juarez, Chihuahua, Mexico 32695	100%
82-2138818	Fluence Energy, LLC 4300 Wilson Blvd. Arlington, VA 22203	50%
20-1549463	Siemens Electrical, LLC 527 Madison Avenue New York, NY 10022	100%
75-2728894	Siemens Product Lifecycle Management Software 5800 Granite Parkway, Suite 600 Plano, TX 75024	100%
26-2916244	J2 Innovations, Inc. 1550 Valley Vista Drive Suite 200 Diamond Bar, CA 91765	100%
26-4401097	Enlighted, Inc. 930 Benecia Ave. Sunnyvale, CA 94085	100%
04-2278461	Ruselectric, Inc 99 Industrial Road South Shore Park Hingham, MA 02043-4387	100%
80-0940160	Siemens Logistics, LLC 2700 Esters Blvd. DFW Airport Dallas, TX 75261	100%

Equality

Respect

Diversity

Justice

Perance

Section D

Description Substantiating each of the Requirements Below

Siemens Industry, Inc.

D. PROVIDE A DESCRIPTION OR INFORMATION CONCERNING OR SUBSTANTIATING EACH OF THE REQUIREMENTS BELOW:

i. Drug-free Workplace

Siemens has a robust drug-free workplace policy in full compliance with Federal and State Drug-Free Workplace Acts. Siemens maintains zero tolerance for any drug use by an employee or subcontractor. The Company recognizes the importance of maintaining a safe, productive and efficient work environment for all employees and any person conducting business for and/or on behalf of the Company. The use or abuse of alcohol, drugs and/or controlled substances can impair the ability to perform job responsibilities and can also increase the potential for work-related accidents and other failures that may pose serious safety and health risks to employees, co-workers, customers and the general public. The misuse of drugs and alcohol can have long-term effects on health and safety, which may persist long after the individual believes them to have worn off. Siemens is commitment to providing a work environment free of the hazards associated with the use of drugs or alcohol. All employees are required to report to work in appropriate mental and physical condition to perform their jobs in a satisfactory manner.

A full copy of Siemen's Drug-free Workplace Policy can be provided upon request.

ii. Employee drug testing program

As part of our Drug-free Workplace Policy, Siemens maintains a comprehensive drug testing program conducts drug and alcohol testing under the following circumstances, unless prohibited by law or otherwise:

Applicant testing: All applicants for employment to whom the Company has made a conditional job offer must undergo a pre-employment drug test.

Employee testing: The Company may require employees to submit to drug and/or alcohol testing under the following circumstances:

1. When the Company has a reasonable basis for believing that an employee is using or is under the influence of drugs or alcohol in violation of the Company's Drug and Alcohol-Free Workplace Policy.
2. When an employee or employees have caused or contributed to an on-the-job accident that has resulted in a personal injury with loss of work time, or when damage to Company property occurs.
3. On a return-to-work and follow-up basis following education or treatment either for drug or alcohol abuse or as a result of a positive drug or alcohol test.
4. As part of a scheduled fitness-for-duty evaluation.
5. As part of a random testing program, if the employee works in a safety-sensitive position, or as may be required by a Siemens customer or applicable law,
6. As may be part of customer specific requirements,
7. As may otherwise be required or permitted by law.

Drug test samples may include urine, hair, or saliva (oral fluids). All drug test samples will be screened and all presumptive positive drug tests will be confirmed using gas chromatography/ mass spectrometry (GC/MS) (or an equally accurate methodology). All confirmatory drug tests will be performed by a laboratory certified by the U.S. Substance Abuse and Mental Health Services Administration. Breath, blood, or urine tests will used to detect the presence of alcohol.

A full copy of Siemen's Drug and Alcohol Testing Program can be provided upon request.

iii. Proposer's experience, past performance, financial capabilities, violations, and litigation

FLORIDA PERFORMANCE CONTRACTING EXPERIENCE

Siemens has hundreds of ESCO clients around the United States and internationally, and has designed and implemented innovative transformative programs across the globe. More relevant to the City of Miramar is our successful history of Florida-based energy projects, including:

- Baker County School Board
- Broward College, Phases I - III
- Broward County Government
- Charlotte County Government
- City of Belle Glade
- City of Clearwater
- City of Deerfield Beach
- City of Ft Myers
- City of Gainesville Police Department
- City of Hallandale Beach
- City of Lake Worth
- City of Ocala
- City of Oviedo
- City of Panama City
- City of Pompano Beach
- City of Sarasota
- Department of Highway, Safety and Motor Vehicles
- Department of Management Services
- Flagler County School Board
- Florida A&M University
- Florida Atlantic University
- Florida Gateway College, Phases I - II
- Florida Governmental Utility Authority
- Florida Institute of Technology
- Florida Institute of Technology, Phases I – II
- Florida Memorial University
- Florida State University, Phases I - III
- Gulf State College
- Hendry County School Board
- Highway Safety and Motor Vehicles
- Jacksonville University
- Lake Sumter Community College, Phases I - II
- Lynn University
- Miami Dade County Public Schools, Phases I – II
- Miami Dade General Services Administration, Phases I - II
- Miami International Airport
- Monroe County School Board
- Osceola County Government
- Palatka Housing Authority
- School Board of Broward County, Phases I - III
- St. Lucie County School Board
- Tallahassee Housing Authority, Phase I -II
- Tallahassee Technical College
- University of Florida, Phases I - II
- Valencia Community College, Phases I - II

Financial Capabilities

At its core, a Performance Contract is designed to mitigate risk. This includes financial risk and Siemens will work closely with the City to ensure that the financing is structured to not only mitigate the risk that project costs are greater than the monetized guaranteed savings, but also to maximize the economic benefits to the City. Financing which is structured correctly will ensure that the efficiencies created by the project translate into the funds which will support the entire cost of the project. This approach parallels Miramar's innovative funding program to support the West Water Treatment Plant, where the geographic area receiving benefit

from the new facilities provided funding through a special assessment to pay for the plant. Likewise, the funds to pay for the performance contract will be generated by energy and operational efficiencies which are created by that very project.

Siemens recognizes that financing expertise is a core competence for any successful guaranteed savings project and have developed the internal capabilities, resources, and experience required to offer our customers the most comprehensive portfolio of financial solutions in the industry.

Experience

Siemens experience in Performance Contracting dates to the early 1990s. Our first project in South Florida was in the mid-1990s with the Miami Dade County Schools. Since that first job in Florida twenty-five years ago Siemens has implemented over \$350M in guaranteed energy savings projects in Florida and well over \$2 Billion in projects nationwide. Of these projects approximately 75% request that Siemens assist in procuring the financing for the project.

Internal Expertise

Getting the right source of financing, terms and interest rate is critical to the project. Siemens assigns to each project a Finance Manager. For the City of Miramar project the Finance Manager is **Linda Rega**. Linda is a CPA with a decade of experience financing PC projects. Linda will work with the City's Finance Dept and Financial Advisor to review the options available to fund this project. Siemens has helped public entities implement solutions utilizing a wide range of financial instruments such as:

- Tax Exempt Municipal Leases
- Revenue and Special Obligation Bonds
- Certificates of Obligation
- Grants
- Utility Rebates
- Qualified Energy Conservation Bonds
- Public Private Partnerships

Siemens is the ONLY

ESCO with its own captive financial subsidiary and finance services team, Siemens Financial Services (SFS). Siemens has the in-house expertise to assist the City of Miramar with any financing option it decides to pursue.

Our sole focus is to help the City secure the best financial rates and service available.

INTERNAL FINANCING ARM

Siemens Financial Services in Your Corner

Siemens is also capable of providing 1st party funding of the project. We are the only ESCO with its own captive financial subsidiary and own finance team, Siemens Financial Services (SFS). SFS has developed financing solutions for hundreds of projects throughout the globe.

As the only ESCO with a captive finance subsidiary, Siemens can offer funding structures generally unavailable in the marketplace. Siemens has self-financed billions in projects, with the largest single transaction being in excess of \$300 million. We have funded certain project components via a tax lease structure whereby the customer rents the equipment over the term of the agreement. The majority of our projects have been financed via tax-exempt leases which provide for ownership of the assets to transfer to the city upon installation. Due to our exceptional financial strength, we are uniquely able to self-finance transactions of nearly any size. In addition, our excellent long-term credit rating of A1 means that we are able to both borrow and lend at rates that are among the best in the industry.

Financial Offerings

- Guaranteed Performance Contract - Financed via Bond or Loan
- Guaranteed Performance Contract - Financed via Lease Purchase Agreement
- Guaranteed Performance Contract - Financed by Siemens Financial Services with Right of Set-off
- Guaranteed Performance Contract - with Tax-exempt embedded financing
- Energy Efficiency as a Service Agreement "EaaS"
- Design Build Own Operate Maintain (DBOOM)

TRADITIONAL FUNDING OPTIONS

Historically, performance contracts have been funded through a tax-exempt municipal lease, but there are additional options that may be beneficial to explore in some situations:

Tax-Exempt Municipal Lease

A municipal or tax-exempt lease agreement would allow the City of Miramar to use annual savings to make payments for any type of energy efficient equipment or facilities. A municipal lease is a popular alternative to purchasing an asset with cash or issuing bonds. The lease can include non-appropriation language which allows the City to cancel the lease in the event of non-appropriation. This ability to cancel prevents the requirement for voter approval of the financing. To ensure that the project is cash neutral, payments can be structured so that the first due date is after the end of the planned construction period. In addition, the interest rate will be fixed for the entire term of the agreement and payments can escalate over the repayment term to allow maximum leverage of the energy savings. These characteristics protect the cash neutrality of the project, by ensuring that the debt service payments are never greater than the energy savings. The same tax laws enabling a municipal bond to carry a tax-exempt rate apply to a municipal lease. The tax-exempt lease carries a lower interest rate than other types of leases and installment loans because the lessor does not pay federal income tax on the interest earned. Municipal leases have characteristics similar to a loan. Ownership of the equipment goes to the City at implementation.

Tax-Exempt Bonds

When the financing needs for a project are over \$10 million, a tax-exempt bond can be the cheapest way to borrow. The difference from a municipal lease is that these are firm commitments to make payments throughout the repayment term, which must be approved by the voters. There can be significant fees required to issue a bond, which can make it prohibitively expensive on amounts under \$10 million.

Tax-Exempt Certificate of Participation (COP)

This financial arrangement is created by an Administrative Trustee who coordinates multiple sources to supply the funds for a single project. The underlying debt structure can be either a lease-purchase or a bond. Typically, COPs are used for larger projects, generally from \$5-15 million. Payments are made by the customer to the Administrative Trustee, who prorates the payments to the funding sources.

INNOVATIVE FUNDING OPTIONS

We understand that there is no "one size fits all" funding mechanism, so our financing experts will help you to identify the best fit for Miramar. Some of our more innovative financing options include:

DBOOM: A Turnkey Approach to Capital Infrastructure

DBOOM (short for Design, Build, Own, Operate and Maintain) is a turnkey solution that solves the challenges of obtaining and managing utility supply assets. With a DBOOM solution, Siemens develops and commissions the project and retains ownership and operations responsibilities of the assets in place. Organizations benefit

from cost-effective, onsite utility supply and technical knowledge without the long-term responsibilities of energy infrastructure ownership. Siemens can support DBOOM solutions for distributed boiler, chiller, CHP, energy storage, microgrid and solar PV technologies.

Energy Efficiency as a Service Agreement “EEaaS”

A service-based contract where Siemens agrees to deliver a certain suite of services. Frequently these services require specialized equipment to be installed. Siemens would install and own the assets for the duration of the contract. At the end of the initial contract term, the client has the option of renewing, purchasing the assets at fair market value or returning the assets to Siemens.

ABILITY TO MEET GUARANTEE OBLIGATIONS

Regardless of your chosen financing method, Miramar can rest with complete confidence in Siemens’ performance guarantee. Siemens has met or exceeded our performance guarantees in 99.8% of our projects. The City will retain 100% (including any excess) of all project savings, and Siemens will quickly and directly issue a check for any shortfalls. Siemens provides first party guarantees in lieu of third party guarantee bonds that can delay payments. We personally back our guarantees with the full faith and credit of Siemens strong balance sheet.

LITIGATION

Siemens Industry, Inc., a subsidiary member of Siemens Corporation, is a multi-billion dollar company involved in wide ranging construction projects. As such Siemens Industry, Inc. has been involved in miscellaneous litigation (e.g., collection of fees, workers’ compensation, etc.) arising out of its business, none of which are of a material nature, individually or collectively, as to adversely impact its ability to completely and satisfactorily perform any of its projects.

Siemens Industry, Inc. has never been suspended or barred from transacting business with any federal, state or local governmental agency or body.

iv. Proposer's social responsibility, charitable acts and contributions, and benevolence programs

SIEMENS BUSINESS TO SOCIETY

There are business-to-business companies. There are business-to-consumer companies. **Siemens is a business to society company**, providing infrastructure solutions to more than 100 cities across America. Our company has been doing business in the United States for more than 160 years. And today, we have more than 50,000 employees in all 50 states, including more than 5,200 in Florida, working to address America's biggest challenges, from climate change, to rapid growth in U.S. cities, to an aging population nationwide, we invest more than \$50 million annually in employee training programs, while providing education and training opportunities for more than 75,000 workers and students. Our U.S. strategy is driven by an extensive U.S. supply chain and commitment to working with small diverse businesses. This reflects our broader commitment to diversity, equity and inclusion, and the genuine passion our employees have for making a difference in the communities where they work and live. Through our technologies, our sustainable operations, our thought leadership and corporate citizenship activities, we help contribute to the sustainable development of societies. We recognize that corporations have a responsibility to address the causes of climate change before it is too late, and that action on climate change must be seen in the broader context of sustainable development and the interlinkages of today's critical issues.

Siemens Foundation Provides \$1.5M Across 12 Community Health Centers to Support COVID-19 Response Efforts

The Siemens Foundation is providing **\$1.5 million** to community health centers across 12 U.S. cities to respond to the COVID-19 crisis. Community health centers are the nation's largest primary care provider for the medically underserved and uninsured, reaching 29 million of those most in-need. As a result of COVID-19, these health centers face a shortage of funding to stay operational and maintain a sufficient workforce, further crippling their ability to provide affordable healthcare at a critical time. Aligning with its dedication to social equity, the non-profit organization established by Siemens USA is committed to supporting these critical healthcare providers so they can continue serving their communities when they are needed most.

Our national priorities and contributions to the U.S. economy are divided into the following six impact areas:

- Strengthening the Economy
- Developing Jobs & Skills
- Driving Innovation
- Sustaining the Environment
- Improving Quality of Life
- Securing our Future

"If you're a company that isn't creating value for society, why should you exist?"

– Barbara Humpton, President and CEO, Siemens USA





Siemens is recognized in America for innovation, technology, sustainability & diversity

- ✓ Forbes Best Employer for Diversity 2020
- ✓ HBCU's Top Supporters 2019
- ✓ Fortune World's Most Admired Companies 2020
- ✓ LGBTQ Corporate Quality Index 2020
- ✓ Forbes 2019 America's Best Large Employers
- ✓ Dow Jones Sustainability Index
- ✓ 5. 2019 HIRE Vets Medallion Award (Gold)
- ✓ U.S. Veterans Magazine Best of the Best 2019
- ✓ Fast Company World Changing Idea Awards
- ✓ Universum's Top 50 Employer Award
- ✓ Forbes Best-In-State Employer (FL, IA, MA, NY, TX)
- ✓ Fast Company Best Workplaces for Innovators
- ✓ Forbes' America's Best Employers for New Grads 2019
- ✓ #2 on 2019 Carbon Clean 200
- ✓ Fortune's Global 500 List
- ✓ The Transformation 20: Top Global Companies Leading Strategic Transformations
- ✓ IPO's Top 300 Organizations
- ✓ Global 100 World's Most Sustainable Corporations 2020 – Corporate Knights



Siemens
Top 50 Employer
Corporate Social Responsibility
By Business Students



ACHIEVEMENTS IN FLORIDA

In November 2019, Siemens held its annual Small Business Supplier Diversity awards and recognized two business from Florida.

- Chinook Systems, a facilities consulting and commissioning services firm, is a Woman Owned Small Business and Small Diverse Business in Cocoa Beach, FL.
- Keiki Enterprises LLC DBA Digital Signage is a Small Diverse Hispanic Business in Key Biscayne, FL and provides complete design, research and implementation of the day-to-day operation of digital signage programs.




Social Good in Partnership with Miramar

Since 2018, Siemens has contributed nearly \$250,000 to non-profits in Florida including the Broward College Foundation, the Society of American Military Engineers, the Florida International University Foundation, and the Florida chapter of the American Association of Blacks in Energy and the Payton Nash Foundation.

The Siemens Technical Scholars program – hosted by the Siemens Foundation – has benefited local community college students from the area. Siemens Technical Scholars – with scholarships between \$3,500 and \$10,000 – are given to students and recent graduates of community college programs that deliver exceptional training for technical STEM jobs – and holds them up as a standard for young adults' preparation and success in key industries. In 2015, two students from Miami Dade College were chosen as Siemens Technical Scholars from their Health Information Technology program.

To learn more about how Siemens is positively impacting the communities that we serve please view our report on the economic, societal and environmental impact of Siemens' presence in the U.S. The stories and statistics contained within exemplify how our core belief of creating lasting value for society guide our approach to business:



Please visit the link below to view highlights from Siemens' 2019 Business to Society Report.

<https://assets.new.siemens.com/siemens/assets/api/uuid:409f6494-bf0b-431e-974b-b7d8aef77a6d/version:1575312401/siemens-business-to-society-report.pdf>

GLOBAL ENGAGEMENT

Our social responsibility & sustainability initiatives are essential aspects of successfully implementing the Siemens' Vision 2020+ Strategy Program. Our understanding of sustainability is fully based on our company values – responsible, excellent, innovative. At Siemens, we define responsible & sustainable development as the means to achieve profitable and long-term growth while providing lasting societal value. In doing so, we, externally, align ourselves with the goals of the UN's 2030 Agenda for Sustainable Development while, internally, striving to balance people, environment and profit. These goals incorporate invest in the encompassing facets of sustainability such as social justice, good health and well-being, and climate action.

UN Agenda 2030 for Sustainable Development

As a corporation, Siemens adopted the following goals of the UN's Agenda for Sustainable Development. Please visit <https://www.siemens.com/global/en/home/company/sustainability.html> for more detailed information on the following initiatives.



These goals incorporate more than just energy use and our commitment to become carbon neutral by 2030; we also invest in facets of sustainability such as social justice, good health and well-being, and climate action. We have reduced our carbon emissions by 33% and improved our fleet efficiency by 21%, while offsetting 20% of our electricity usage with renewable energy. Our building portfolio includes LEED, Energy Star, and Green Globes certifications. We plan to cut our carbon dioxide emissions in half by 2020, and we intend to be the first major industrial corporation to reach a neutral balance of CO2 emissions by 2030. To achieve this goal, Siemens will invest over \$130 million to reduce the energy footprint of our production facilities and buildings. Our dedication to these development goals has earned us the top spot in Corporate Knights' "Most Sustainable Corporations" list in 2017. Being recognized as the leader in sustainability also takes into account that Siemens is the most energy efficient firm in our sector, producing more revenue per kilowatt used than any other industrial corporation.

Please visit <https://www.siemens.com/global/en/home/company/sustainability.html> for more information.

LOCAL ENGAGEMENT

Over the past 25 years, Siemens has earned a proven reputation for developing and implementing technically and financially sound performance contracting projects throughout Florida and the U.S. Moreover, our technical creativity and comprehensive approach to performance contracting, coupled with proactive involvement with local businesses, vendors and residents, has expanded our reputation as an exceptional community partner. We believe that companies only really succeed if they fulfill the needs of the societies in which they work, and we have a proven track record of



bringing community benefit to every one of our performance contracting projects, such as:

- Economic growth
- Job creation and skills training
- Infrastructure planning
- Environmental improvements
- Improved quality of life for residents
- Socio-economic development

Through this performance contract, Siemens is committed to bringing community benefit and economic opportunity to the City of Miramar.

Enriching our Communities

Locally, Siemens creates real and lasting value that enriches the communities where we do business by:

- Providing High paying professional and technical jobs
- Driving local economic development by establishing robust networks of CBE, SBE, & LBE subcontractors
- Supporting workforce development resources
- Sponsoring sustainability & STEM educational opportunities



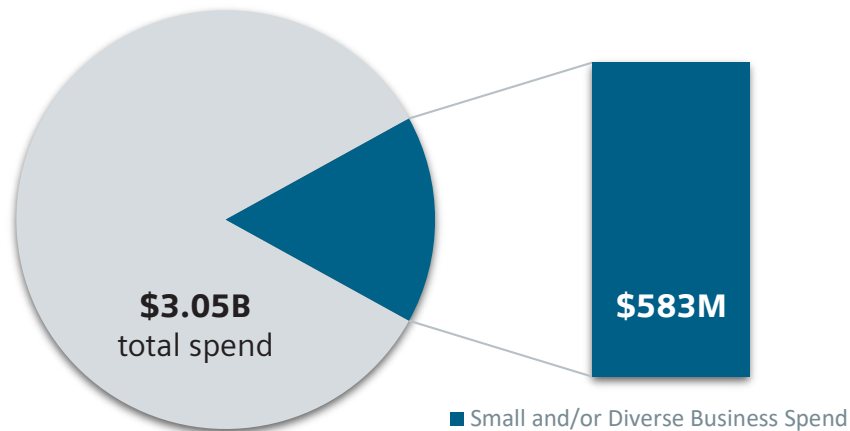
Job Creation

Siemens prides itself as an employer of choice within the cities and communities that we are based across the country. Providing stable career opportunities with good salary and benefits, professional development, and career advancement allows Siemens to serve as an anchor institution for many local economies. Nationally, Siemens employs over 50,000 people. We are one of the largest technology and engineering employers in Florida with roughly 5,500 employees state wide across our various divisions and business unit. Our South Florida headquarters located in Miramar that will support this opportunity provides over 200 jobs for the local community.

Economic Development

In addition to our direct economic impact to the community, a large percentage of Siemens' work is project work that includes local subconsultants, subcontractors, skilled trades, and equipment providers necessary to execute our project work.

Siemens Small and Diverse Business Spend in the US, FY2019



The contemplated project will generate significant sub-consulting and subcontracting opportunities. Siemens is committed to making every effort to ensure that project funds remain local helping to support the local business and contracting community. As part of our response team, Siemens has already partnered with several relevant local engineering and other professional firms who will be instrumental to the initial project design and development activities. Their team members and project roles are detailed in other sections of this response.

To promote additional local business participation during the construction phase of the project, **Siemens has developed a Miramar specific subcontractor plan.** We have aligned our internal resources and our local subconsultants to coordinate with the City's procurement and economic diversity departments to execute and administer the project's subcontracting plan. The plan will provide the largest possible number of subcontracting opportunities for CBE, SBE, & LBE businesses in the community. Our team will leverage outreach and engagement events to raise awareness of the project and available subcontracting opportunities. Siemens will also conduct workshops to assist interested companies with successfully completing their prequalification and bidding requirements. The proposed subcontracting plan is fully detailed later in this response as part of the CBE, SBE, and/or Local Businesses support section.

\$50 million+

Siemens annual
investment in USA
education and training
initiatives for its workforce

Workforce Development

Workforce Development and opportunities are an area of need in all communities. Skilled workforce

availability is a key factor in attracting and retaining quality employers to create a strong business community. In turn, robust local economies along with visionary local governments, and quality primary and secondary educational institutions are the foundation stones for a vibrant and successful communities.

Generating a skilled workforce

Every year, employers struggle to find qualified workers to fill millions of well-paying high and middle skill positions in career fields from manufacturing to power to healthcare. Siemens understands the criticality of training the next generation of talent to address the “skills gap”, as many industries face a growing number of job openings in the trades without enough qualified applicants to fill the positions. To assure our Company’s future success and attract the best and brightest talent, Siemens invests heavily into our internal workforce development programs such as:

- Finance Excellence Program
- Siemens Graduate Program
- Technical Sales
- Marketing Development Programs
- Operations Development Program
- Field Engineering Development Program
- Design Engineering Development Programs
- Business Development Program
- Cooperative Education and Internships



Access to Technology

Drawing on our key competencies in digital transformation, automation, and electrification, we strive to create access to the latest technologies for as many people as possible.

In 2018, Siemens granted \$3 billion worth of our hardware and industrial software to academic and training institutions.

Companies also have an obligation and role to play in closing the skills gap for the broader community. It is incumbent on the business sector to collaborate with local governments and educational institutions contributing fiscal and intellectual resources to help Americans gain 21st century skills. Siemens believes in investing in current and future workers, and in the U.S. Contributing \$100's of millions a year through various programs, Siemens' holistic approach to industrial re-skilling is focused on five areas:

- **Employee training:** Investing approximately \$50 million annually to provide training and continuing education for employees.
- **Science, technology, engineering, and math (STEM):** Shining a spotlight through the Siemens Foundation on the opportunities for young adults in STEM middle-skills careers – and on training models that work. The Foundation has invested more than \$122 million in the U.S. to advance workforce development and education initiatives in STEM.
- **Colleges & universities:** Helping students gain classroom experience working with both the software and hardware they'll encounter in advanced industry. Siemens Product Lifecycle Management (PLM) Software partners with 11,000 academic institutions around the world to train 1.2 million students annually. Siemens grants PLM software to more than one million students yearly at more than 3,000 global institutions valued at over \$3 billion. where it is used at every academic level – from grade schools to graduate engineering research programs.
- **Technical Education:** Siemens Smart Infrastructure has taken a leading role in forming the first ever non-proprietary building automation technician certification. As an advisory board member of the Association of Controls Professionals, a leading non-profit dedicated to the education of building automation professionals, Siemens provides curriculum insights and guidance, learning modules, Building Automation Systems (BAS) laboratory schematics, and discounted equipment to community and technical colleges that are either revamping or establishing new BAS associate's degree programs.
- **Apprenticeships:** Expanding a U.S. apprenticeship program based on the successful German model by doubling the total number of participants in its apprenticeship programs.
- **Veterans:** Hiring more than 2,500 veterans in the last 5 years and committing to hire 300 U.S. veterans per year for the next three years, and training them on the technical skills they need.

Leveraging Local Workforce Development Opportunities in Miramar

Similar workforce development practices can be applied to implement an internal development plan for the City's operations and maintenance staff. Siemens Workforce Development programs will be offered to the City and incorporated into specific aspects of the project including technical development programs for Miramar staff and project internships and apprenticeships for local students and citizens.

Miramar Staff Development Program

Successful guaranteed savings projects require a thoughtfully developed and thorough training plan. To protect the City's investment in new equipment and technologies and to insure achieving performance guarantees, the energy services company must partner closely with City staff to make sure that their new systems are properly operated and maintained. Project training plans allow city staff the opportunity to acquire new skills to advance their professional development. For customers who have placed an emphasis on employee skills development, Siemens can expand the project specific training plan into an ongoing workforce development program that can continue over the guaranteed performance term.

Siemens has developed extensive internal training programs for our engineers, project managers, and field technicians, and we make many of these courses and programs available to our customers. Our local Miramar office serves as one of Siemens' national training centers creating a perfect opportunity to integrate a employee development plan into the performance contracting project.

Expanding the project specific training into full employee development program fully aligns with the City's C.A.R.E program's workplace efficiency vision to provide strategies to increase workforce productivity, implement programs to increase morale, professional development, job enhancement, and departmental trainings

Project Internship & Apprenticeship Program

The execution of a performance contracting project requires the application of a wide range of technical and professional skill sets including:

- Engineering
- Accounting
- Project Management
- Electrical
- Mechanical
- Plumbing

As part of our project implementation plan, the Siemens team will look to establish internship and apprenticeship programs in partnership with our project subcontractors.

The following are just a few examples of how Siemens has leveraged previous performance contracting projects:

- **City of Pompano Beach:** Siemens trained and employed local residents to implement our Energy Savings Performance Contract with the City of Pompano Beach project. Siemens partnered with City staff and a local non-profit to develop a jobs training program where disadvantaged residents learned how to draft resumes, interview for jobs, and apply for good-paying technical jobs directly supporting the City's performance contracting project. As part of the program, residents were trained and hired to support the implementation of the project. This program won Siemens the Broward Opportunities Industrialization Centers (OIC) employer of the year award.
- **City of Sarasota:** As part of our performance contract with the city of Sarasota, Siemens trained and employed local residents to implement portions of the project. Siemens partnered with City staff and a local non-profit to develop a jobs training program where disadvantaged residents learned how to draft resumes, interview for jobs, and apply for good-paying technical jobs. As part of the program, residents were trained and hired to help implement the Advanced Metering Infrastructure (AMI) portion of the project.
- **University of Florida:** Sustainability Education supported development of an interdisciplinary Human Environments graduate course driven by the belief that students engaged in disciplines related to the built environment would benefit measurably from the opportunity to rigorously observe, record, and evaluate conditions in existing occupied buildings. Course development was directed by professors from the disciplines of architecture, engineering (mechanical and electrical), and construction management. The course is team taught.



STEM & SUSTAINABILITY PROGRAMMING

Each year, Siemens partners with local governments, K-12 school districts, and colleges and universities to make significant investments for promoting STEM and Sustainability educational programs. To help facilitate the development and initial funding of customized programs for our performance contracting partners, Siemens has developed the Empower Program.

The Siemens Empower Program is designed to help facilitate discussion around and provide seed funding for customized programming in collaboration with each customer to reflect their unique program priorities and objectives in line with the organizational core mission. Siemens will provide consultation and technical and/or financial resources to the city at no cost to help develop and launch a sustaining initiative that focuses on STEM

education, staff development, workforce development, sustainability awareness, or community engagement.

Strong STEM Learning Ecosystems feature dynamic collaborations among schools, out-of-school time programs, STEM expert institutions, and the private sector. Education is a core Siemens focus, and improving STEM-to-Workforce initiatives is critical to our future.



Customers Empowered By Siemens

Below are examples of how Siemens has partnered with customers to develop and implement empower funded initiatives to enrich those customers' communities. These examples will provide the City a sense for the depth and breadth of the customized programming that Siemens Empower Program can:

- Deerfield Beach, FL • Siemens is Empowering consultation on the development of a comprehensive municipal Sustainability Plan through use of a Sustainability and Resiliency Planning Tool.
- Miami Dade Public Schools • Applying the Building Automation Technician Certification project jointly developed with the Association of Controls Professionals (ACP), Siemens supported the construction of a learning automation lab and launching of a new automation technician certification program at the Miami Lakes Educational Center and Technical College.
- Florida Gateway College • Siemens Empower Program grant funding helped offset the cost of adding a hybrid and electric vehicle diagnostics and repair track to their Automotive Technology Certificate program.
- Rutherford County, Tennessee • Siemens Empower Program working to help reduce recidivism of female inmates at one detention center. In a project championed by the Sheriff's office, Siemens is empowering the development of a learning laboratory providing job skill development opportunities for inmates.

\$100 billion+

Contribution made by Siemens foundation to science, technology, engineering, and math (STEM) education and training

Empowering Miramar

Integrated in our project development process with the City, we will hold a series of workshops with key city and community stakeholders to develop a customized Empower program aligned with Miramar's broader vision and specific goals for this project. The following are a few initial thoughts that the Siemens project team have already discussed as potential opportunities for Miramar's customized Empower program.

STEM

The city provides several afterschool and summer educational enrichment programs including the Miramarvels Early Childhood Academy and the MOST After-school Program, and could present great partnership opportunities through the Empower Program to develop and provide STEM programming curriculum and programming to support the programs' activities and objectives.



Workforce Development

Like many companies, Cities often face challenges hiring and retaining qualified employees for certain technical positions in their engineering, public works, and utilities department. The Empower program could establish an internship and training program to help the city expand the pool of potential applicants for targeted hard to fill positions.

Community Wide Sustainability

Similar to the Empower program with the City of Deerfield Beach, Siemens can support sustainability-based community outreach with program scoping, education, energy auditing, and community programming to develop a customized engagement program to help advance the City's sustainability objectives across the entire Miramar community.

v. Proposer's internal, organization-wide green and environmental programs and initiatives



Siemens was the world's first major industrial company to publicly commit to achieving carbon neutrality by 2030. In this fiscal year alone, we reduced our emissions by more than 10 percent. Since fiscal 2014, emissions have dropped by around 41 percent – from 2.2 million tons to 1.3 million tons in fiscal 2019 – so that we are well on track to reach our intermediate goal to reduce emissions by half by 2020.

As a world leader in energy efficiency and clean energy technologies, Siemens is also in the unique position to support our customers' efforts to reduce their carbon footprints with technologies from our environmental portfolio. In fiscal 2019, Siemens enabled our customers all over the world to decrease their CO₂ emissions by 637 million metric tons (following a reduction of 617 million metric tons in fiscal 2018). This translates to more than 80% of Germany's annual carbon dioxide emissions. Each year, Siemens invests over \$1.5 billion in R&D efforts driving energy efficiency innovations furthering our own substantiality goals as well as the sustainability goals of our customers.

Siemens industry leadership inspires us to also collaborate with other companies, by participating in the Systems Initiative launched by the World Economic Forum (WEF) to strive for the highest standards of governance. Within this initiative, we support – among other efforts – the WEF’s Alliance of CEO Climate Leaders. We’re continuing our commitment to the We Mean Business coalition to accelerate the transition to a low-carbon economy.

“Our footprint and longevity give our company a unique perspective on the challenges facing humanity in the 21st century. We therefore have a unique opportunity and platform to address the world’s single most urgent priority: climate change.”

—Joe Kaeser, CEO, Siemens

Siemens is already making significant advances towards our 2030 commitment. A few of our intermediate achievements since the program launch in 2014 include the following:

- Reduced our CO2 emissions by 41% with anticipated 50% reduction by end of 2020
- Improved our fleet efficiency by 21%
- Offsetting 20% of electricity usage with renewable energy
- Building portfolio includes LEED, Energy Star, and Green Globes certifications



Please visit the link below to download a copy of Siemens’ 2019 Sustainability Report.

<https://assets.new.siemens.com/siemens/assets/api/uuid:16c327d3-3e02-427e-952f-e7f610d954fe/version:1575456937/siemens-sustainability-information-2019.pdf>

Siemens’ comprehensive commitment to sustainability has been well-received around the world for years. For the 20th consecutive year, RobecoSAM/Dow Jones listed Siemens in the DJSI World Index, confirming our standing as one of the most sustainable companies in our industry. Being recognized as the industry leader in sustainability, Siemens is the most energy efficient firm in our sector, producing more revenue per kilowatt used than any other industrial corporation. Our dedication to these development goals has earned us numerous awards and recognitions including:

- Carbon Disclosure Project annual “A List” of the best companies driving decarbonization worldwide
- Top ranked firm in the Corporate Knight’s “2019 Global 100 Most Sustainable Corporations in the World”
- Fortune magazine in the U.S. “the most admired company” in our industry for the fourth year in a row.



COMMITMENT TO CARBON NEUTRALITY

Siemens has some very aggressive energy and sustainability goals. Five years ago, Siemens announced their intention to become the **first major industrial corporation to achieve a neutral balance of CO2 emissions by 2030**. To achieve this, Siemens is focusing on four synergistic levers: energy efficiency, decentralized energy systems, intelligent e-mobility solutions and the purchasing of clean electricity. Siemens is already making significant advances in reducing its carbon footprint. **We have currently reduced our CO2 emissions by 41%** since the launch of the program in 2014.

As illustrated below, the reduction of CO2 will be achieved through a series of ongoing activities, focused on 4 key levers.

Levers for CO₂-neutral Siemens

Drive Energy Efficiency Program



Leverage Distributed Energy Systems



Reduce Fleet emissions



Purchase Green Energy



CO₂-reduction progress

FY 2014

FY 2018

By 2020

By 2030

2.2
million tons of
CO₂ emissions

33%
reduction
achieved

50%
reduction

CO₂-neutral
operations

Annual savings from Energy Efficiency projects
total to at least **€20 million**

Siemens is investing **€100 million** to reduce the company's own carbon emissions and to become one of the world's **first CO₂-neutral industrial companies by 2030.**

SUPPORTING OUR CUSTOMER'S CARBON REDUCTION JOURNEY

We also utilize our digital tools and direct experience to help our customers establish and achieve their own carbon reduction goals. Siemens provided the City of Deerfield Beach our City Performance Tool (CyPT), to establish current community baselines, Identify achievable reduction targets, and evaluate the impact of potential sustainability investments to help prioritize their strategic plan.

The CyPT is a dynamic simulation tool by Siemens to select technologies that offer your city's maximum environmental and economic benefits. Using exclusive Siemens data on more than 70 transportation, building and energy technologies, CyPT delivers a detailed insight into the CO₂ and air quality improvements you can achieve. It also identifies new local jobs each technology can create in your city.

The model calculates the environmental and economic impacts of individual technologies at different implementation levels. In transportation, for example, CyPT assesses how a technology would reduce demand (reduce parking search traffic), shift the mode (public transportation instead of cars) or improve efficiency (automated trains).

The model is based on life cycle assessment methodology and builds upon Siemens' technology expertise and global databases of deep vertical process knowledge. New jobs that would be created are based on reference projects or economic studies in the transportation, building and energy sectors of different regions.

The following is a copy of the CyPT summary report that we helped to generate for the City of Deerfield Beach as part of their project funded Sustainability Plan:

SIEMENS
Ingenuity for life

Deerfield Beach, FL

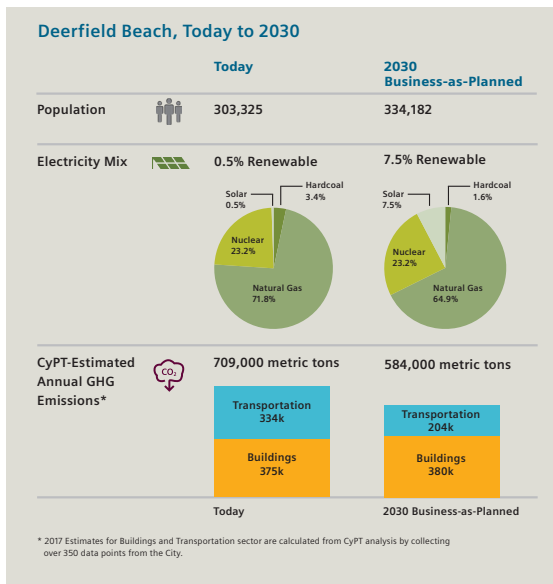
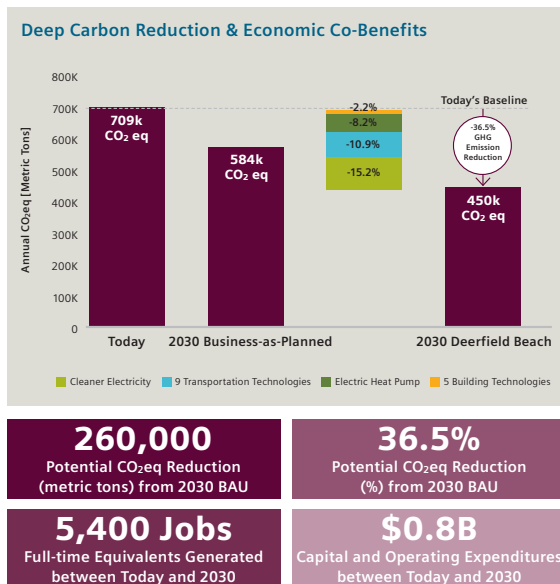
A Sustainable Vision

Technology Pathways for a Smart and Sustainable Deerfield Beach

Deerfield Beach is planning for its sustainable future by leveraging smart tools and technologies. An ongoing partnership between the City and Siemens is showing how this vision could become a reality. Using a proprietary City Performance Tool (CyPT), Siemens is working closely with the City to create a city-wide sustainability plan.

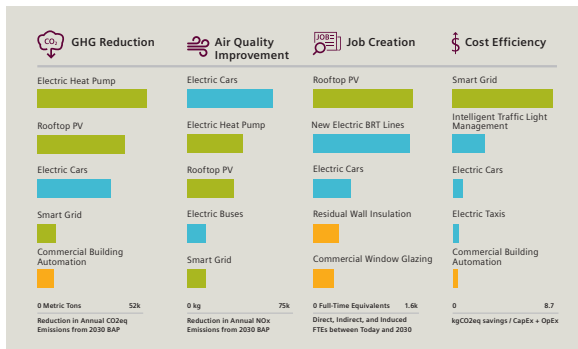
Deerfield Beach, Today to 2030

Based on data collected from regional and local agencies as well as city departments, our analysis shows a 2030 business as planned scenario for Deerfield Beach. This scenario, based on assumptions of greener electricity as well as increased use of public and active transit, shows a 17.6% reduction in GHG emissions for 2030 in spite of a 13% increase in population.



High-Performing Technologies

Converting 75% of a cities' homes and offices to use electric heat pumps for water and space heating would produce the highest GHG savings, but adding more solar (10% of total electricity generation in 2030 from rooftop panels) has benefits beyond GHG reduction. Rooftop PV would also improve air quality by reducing NOx emissions and create over 1,600 local jobs.



Unlocking the Potential of Cities

Siemens established the Center for Urban Development, comprised of a dedicated team, to address specifically the needs of city leaders, their staff, and administrative agencies. The Center also seeks to serve as a transparent and useful entry point for city decision makers to enter a structured dialogue in which they can make baseline assessments of needs. Our team members understand city goals and processes and put this understanding front and center in their work. This team can work across the Siemens business divisions, and pull expertise from all over the company, even from Siemens units in other countries.

Learn more at usa.siemens.com/cities

About Siemens

Siemens Corporation, a U.S. subsidiary of Siemens AG, is one of the world's largest producers of energy-efficient, resource-saving technologies. For more than 160 years, Siemens USA has innovated and invented technologies to support American industry spanning manufacturing, energy, healthcare and infrastructure.

City Performance Tool (CyPT)

Siemens' City Performance Tool (CyPT) was developed with cities in mind, to help cities make informed infrastructure investment decisions, identifying which technologies from the transport, building, and energy sectors might be utilized in that specific city to accomplish goals such as mitigating that city's greenhouse gas emissions, improving air quality, and adding new jobs to the local economy. Using a three-step process, Siemens works with cities to first build a GHG emissions baseline for its transport, buildings, and energy sectors, then chooses technologies to simulate on that baseline, and finally estimates economic and environmental impacts of investing in those technologies.

How the CyPT Model Works

STEP 1

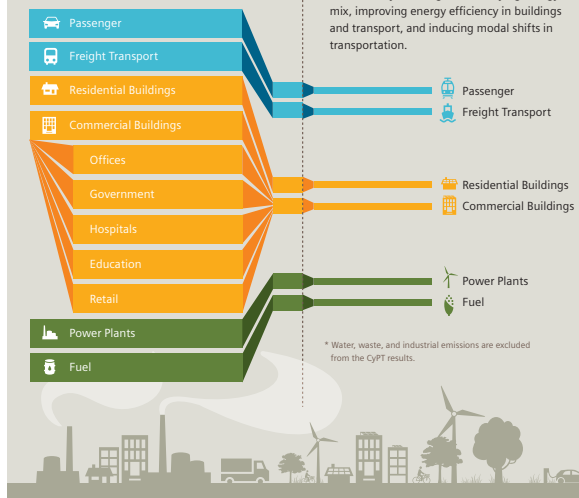
Energy Mix Analysis

The CyPT works by using 350 city-specific data points to build an emissions baseline based on activities occurring within the city boundaries. It uses the 2012 GPC Protocol for Community-Wide Emissions to estimate emissions from residential and commercial buildings, passenger and freight transport, and energy consumption.

STEP 2

CyPT Results*

Once that emissions baseline is established, Siemens collaborates with a city to determine which of the 73 technologies and policy levers in the CyPT apply and at which implementation rates. Scenarios of infrastructure technologies at various implementation rates are then run through the CyPT model. Results of the model demonstrate how the CyPT levers reduce emissions by cleaning the underlying energy mix, improving energy efficiency in buildings and transport, and inducing modal shifts in transportation.



Siemens Center of Urban Development

Siemens Corporation

300 New Jersey Avenue, NW
Washington, DC 20001

Contact

Denise Quarles

Chief City Executive, Southeast Region
denise.quarles@siemens.com

Published May 2019

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Section E Proposer Business Operations

Siemens Industry, Inc.

E. PROPOSER BUSINESS OPERATIONS

State the number of years the Proposer has been in business and the number of years in operation under the Proposer's current business name. Any business owner who has previously operated a business under another name must include a description of the previous business and identify the name of each business. Failure to include such information will be deemed by the City as an intentional misrepresentation and may render the Proposal "Non-Responsive".

Siemens Industry, Inc. is a wholly owned subsidiary of Siemens Corporation, ultimate parent company Siemens AG, a 170+ year old company who has been involved in numerous businesses over the course of its long history. Previous firm names are listed below, and current subsidiaries are listed in Section C.

Essential applications of our past and present businesses include building operation, automation, comfort, fire safety and security. The division offers products, solutions and services that optimize the energy costs, reliability, comfort and performance of buildings while meeting ecological and sustainability requirements.

- **Siemens Industry, Inc. • 2009-present**
- **Siemens Building Technologies, Inc. • 1998-2008**
- **Landis & Staefa, Inc. • 1996-1997**
- **Landis & Gyr, Inc. • 1995**
- **Landis & Gyr Powers, Inc. • 1987-1994**
- **MCC Powers, Inc. • 1977-1986**
- **Powers Regulator Company • 1891-1976**



Section F Qualifications and Experience

Siemens Industry, Inc.

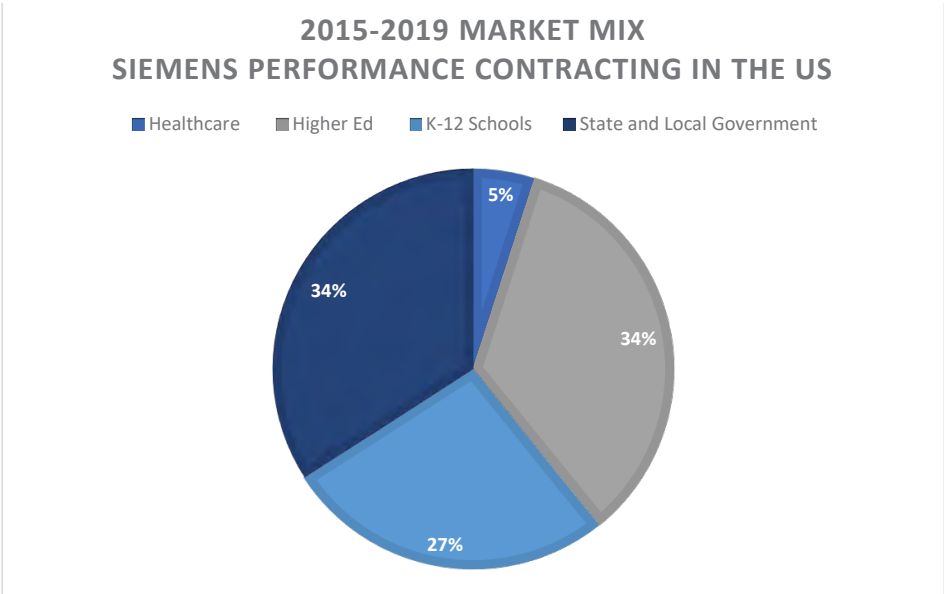
F. QUALIFICATIONS AND EXPERIENCE

Provide a detailed description of the largest projects the Proposer is either performing or has completed within the last five years which are similar in scope. Describe the Proposer's qualifications and experience realized by the performance and management of these projects. The specific role of the Proposer in any project that is included must be described in detail. The description should identify for each project or contract:

- 1) The name and size firm of the Proposer's client, address, telephone number and the name of the contact person;
- 2) A description of the required work;
- 3) The contract term;
- 4) A statement as to whether the Proposer was a prime consultant, Subcontractor, Subconsultant, Subcontractor or Supplier; and
- 5) The result of the project.
- 6) List any and all contracts the Proposer has performed for the City.
- 7) Provide five (5) references by submitting the Reference Questionnaire form provided in Section 14.

Siemens is one of the most experienced ESCOs in the nation providing energy services solutions across all market segments including: State and Local Government, K-12 Education, Colleges and Universities, and Healthcare. Over the past 5 years we have completed over 220 projects totaling approximately \$1.6 billion, of which \$265 million was with our local government clients. Our solutions are proven to be extremely scalable with projects ranging from \$100 thousand to over \$300 million. The following section summarizes our overall and local government project experience over the past 5 years. Also provided are project narratives and customer reference questionnaires for five recent Siemens projects in the State of Florida.

Percent of Performance Solutions business by vertical market



2015-2019 Siemens Performance Contracting in the US			
Healthcare	Higher Ed	K-12 Schools	State and Local Government
\$38,505,816	\$266,843,164	\$208,181,751	\$265,544,032

*C&I, Federal, and housing projects not shown

State and Local Government Projects, 2015-2019

Fiscal Year	PROJECT NAME	Contract Value
FY15	Village of Buffalo Grove	\$3,991,832
FY15	Village of Glenview	\$3,694,931
FY15	Village of Palatine	\$3,996,505
FY15	City of Garden City	\$3,157,621
FY15	Western Tidewater Regional Jail	\$4,525,119
FY15	City of Cotati Ph 2 Water Meters	\$1,733,416
FY15	Benjamin L Hooks Central Library	\$2,168,470
FY15	City of Hempstead	\$3,135,000
FY15	City of Belton	\$4,282,685
FY15	LESD Superdome	\$7,045,693
FY15	Town of Lisbon	\$859,433
FY15	City of Westfield WWTP	\$1,476,181
FY15	City of Buffalo Water Authority Ph 1A	\$5,752,096
FY15	Rensselaer County Facilities Amend	\$3,420,205
FY15	City of Lake Worth	\$22,856,505
FY15	FGUA	\$15,412,676
FY15	Western Tidewater Regional Jail	
FY16	Orem, UT PC	\$6,738,778
FY16	Colbert County, AL	\$1,997,486
FY16	City of Fulshear	\$1,998,100
FY16	City of La Marque	\$2,216,101
FY16	Montgomery County TN	\$4,947,424
FY16	City of Bellaire	\$12,781,805
FY16	City of New Bedford	\$13,030,952
FY16	City of Benicia -Water Meters	\$8,090,623
FY16	Pumunkey Regional Jail	\$2,124,785
FY16	CDCR- Wasco	\$1,008,401
FY17	City of New Bedford Ph2	\$3,367,562
FY17	Rensselaer County Facilities Ph3	\$4,002,132
FY17	City of Elmhurst	\$9,509,581
FY17	Carpinteria Water District	\$6,468,657

Fiscal Year	PROJECT NAME	Contract Value
FY17	City of Wasco	\$5,566,086
FY17	City of Yuma	\$3,705,852
FY17	City of Taylor	\$1,186,915
FY17	City of Paso Robles	\$2,305,852
FY17	City of Fountain	\$994,165
FY18	City of La Marque Ph 2	\$3,182,000
FY18	City of Avondale	\$3,827,309
FY18	City of Weslaco	\$7,446,871
FY18	Lake Zurich	\$3,199,426
FY18	City of New Bedford Ph2	\$3,367,562
FY18	Village of Buchanan	\$640,125
FY18	City of Lancaster Ph 1	\$1,364,571
FY18	Tulia	\$2,538,275
FY18	City of Marble Falls TX	\$2,652,750
FY18	City of Garden Grove, CA	\$2,846,440
FY18	City of Coppell TX	\$6,390,000
FY18	City of Falfurrias	\$2,406,300
FY19	Carroll County, NH	\$3,443,264
FY19	City of Troy Phase 2	\$9,785,007
FY19	Clifton Park Street Lighting	\$556,165
FY19	Town of Skowhegan	\$2,566,232
FY19	City of Johnstown	\$1,939,094
FY19	City of Grants NM	\$4,552,283
FY19	City of Buda TX	\$2,584,475
FY19	Deerfield Beach	\$7,785,711
FY19	Village of Oak Lawn Water Meters	\$5,490,009
FY19	Elk Grove Village Water Meters AMI	\$3,502,944
FY19	CDCR- Wasco	\$1,008,401
FY19	SOA RFP 2	\$2,919,193
Total		\$265,544,032

FLORIDA GOVERNMENTAL UTILITY AUTHORITY

LONGWOOD, FLORIDA

PROJECT HIGHLIGHTS

The Florida Government Utility Authority (FGUA) was formed in 1999 through an interlocal agreement between Brevard, Lee, Polk and Sarasota counties. These four local governments desired to make the best use of their common responsibilities to acquire, own, improve, operate and maintain water and wastewater facilities. The organization provides communities with high-value, cost-effective utility and public facility management alternatives within a public governance structure which maximizes customer service quality. Today, the FGUA has over 80 systems in 14 counties across Florida.

Siemens was selected by the FGUA to conduct a detailed energy analysis of over 60 of its water and wastewater treatment plants throughout their holdings. Inspections were conducted for the typical disciplines, such as lighting and HVAC system. However, the primary focus was the improvement and/or replacement of plant equipment and enhancement of their metering infrastructure throughout all counties.

The resulting, selected scope of work included opportunities that not only reduced utility expenditures but maintenance and other cost savings as well.



SCOPE OF WORK SUMMARY

- Water meter replacement & AMI installation
- Blower replacements
- VFDs installed on high service pumps
- General lighting upgrades



Customer/Entity Name	Florida Governmental Utility Authority
Project Size	2 WWTP 5 Water Meter Systems
Address	280 Wekiva Springs Road Suite 2070 Longwood, FL 32779
Contact Person	David Dilena
Phone Number	407-629-6900 x113
Contract Amount	\$15,028,871
Contract Term	20 years
Prime or Subcontractor	Prime
Guaranteed Annual Savings	\$1,307,719

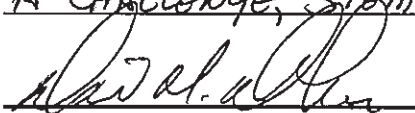
REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens
Agency Giving Reference: FLORIDA GOVERNMENTAL UTILITY AUTHORITY
Contact Person Name: DAVID M. AZEENA
Address: 280 GUEKIVA SPRINGS Rd - Suite 2070 LONGWOOD, FL 32779
Telephone: 407-629-6900 x113
E-Mail: ddileuna@govmiser.com

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	✓	
2	How would you rate the firm's quality of work?	✓	
3	How would you rate the experience of the firm's staff?	✓	
4	How would you rate the firm's commitment to the success of the project?	✓	
5	How would you rate how the firm managed it's workload while providing service to your agency?	✓	
6	Would your agency use this firm to provide services again? (Circle One)	YES/ Satisfactory	NO/ Unsatisfactory

Additional Comments: WORKING WITH SIEMENS WAS A COMPLETE PLEASURE. THEY ARE ABSOLUTELY THE BEST AT WHAT THEY DO. EVERY TIME THERE WAS A QUESTION, SIEMENS HAD AN ANSWER. EVERY TIME THERE WAS A CHALLENGE, SIEMENS HAD A SOLUTION.


Signature

CFO FOR THE FGUA
Title

BROWARD COUNTY FLORIDA

PROJECT HIGHLIGHTS

Broward County, during a competitive bid process, selected Siemens as one of two ESCo partners To conduct a detailed energy analysis of over 40 facilities, totaling over 1.6M sq ft of audited area, at locations in various cities throughout the County. Facility types included parks, libraries, courthouses, health centers, office and administrative buildings, and various fleet and maintenance facilities.

Siemens representatives conducted thorough on-site inspections of heating air-conditioning and ventilation (HVAC) systems, the lighting systems, and the domestic water system, among other specialty processes and operations. The resulting, selected scope of work included opportunities that not only reduced utility expenditures but maintenance and other cost savings as well.



SCOPE OF WORK SUMMARY

- LED Lighting Retrofits
- Water Conservation
- HVAC Replacements (DX, RTU, AHU, Chillers)
- Time of Day Scheduling and Temperature Setbacks
- Start/Stop Optimization
- Demand Control Ventilation
- Chilled water system upgrades
- Solar photovoltaic projects

**year 1 savings
\$453k**

**\$7.8M
project value**

**solar
PV**

Customer/Entity Name	Broward County, FL
Project Size	32 Facilities
Address	115 South Andrews Ave, Suite 326 Fort Lauderdale, FL 33301
Contact Person	E. Henry Craft
Phone Number	954-488-0257
Contract Amount	\$7,786,003
Contract Term	12 year
Prime or Subcontractor	Prime
Guaranteed Annual Savings	\$453,128

REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens Industries

Agency Giving Reference: Broward County Facilities Management Division

Contact Person Name: E. Henry Kraft, Construction Project Manager, Engineering Tech Supervisor

Address: 115 South Andrews Avenue, Suite 326, Fort Lauderdale, FL 33301

Telephone: 954.488.0257

E-Mail: ekraft@broward.org

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	YES/ Satisfactory	
2	How would you rate the firm's quality of work?	YES/ Satisfactory	
3	How would you rate the experience of the firm's staff?	YES/ Satisfactory	
4	How would you rate the firm's commitment to the success of the project?	YES/ Satisfactory	
5	How would you rate how the firm managed it's workload while providing service to your agency?	YES/ Satisfactory	
6	Would your agency use this firm to provide services again? (Circle One)	YES	

Additional Comments: _____

E. Henry Kraft
Signature

Digitally signed by E. Henry Kraft
Date: 2020.06.11 15:03:38 -04'00'

Title

UNIVERSITY OF FLORIDA

PROJECT HIGHLIGHTS

The University of Florida (UF) has development two phases of energy performance contracts at their campus with future phases already underway. Over the years Siemens and UF have become partners in driving energy savings solutions, improved facility infrastructures, and advanced automation and control approaches.

The first phase of work centered around the University's IFAS, Entomology Building which resulting in a comprehensive airside retrofit and renovation.

The next phase of work with the University resulted in the construction of a new chilled water and steam central plant being to replace an existing plant that had reached the end of useful life.

Upon completion, the plant will be housed in a project constructed facility approximately 16,000 sq ft. The scope includes the installation of 4 – 1,000-ton chillers and 3 – 300 hp boilers.



SCOPE OF WORK SUMMARY

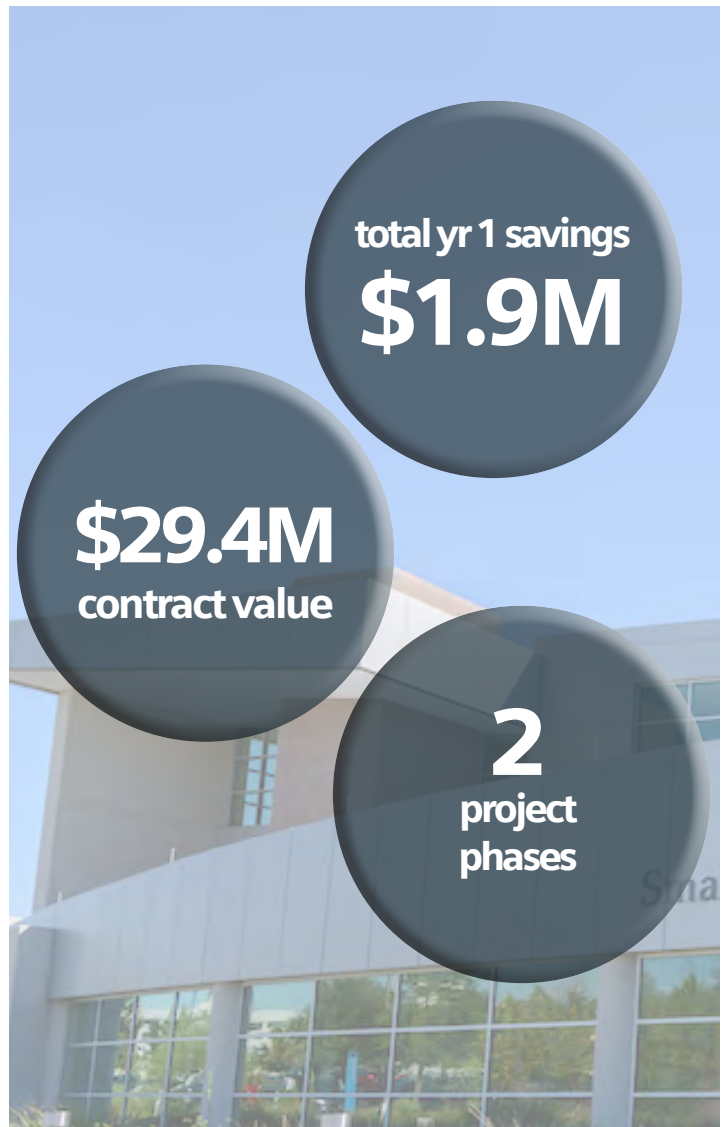
IFAS Entomology Building

- Comprehensive airside retrofit and renovation, including new air-handling units, new air distribution system, conversion of constant volume lab hood system to VAV, occupancy-based controls for lighting and HVAC, lighting retrofit, chiller plant optimization, water conservation.

SCOPE OF WORK SUMMARY

Vet Med Utility Plant

- New chilled water and steam plant incorporating four chillers and three boilers with plant optimization



Customer/Entity Name	University of Florida
Project Size	2 campuses, multiple buildings
Address	3280 Radio Rd, Gainesville, FL
Contact Person	Mark Helms
Phone Number	352-294-0559
Contract Amount	PH1: \$5.7M PH2: \$23.7M
Contract Term	20 year term, both phases
Prime or Subcontractor	Prime
Guaranteed Annual Savings	PH1: \$301,680 PH2: \$1,599,061

REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): _____
Agency Giving Reference: University of Florida
Contact Person Name: Mark Helms
Address: 3280 Radio Road Gainesville, Florida 32611
Telephone: 352-294-0559
E-Mail: markhelms@ufl.edu

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	X	
2	How would you rate the firm's quality of work?	X	
3	How would you rate the experience of the firm's staff?	X	
4	How would you rate the firm's commitment to the success of the project?	X	
5	How would you rate how the firm managed it's workload while providing service to your agency?	X	
6	Would your agency use this firm to provide services again? (Circle One)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">YES</div>	NO/ Unsatisfactory

Additional Comments: Siemens has been a great partner on a number of ESCO projects on the UF campus. The most recent is the construction of a \$25M energy plant that serves our Vet Med complex. I would highly recommend their team of professionals.



Signature

AVP FACILITIES SERVICES

Title

FLORIDA ATLANTIC UNIVERSITY

PROJECT HIGHLIGHTS

Florida Atlantic University (FAU) selective Siemens through a competitive RFQ process to provide engineering packages for proposed energy conservation measures at three FAU campuses.

Siemens representatives conducted thorough on-site inspections of heating air-conditioning and ventilation (HVAC) systems, the lighting systems, and the domestic water system. However, FAU's primary objective was the repurposing and expansion of existing chiller plants and chilled-water equipment. Siemens was selected as a partner joining a larger capital improvement plan identified by the customer.

By leveraging additional energy savings resulting from the performance contracting audit, FAU was able to reduce / offset overall construction costs to accomplish their plant expansion goals across both campuses.



SCOPE OF WORK SUMMARY

- Green laboratory retrofits
- Chiller replacements
- Chiller plant optimizatio
- VAV replacements
- Building automation system replacement
- Desigo CC migration
- Lighting system and control upgrades
- Long-term plant maintenance services.



year 1 savings
\$984k

\$8.5M
contract value

10yr
guarantee

Customer/Entity Name	Florida Atlantic University
Project Size	2 campuses, multiple buildings
Address	777 Glades Rd, Boca Raton, FL
Contact Person	Mike Dipple
Phone Number	561-609-5243
Contract Amount	\$8,488,196
Contract Term	10 year
Prime or Subcontractor	Prime
Guaranteed Annual Savings	\$984,115


REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens
Agency Giving Reference: Florida Atlantic University
Contact Person Name: Michael Dipple
Address: 777 Glades Road, Boca Raton, Florida
Telephone: (561) 609-5243
E-Mail: mdipple@fau.edu

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	✓	
2	How would you rate the firm's quality of work?	✓	
3	How would you rate the experience of the firm's staff?	✓	
4	How would you rate the firm's commitment to the success of the project?	✓	
5	How would you rate how the firm managed it's workload while providing service to your agency?	✓	
6	Would your agency use this firm to provide services again? (Circle One)	<u>YES/</u> Satisfactory	NO/ Unsatisfactory

Additional Comments: VERY SKILLED ENGINEERS - EXCELLENT PM & COST TRACKING


Signature

Director, Engineering Utilities
& Energy Management

Title

FLORIDA STATE UNIVERSITY

PROJECT HIGHLIGHTS

Florida State University (FSU) selected Siemens to conduct an energy performance contract project at their Civic Center. Siemens representatives conducted thorough on-site inspections of heating air-conditioning and ventilation (HVAC) systems, the lighting systems, and the domestic water system, among other specialty processes and operations.

This resulted in a 20-year guarantee with a total project value of \$1.76M and an initial, Year-1, combined energy and operation savings of \$102,239.

As a result of the success of this project, FSU has chosen to execute additional work with Siemens outside of the performance contracting model.



SCOPE OF WORK SUMMARY

- Lighting efficiency retrofits
- Water conservation retrofits
- Chiller plant optimization
- Building automation system upgrades and efficiency measures
- Air handling unit repairs



Customer/Entity Name	Florida State University
Project Size	one building
Address	Mendenhall Bldg A, 969 Learning Way, Tallahassee, FL 32306
Contact Person	Mike Dipple
Phone Number	850-644-3369
Contract Amount	\$1.76M
Contract Term	20 year
Prime or Subcontractor	Prime
Guaranteed Annual Savings	\$102,239

SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens
Agency Giving Reference: Florida State Univeristy
Contact Person Name: Dennis Bailey
Address: Mendenhall Bldg A, 969 Learning Way, Tallahassee, FL 32306
Telephone: (850) 644-3369
E-Mail: DBailey@admin.fsu.edu

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	X	
2	How would you rate the firm's quality of work?	X	
3	How would you rate the experience of the firm's staff?	X	
4	How would you rate the firm's commitment to the success of the project?	X	
5	How would you rate how the firm managed it's workload while providing service to your agency?	X	
6	Would your agency use this firm to provide services again? (Circle One)	YES/ Satisfactory	NO/ Unsatisfactory

Additional Comments: _____

Dennis Bailey
Signature

Sr. Assoc. VP for Facilities
Title

FAILURE TO COMPLETE AND RETURN THIS FORM MAY
DEEM YOUR PROPOSAL "NON-RESPONSIVE."

CONSULTANT AND SUBCONTRACTOR REFERENCES

In addition to our own project references, we also invite you to review the project history and references on the following pages to verify the excellent project history of our consultants and subcontractors.



City of Miramar General Water and Wastewater Services

Miramar, Florida

Since the 1990s, Hazen has worked with the City of Miramar's water, wastewater and reuse services on all phases of project implementation, to provide cost effective and innovative solutions to meet their growth and regulatory needs.

Background

Since initiating services for the City of Miramar in 1993, Hazen has assisted the City in the successful implementation of over \$110 million in infrastructure improvements to the City's water, wastewater, and reuse systems. These projects have encompassed all aspects of traditional utility-related engineering, including studies, facilities planning, design, cost estimation, permitting, construction administration, startup services, and regulatory assistance for both water and wastewater infrastructure, as well as assistance in the establishment of a stormwater utility, construction of new administration and fleet maintenance facilities, and a new citywide Local Area Network / Wide Area Network (LAN/WAN) communications system. In addition to these technical efforts, Hazen has also worked with the City on truly unique activities, such as grants procurement and "good neighbor" community involvement programs. Below are a few project highlights, illustrating Hazen's continued support and in-depth knowledge of the City's system.

Project Highlights

- 27 years of service
- Ongoing expansion of the WWRF reclaimed water system to 7.5-mgd
- Ongoing risk and resiliency assessment and emergency response plan for the water system

Client Reference

Whittingham Gordon
Assistant City Manager
City of Miramar
2300 Civic Center Place
Miramar, FL 33025
(954) 602-3120
wogordon@miramarfl.gov

Jinsheng (Jin) Huo
Assistant Director
City of Miramar
13900 Pembroke Road
Miramar, Florida, 33027
(954) 883-5845
jhuo@miramarfl.gov

Role on Project

Prime

Project Duration

1993–Present

Hazen



City of Miramar Wastewater Reclamation Facility Project Highlights

Hazen has worked with the City on all phases of their Wastewater Reclamation Facility – from inception to the latest reuse facilities expansion from 4 mgd to 7.5 mgd:

- Wastewater System Master Planning
- Planning, design, and construction of the Miramar WWRF, including fine mechanical screens, forced vortex type grit removal, activated sludge treatment with fine bubble aeration, final clarification, effluent pump station and deep well injection, with an initial capacity of 7.4 mgd, as well as reuse facilities to produce 2 mgd of reclaimed water for irrigation.
- Planning, design and construction of the wastewater and reclaimed water transmission systems.
- Reuse demonstration project to Avalon and Renaissance Communities
- Expansion of emergency power generator system
- Miramar Reuse Feasibility Expansion Study
- Paper uprating of WWRF to 8.4 mgd
- Capacity Analysis Reports
- Injection Well Mechanical Integrity Testing and Operation Permit Renewals
- Plant Operations Assistance
- Basis of Design Report to support expansion of WWRF to 10.5 mgd

- Hazen developed a BioWin™ model of the facility to size selector zones for improved plant operations.
- Design Criteria Package for expansion to 10.5 mgd, including upgrades to the aeration system, secondary clarification system, RAS pumping system, injection well pump station, and PLC/SCADA system.
- Reclaimed Water Expansion: Detailed design, permitting, bid and construction management services to expand the 2-mgd reclaimed water and distribution system processes to 4 mgd, including public coordination program to assist the City with transitioning new irrigation users.
- Paper uprating of Reuse Facilities from 4 mgd to 5 mgd.
- Reclaimed Water Expansion (Phase I) – Ongoing: Detailed design, permitting, bid and construction management services to expand the 5-mgd reclaimed water and distribution system processes to 7.5 mgd. New facilities include filter feed pumps, sand filters, expansion of sodium hypochlorite system, ground storage tank and high service pumps.

Other wastewater projects have involved hydraulic modeling, transmission system expansion, sewer system rehabilitation, I/I program management, pump station design and rehabilitation, telemetry assistance, and rate studies.

City of Miramar West WTP Project Highlights

Hazen has assisted the City with their water system needs, performing studies/assessments, specialty plant evaluations, and construction management services at the West WTP. Some project highlights are summarized below:

- **Membrane Softening Expansion Construction Management Services:** Construction administration services to implement the plant's 3-mgd membrane softening expansion, involving constructability review, stringent construction sequencing constraints to maintain uninterrupted service, comprehensive inspections to ensure construction according to the contract documents, start-up services, compliance with regulatory agencies, and record drawing development.
- **Taste and Odor Investigation:** Treatment process evaluation involving investigation of taste and odor complaints and high turbidity following the addition of reverse osmosis treatment of Floridan aquifer supply water (designed by a different firm). The problem was traced to iron sulfide precipitation, pH shift, and deficient degasification facilities. Hazen recommended segregating NF and RO permeate, whereby the City modified the permeate piping with successful results.
- **Chemical Hazard / Forensic Engineering Evaluation:** As a result of accidental sulfuric acid leaks, the City enlisted Hazen's assistance. Hazen examined the chemical system hazards associated with the existing facility, including probable cause of spills, air sampling program evaluating potential risk from release, effects of spills on concrete containment, and recommended remedial actions.



City of Miramar East WTP Project Highlights

Within the last ten years, Hazen has assisted the City with converting the East WTP from lime softening to membrane softening, including upgrades to meet finished water quality goals and rehabilitation. Some project highlights are summarized below:

- **Ammoniation Feed System and Construction Services:** Evaluation to assess the feasibility of installing an ammonia feed system to mitigate production of disinfection byproducts while maintaining adequate disinfection in the distribution system. Hazen designed the ammonia feed system following the study and performed construction oversight.
- **East WTP Process Enhancements/Renovation Preliminary Design:** Plan and design plant conversion from lime softening to membrane treatment. Based on initial evaluation of the City's raw water supply data and infrastructure, Hazen determined that additional raw water capacity would be needed to implement membrane softening. At the request of the City, Hazen evaluated multiple raw water supply augmentation alternatives for 3 mgd (blended treatment) and 6 mgd (full conversion) membrane treatment. Based on comparison of the qualitative considerations and estimated \$/gpd for each alternative, the City decided to proceed with preliminary design of full plant conversion to 6 mgd membrane softening treatment, including the installation of new production wells and raw water transmission piping. Hazen developed the Preliminary Design Report and Drawings to implement 6 mgd of membrane softening treatment capacity at the EWTP while maximizing use



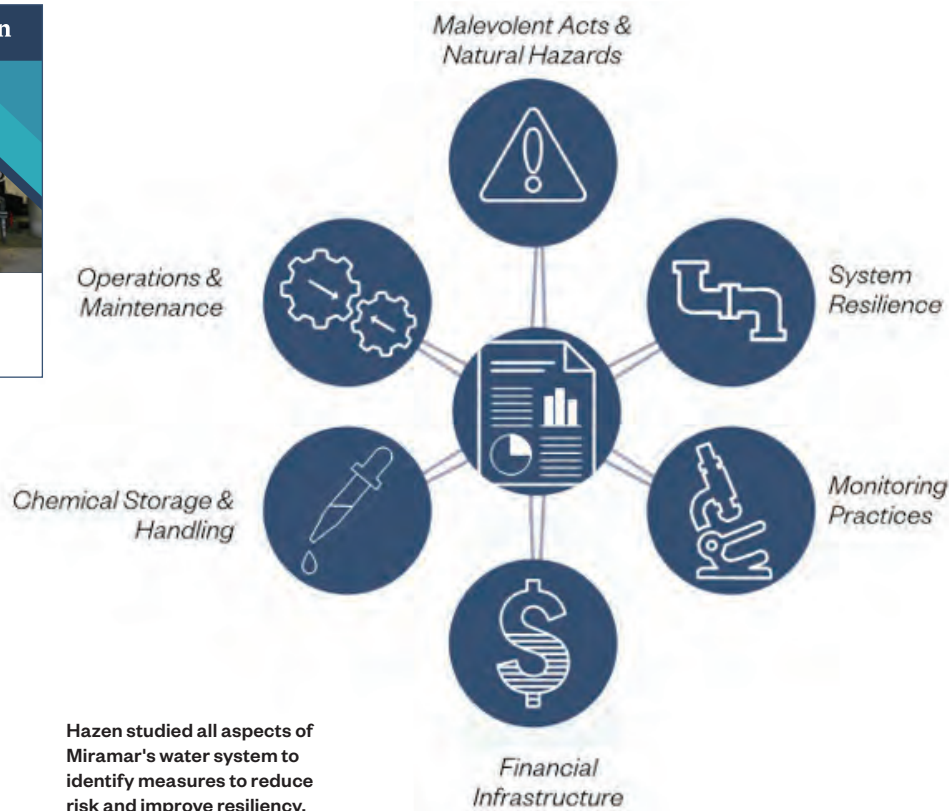
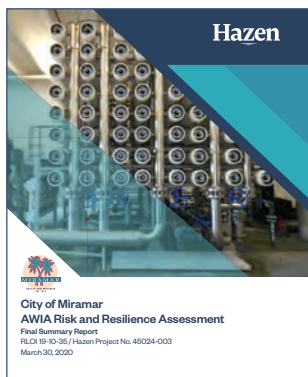
of existing facilities and re-purposing the Chemical Building to accommodate new processes. Treatment plant improvements included raw water wells and piping, sand separation and cartridge filters, membrane feed pumps, two 2-stage membrane units (3-mgd each) designed with the flexibility to reduce or expand treatment capacity, raw water blending flexibility, CIP system, concentrate and permeate pipelines, post-treatment, chemical feed and storage upgrades, electrical and I&C upgrades, miscellaneous building

modifications, and sitework. Hazen developed the project delivery schedule for design and construction of the proposed improvements. The City elected to proceed via Design-Build construction delivery.

- **Refurbishment of Lime Storage and Slaker Facilities:** Design services for refurbishment of the lime storage and slaker facilities in order extend the life of the equipment prior to plant conversion to membrane treatment.

City of Miramar Risk and Resiliency Assessment (RRA) and Emergency Response Plan (ERP)

In 2020, Hazen performed an RRA of the City's water system, including the East WTP, West WTP, raw water wells, storage tanks, pump stations and pipelines, to meet their regulatory requirement under America's Water Infrastructure Act (AWIA) of 2018. The RRA involved workshops with leaders from utility departments and emergency response agencies, field inspections of critical assets, identification of threats and vulnerabilities to the water system, risk calculations using a tool developed by Hazen, recommendations of mitigation measures to improve resilience, and development of a report that is "for official use only" and certified by the US EPA. The detailed RRA report provides an implementation plan for capital and operational needs for risk and resilience management of the City's water system. Hazen is currently developing an ERP for the City that includes response protocols for emergencies/events identified as threats during the RRA.



BOA FL - City of Miramar Water and Wastewater General Services

Hazen and Sawyer

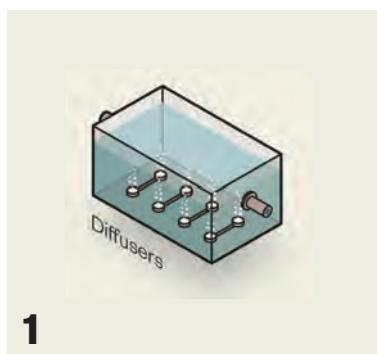
Waste to Green Energy Project - Final Investment Grade Energy Audit at North Regional WWTP

Broward County, Florida

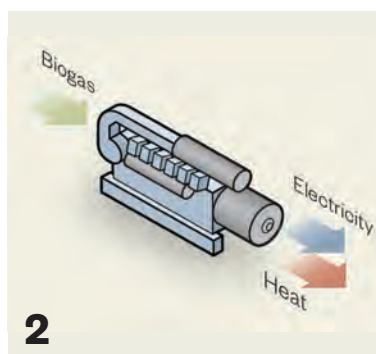
Hazen used state-of-the-art wastewater process modeling to identify energy conservation measures as part of a Florida Statute 489.145 “Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Act” energy audit.

Hazen performed an investment grade energy audit as a subconsultant to OpTerra Energy Services (formerly Chevron Energy Solutions) through a performance contract with Broward County. Hazen developed a detailed analysis of the North Regional Wastewater Treatment Plant (NRWWTP) to determine process loadings, biogas production, and the potential for reduced plant energy consumption.

Hazen specifically performed two major process evaluations to ultimately develop the two greatest potential energy conservation measures (ECMs):



1



2

1) the effect of converting the surface aerators to fine bubble diffusion for two of the three remaining 20 mgd wastewater treatment modules still with this aeration technology (two 20 mgd modules were already provided with fine bubble diffusers under previous Hazen contracts; based on additional gained capacity with fine bubble diffusion, the remaining surface aerator module was intended to be used as backup under this ECM), and 2) the potential recovery of biogas/methane from the digesters for conversion to energy in an onsite generator.

Project Highlights

- Performed an investment grade energy audit
- Identified over 830 bhp of energy reduction through aeration improvements and process optimization
- Confirmed the payback of implementing a waste to green energy project that has reduced purchased electricity costs by \$1.5 million annually

Client Reference

Mark Darmanin
Operations Director
Broward County
Water and Wastewater Services
2555 West Copans Road
Pompano Beach, FL 33069
(954) 831-0960
mdarmanin@broward.org

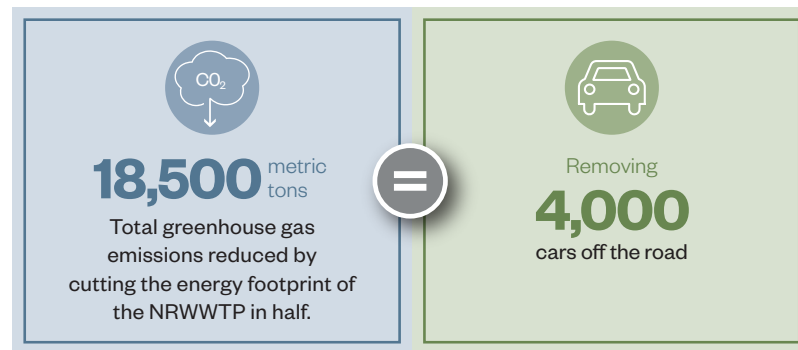
Role on Project

Subconsultant

Project Duration

2009 - 2015

Hazen



Hazen used BioWin™ modeling to identify a way to optimize the activated sludge process without adding additional tank volume.

Broward County implemented select energy conservation measures Hazen identified in the investment grade energy audit under a guaranteed performance savings contract.

For the conversion to fine bubble ECM, Hazen calculated a savings of 415 brake horsepower (bhp) per module compared to the existing surface aeration. For modules A and B, this resulted in a savings of over 830 bhp. With the assistance of state-of-the-art tools such as BioWin™ and CFD clarifier models, Hazen determined the ability of the existing modules to operate in partial nutrient removal mode in order to comply with the Ocean Outfall rule. The implementation of selector zones and ammonia-based aeration control allows the existing tanks to be modified for nitrogen removal without the need for additional volume. Broward County elected to complete this aeration project under a separate capital construction project.

For the recovery of methane gas and onsite conversion to energy ECM, Hazen calculated the potential production based on historical volatile solids but also considered the addition of fats, oils, and grease (FOG) from septage haulers to increase the production. Hazen analyzed historical FOG records to determine the quantity of material received as well as the days and times at which these transactions occur. Hazen further utilized the historical FOG data to project future FOG, calculate FOG receiving tank volumes, determine FOG pump sizes, estimate digester dosing rates, and calculate associated energy requirements.

To validate the process benefits of adding the FOG directly to the digesters, and to evaluate digester performance and estimate future biogas quantities; the Hazen team developed a BioWin™ model to incorporate FOG and volatile solids data and predicted the performance for a variety of process configurations and operational conditions. Hazen's BioWin™ analysis showed that the FOG positively increased biogas quantities such that the investment in the construction of this ECM would be a worthwhile investment.

The FOG receiving station, biogas collection, and energy generation system was constructed for \$18 million in 2015 through a guaranteed performance savings contract and continues to operate today, saving Broward County over \$1.5 million annually in electric costs.

WWFL Broward County NRWTP Final Investment Grade Energy Audit

Hazen and Sawyer



Energy Conservation Projects at Utility Facilities: Combined Heat and Power Design/Build Project

Broward County, Florida

Hazen, in association with OpTerra Energy Services (formerly Chevron Energy Solutions), provided Design-Build Services for the implementation of Energy Conservation Methods (ECM) at the Broward County North Regional Wastewater Treatment Plant (NRWWTP). Services provided on this project included design, permitting, construction and startup.

Hazen, in collaboration with OpTerra Energy Services (formerly Chevron Energy Solutions), implemented a biogas-to-energy project using the digester gas waste product from the existing anaerobic digestion process at the Broward County 95-mgd NRWWTP. The project was aimed at reducing the NRWWTP's energy footprint and carbon emissions by using previously flared biogas as a renewable fuel to generate approximately 1.6 MW of electricity on site.

Two major components of this project included installation of a new 2.1-megawatt engine-generator for conversion of biogas to electricity and

Project Highlights

- Design and construction of a new 2.1-Megawatt Engine Generator fueled by the anaerobic digester biogas
- Design and construction of a Fats, Oils, and Grease (FOG) receiving station and sludge mixing system for enhanced biogas production through co-digestion of the FOG stream
- The project reduced the carbon footprint of the NRWWTP by 17% and and reduced purchased electricity by 30%

Client Reference

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Operations Director
Broward County
Water and Wastewater Services
2555 West Copans Road
Pompano Beach, FL 33069
(954) 831-0960
mdarmanin@broward.org

Role on Project

Subconsultant

Project Duration

August 2012 - December 2015

construction of a fats, oil, and grease (FOG) receiving station. Biogas captured from the digestion process is conditioned and used as fuel for the engine generator to create electric power. The power generated by the CHP Facilities is used to offset approximately 30% of purchased electricity, allowing these savings to be applied to fund the project. Hot water from the cogeneration system is beneficially reused to heat the digesters to maintain the necessary mesophilic conditions. This reduces the frequency with which the boilers need to operate, thereby further reducing the NRWTP's electrical demand.

FOG Receiving and Dosing Station

The FOG receiving station was constructed to collect and introduce the additional feedstock to the digesters to enhance biogas production. This FOG material was formerly directed to the plant influent, resulting in increased aeration energy demands for the liquid stream and adverse O&M impacts, including accumulation of FOG within underground pipelines. Redirecting this waste to the anaerobic digesters for resource recovery reduces other energy demands at the plant by an additional 250 kW and enhances the electrical

energy produced. The significant energy content of the FOG stream is estimated to increase biogas production by approximately 30%, resulting in even greater power production.

The FOG Receiving Facility is designed for an average daily flow of up to 60,000 gallons. The facilities include two truck unloading stations; a 165,000 gallon stainless steel FOG receiving tank; FOG transfer pumping to an 18,500 gallon blend tank; and dosing pumps. At this facility, FOG from the receiving tank is mixed with digested sludge and sequentially dosed from the blend tank into each digester's feed line. Hazen developed a protocol for the start-up of the system and provided operational assistance until the FOG dosing system reached full capacity and stable operation.

2015 Greenhouse Gas Reduction Goal

It is estimated that this project alone, implemented under the Florida Statute 489.145 "Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Act", meets 26% of the County's 2015 Greenhouse Gas (GHG) reduction goal and reduces the carbon footprint of the NRWTP by 8,800 tonnes per year.



Above: North Regional WWTP Installed FOG Receiving and Dosing System. The biogas collection and treatment, CHP facilities and the FOG receiving station started operation at the end of 2015 and continues to operate today, saving Broward County over \$1.5 million annually in electricity costs.

WWFL Broward County Energy Conservation Projects at Utility Facilities

Hazen and Sawyer

Experience

SALTZ MICHELSON
ARCHITECTS



Client:

Broward College

Date Completed:

2015

Broward College South Campus Chiller Plant

Pembroke Pines, Florida

A new chiller plant and modular classrooms at the South Campus of Broward College. The Chiller Plant includes the design of a dual chiller chilled water plant of approximately 3,500 square feet. The initial machine design capacity is 650 tons each, with a deductive alternate to make one (1) chiller 450 tons. The plant was designed for future expansion to include initial header pipe sizes, cooling tower water make-up, and electrical service to accommodate a future build-out of 4,300 tons.

Experience

SALTZ MICHELSON
ARCHITECTS



Client:

Broward College

Date Completed:

2018

Broward College Chiller Plant

Fort Lauderdale, Florida

As a subconsultant to SGM Engineering, preparation of construction documents for the expansion and modification to the building in order to provide a new chiller and cooling tower

HAMMOND & ASSOCIATES, INC. CONSULTING ENGINEERS



CITY OF MIRAMAR CULTURAL | ART PARK, CITY OF MIRAMAR, FL

REFERENCES:

Mario Cartaya, AIA
Cartaya Architects, Inc.
(954) 776-4280

OWNER:

City of Miramar, FL

SCOPE OF WORK:

- Plumbing
- Fire Protection Design

COMPANY ROLE:

Sub-Consultant

PROJECT DATES:

2005 to 2006

Completed According to Contract

Hammond & Associates, Inc. were the engineer of record who provided Plumbing & Fire Protection design for this new “state of the art” venue for cultural events. The configuration was an amphitheater surrounded by three sides, by the facades of the New Performing Arts Center and City Hall. The Cultural Center has a combined space of 50,000 square feet with a 800 seat performing arts theatre along with an elegant banquet hall with lakeside seating. There is an on-site art gallery with lush botanical garden with public art pieces. This is another signature project for the City of Miramar.



HAMMOND & ASSOCIATES, INC. CONSULTING ENGINEERS



CITY OF MIRAMAR POLICE DEPARTMENT, CITY OF MIRAMAR, FL

REFERENCES:

Juan Justiniano
Cartaya Architects, Inc.
954.776-2724

OWNER:

City of Miramar, FL

SCOPE OF WORK:

- Plumbing
- Fire Protection
- Construction Administration

COMPANY ROLE:

Sub-Consultant

PROJECT DATES:

2015 to 2017

Completed According to Contract

This facility is a three story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes.



Advanced Green Technologies

ROOFTOP SOLUTIONS

JM Family Enterprises



JM Family Enterprises

Project Size: 150 kW
Location: Deerfield Beach, Florida
Completion: 2014
Role: Engineering, Procurement & Construction

University of Miami



University of Miami

Project Size: 71 kW
Location: Coral Gables, Florida
Completion: 2015
Role: Engineering, Procurement & Construction

Raymour & Flanigan



Raymour & Flanigan

Project Size: 1.1 MW
Location: Gibbstown, New Jersey
Completion: 2012
Role: Engineering, Procurement & Construction

Toys "R" Us



Toys "R" Us Inc.

Project Size: 5.3 MW
Location: Flanders, New Jersey
Completion: 2011
Role: Engineering, Procurement & Construction

View a complete list of our solar projects at www.agt.com

Advanced Green Technologies

CARPORT SOLUTIONS

Florida International University

Project Size: 1.4 MW
Location: Miami, Florida
Completion: 2016
Role: Engineering, Procurement & Construction

Lockheed Martin

Project Size: 2.25 MW
Location: Oldsmar, Florida
Completion: 2015
Role: Engineering, Procurement & Construction

Konica Minolta

Project Size: 839 kW
Location: Ramsey, New Jersey
Completion: 2014
Role: Engineering, Procurement & Construction

Resolve Marine

Project Size: 61 kW
Location: Fort Lauderdale, Florida
Completion: 2015
Role: Engineering, Procurement & Construction

View a complete list of our solar projects at www.agt.com



Florida International University



Lockheed Martin



Konica Minolta



Resolve Marine

Advanced Green Technologies

GROUND-MOUNT SOLUTIONS



Sudbury Solar Farm

Sudbury Solar Farm

Project Size: 10 MW
Location: Ontario, Canada
Completion: 2014
Role: Engineering, Procurement & Construction



John U. Lloyd Park Solar Farm

John U. Lloyd Park Solar Farm

Project Size: 53 kW
Location: Dania Beach, Florida
Completion: 2012
Role: Engineering, Procurement & Construction



Osceola Solar Facility

Osceola Solar Facility

Project Size: 4.7 MW
Location: Kenansville, Florida
Completion: 2016
Role: Engineering, Procurement & Construction



Marsh Hill Solar Farm

Marsh Hill Solar Farm

Project Size: 10 MW
Location: Ontario, Canada
Completion: 2015
Role: Engineering, Procurement & Construction

View a complete list of our solar projects at www.agt.com



Section G Other Experience Related to the Work or Services

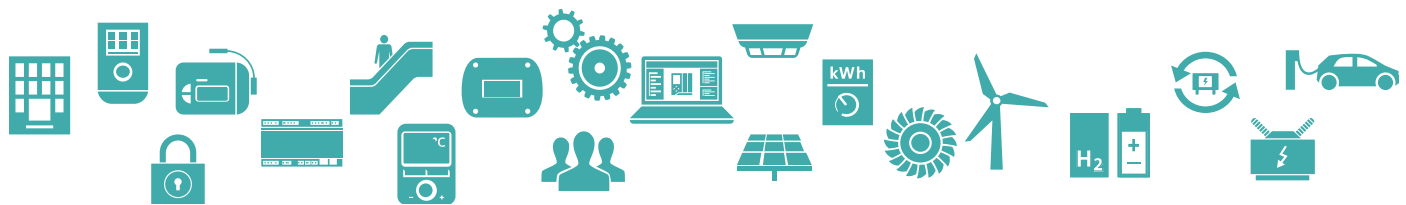
Siemens Industry, Inc.

G. DESCRIBE ANY OTHER EXPERIENCE RELATED TO THE WORK OR SERVICES DESCRIBED IN SECTION 2, SCOPE OF WORK AND SPECIFIC REQUIREMENTS.

Siemens' Energy Performance Solutions (EPS) team leads all our guaranteed savings opportunities. But our EPS team is part of a much larger Siemens' Smart Infrastructure division which provides a wide range of technologies, services, and solutions that support our municipal customers.

Smart Infrastructure intelligently connects energy systems, buildings and communities to adapt and evolve the way we live and work. We work together with customers and partners to create an ecosystem that intuitively responds to the needs of people and helps customers to better use resources. It helps our customers to thrive, communities to progress and supports sustainable development. We do this from the macro to the micro level, from physical products, components and systems to connected, cloud-based digital offerings and services. Siemens offers a broad portfolio of intelligent grid control and electrification to smart storage solutions; low- and medium-voltage power distribution and control; and building automation, fire safety and security, HVAC control and energy solutions.

The following are just a few areas of related services and solutions that Siemens can offer to the City of Miramar either integrated into the current guaranteed energy savings project or as part of separate complementary project efforts.



SMART CITIES

By 2050, two-thirds of the world's population will live in cities. With current U.S. infrastructure earning a D+ grade by The American Society of Civil Engineers, we need to improve our infrastructure with smart solutions to ensure the economic success and longevity of cities across America. The answer is building smarter infrastructure. Siemens has developed new, intelligent technology and software that improves and modernizes U.S. infrastructure to support a growing population. With these technologies, we're on our way to building The Smartest City.

Modernizing your community's Infrastructure is a key step in creating the perfect place for tomorrow. We want to help the City of Miramar ensure that its infrastructure is modern, clean, safe, efficient and well-maintained. Our smart infrastructure solutions go beyond lighting and HVAC retrofits and will help make your buildings smarter. With our software, metering and cloud-based products, your buildings can run many functions on their own, freeing your staff to work on other areas. Your buildings will also be able to adapt to new and future technologies, helping position the City of Miramar as a sustainable, competitive community for the future, and establishing the City of Miramar as a "Smart City".

21st Century Energy Management Systems Integration

Digitalization means buildings are becoming more and more connected, and the importance of having all building data insight is constantly increasing. Whether you want to enhance occupant comfort and productivity or improve operational and energy efficiency, building management systems enable you to connect, monitor and operate your facilities easily.

Within each building, we will work with your team to develop a holistic long-term energy strategy that

incorporates robust 21st century technology to enhance occupant comfort and productivity, improve operational and energy efficiency.

This project also incorporates advanced building and utility management system tools, to improve your ability to connect, monitor and operate your facilities and utility plants. Below are a few of the key smart cities technologies discussed earlier in section A-2 of this response as potential recommendations for our project with the City of Miramar.

- Desigo CC
- Navigator
- Enlighted
- HEET
- EBAT



Leveraging Smart Cities Technologies to Meet Today's Most Pressing Challenges

This year's pandemic outbreak has had unprecedented impacts to our entire country devastating the physical and economic health of our communities. Cities will play a role in leading the recovery, by setting policies and providing critical services that will allow their businesses and schools to reopen safely giving their citizens the security needed to return to daily activities. Siemens has been working with our customers to enlist smart cities technologies to assist in these efforts, allowing cities and their communities to come back with confidence.

Coming Back with Confidence

As a result of the Covid-19 pandemic, the world is now sensitive to the very real threat of new bacterias and viruses that represent health risks and challenges to individuals and businesses. Life will not go back to business-as-usual, and we must be prepared to take proactive measures to improve public health & safety, addressing new rules for business and social distancing guidelines. With Siemens solutions, we will help

our customers **create safe and healthy indoor environments** so they can **come back with confidence**.

Building occupants expect that a deep cleaning and sanitizing of all spaces will occur during this long vacancy, but they will also want assurance that they will not be returning to the same pre-pandemic building environments that do not actively address the new issues we face.

Enlightened Building IoT application enables contact tracing and alerting are possible with occupancy history. Density heat maps support social distancing and occupancy limits to help reduce the spread of the virus. Motion trails can identify bottlenecks and help monitor cleaning schedules while enabling contact tracing functions. Desk sensors help keep open spaces safe and optimized.

Reduce the spread of airborne and surface contaminants

Improve air quality

Manage energy performance

Enable social distancing

Provide real-time updates

Sustain healthy & safe environments

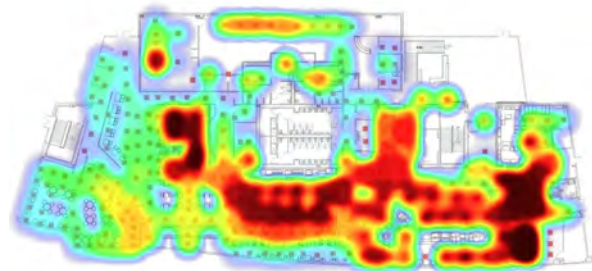
Defer capital budgets

Building owners can more easily answer the following questions:

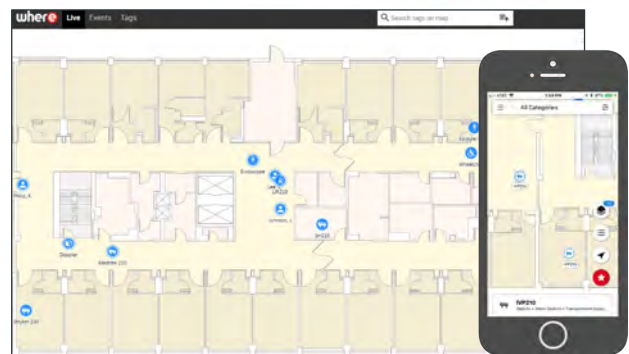
- Where did COVID-19 positive employee occupy?
- Which areas are typically the most densely populated?
- Where should we focus efforts to reconfigure our desks and offices and/or eliminate seats?
- Were these changes effective?
- What are the most frequent paths taken through the building? At what times?

Armed with answers to these questions, employers can provide signage to guide occupants away from high-traffic areas while also adapting janitorial practices.

Thermal imaging cameras provide a contactless way of measuring body temperature from six feet away. The highlight from a technology perspective is that these cameras can be integrated into a building's existing security and access solution systems.



Contact tracing plays an increasing role to track and prevent the further spread of the virus. Who did a person with COVID-19 symptoms come in contact with? The smart sensor technology of our subsidiary Enlighted Inc. provides advanced motion tracking. The sensors can be installed in any light fixture or workstation and collect and monitor real-time occupancy, space utilization, light levels, temperatures and help to control energy usage. The highlight here is that the sensors can distinguish between people and objects.



DISTRIBUTED ENERGY

Localized distributed energy solutions offer municipalities, college campuses, and industrial businesses innovative approaches to address their primary energy related challenges to lower energy cost, reduce carbon footprint, and improving energy security. Siemens' Distributed Energy Solutions utilize an optimized mix of distributed energy resources such as renewable energy, combined heating and power stations, or storage systems, supported by sophisticated energy management technologies and strategies. Since it's founding, Siemens has been engaged with developing innovative technologies and delivering cost effective solutions that focus on every component of the electrification chain including Generation, Energy Storage, and Energy Management.



GENERATION: As leading player in power generation, Siemens offers one of the broadest portfolios of generation assets in the market, including gas turbines, combined heat and power (CHP), and renewables. With our extensive experience in developing CHP solutions, fuel efficiency levels of up to 90% can be achieved thanks to the heat utilization. In addition, up to 30% energy cost savings are possible, while at the same time ensuring high security of supply and environmental protection.

STORAGE SOLUTIONS: There are different storage solutions available that fit the needs of industries, municipalities, campuses, and communities. They make your on-site energy solutions much more efficient as they provide one of the greatest assets of all – flexibility. In particular, electrical storage systems are able to react very quickly and are specialized for improving power quality, enabling black start, and optimizing frequency response. All our solutions are designed based on your specific infrastructure and can be backed with a performance guarantee.

ENERGY MANAGEMENT SYSTEMS ensure a reliable, optimized, and efficient control of power generation, consumption, and storage. With our control solutions, we monitor all components involved, thus protecting your local power supply against blackouts and balancing out grid fluctuations as well as fluctuations in power consumption. Additionally, our advanced control and optimization software allows to maximize the value of onsite energy resources in coordination with local utility or wholesale market rates. Siemens provides a comprehensive portfolio to monitor, control, and operate these microgrids – no matter what size. Thanks to open interfaces and international standards, our offer can be seamlessly integrated into existing solutions.

Correctly designed and deployed, with a trusted partner like Siemens, Distributed Energy Solutions can offer the City of Miramar a smart way to take control of your energy future.

ECONOMIC INTELLIGENCE: Optimizing energy costs becomes more and more important in order to increase competitiveness. There are several ways to achieve this goal: An optimized energy mix can help to lower purchase costs for energy. Reducing the overall energy consumption and increasing energy efficiency are also effective ways.

SUPPLY INTELLIGENCE: For virtually all industries and especially for critical infrastructures a reliable power supply is crucial. Local energy solutions help improve system reliability and availability of power, ensure power quality, and support the implementation of resilience.

SUSTAINABILITY INTELLIGENCE: Sustainability has grown to a real paradigm shift for many companies. Not only is it a means to improve the public perception and brand value, but also an effective way to reduce emissions and carbon footprint.

To learn more about Siemens' DES offerings, please visit our website at:

<https://new.siemens.com/global/en/products/energy/topics/distributed-energy-systems.html>

MOBILITY

Siemens Mobility is enabling mobility operators worldwide to make infrastructure intelligent, increase value sustainably over the entire lifecycle, enhance passenger experience and guarantee availability. As a leader in transport solutions for more than 160 years, Siemens Mobility is constantly innovating its portfolio including:

- Rolling Stock
- Rail Automation & Electrification
- Intelligent Traffic Systems

Siemens mobility offers transportation consulting services, industry leading technologies, and innovative financing solutions to deliver seamless sustainable and reliable transportation solutions for our customers.

Intelligent traffic management systems significantly increase the ability of municipal authorities to act and allows them to coordinate traffic guidance measures for all modes of transportation. This includes accounting for planned or foreseeable situations such as major events or roadworks, as well as using targeted traffic guidance measures to mitigate unforeseen incidents such as accidents or acute hazards, and respond to them in a quick, efficient and coordinated manner.

TRAFFIC MANAGEMENT: Our comprehensive traffic management product portfolio makes sure integrated transportation systems are implemented in a model way. We take innovation seriously. Our systems are continuously redeveloped so that they feature the latest state-of-the art technology, while being easily integrated with existing installations.

TRAFFIC CONTROL: Whether travelers choose to commute by foot, bike, car, bus, or light rail train, Siemens traffic management solutions help them arrive safely, more efficiently, and with less impact on the environment. Our traffic management projects are increasingly being processed in the cloud, and our modern, service-oriented architecture is ready for the increasing number of devices that are accessible via the Internet.

ROAD SERVICE: Siemens offers an all-inclusive portfolio of products, services, and solutions to help cities maintain and upgrade their infrastructure. Our advanced parking solutions are enhanced by our energy-efficient signals, streetlights, traffic management software, and on-street traffic hardware. Our well-known service offerings include routine and around-the-clock emergency maintenance, traffic engineering, and design-build transportation improvements to fit each project need. We pride ourselves on leading the nation in energy-efficient upgrades of traffic signals and streetlight systems and on promptly delivering personalized customer service by highly experienced and qualified personnel.

At Siemens we...

- ✓ have more than 60 manufacturing, digital and R&D sites in the U.S.
- ✓ have more than 50,000 U.S. employees
- ✓ employ more than 2,600 U.S. veterans reported revenue of \$17.8 billion in the U.S. for fiscal year 2019 ... spent 24% with small businesses (2019)
- ✓ invested approximately \$40 billion in the U.S. for the past 15 years ... have more than 30 years of developing breakthroughs in science and emerging technologies
- ✓ file more than 25 U.S. patents per day to help improve the lives of millions of Americans
- ✓ supply one-third of America's total daily energy needs
- ✓ are a leading provider of product lifecycle software for digital manufacturing
- ✓ have over 900 laboratory diagnostics tests available on our instrument platforms
- ✓ benefit more than 195,000 patients every hour with our medical technologies
- ✓ invest more than 1 billion dollars in R&D annually

Future of Mobility

The future of mobility is being shaped today as Cities look to develop comprehensive strategies to address mobility challenges while incorporating developing trends and technologies related to connected vehicles, autonomous vehicles, data digitalization and artificial intelligence technologies, etc. Siemens has the technological expertise and practical experience to serve as your trusted partner in navigating your journey through this new environment.

- AI tools improving traffic management operations
- Advanced traffic simulation to improve mobility planning and design
- Autonomous vehicle (AV) mapping solutions
- Deploying connected vehicle (CV) technologies
- EV charging Infrastructure
- Managing shared mobility services

Miami signalization Project

Recently, Siemens Mobility was been awarded a \$150 million contract by Miami-Dade County, to provide an Advanced Traffic Management System (ATMS), which will upgrade 2,900 intersections and traffic corridors with intelligent hardware and software technology. All intersection technology will be connected to an integrated traffic management platform that will perform intelligent analytics, implement strategic measures and optimize travel times across the County.

This system will dynamically change traffic patterns in real-time at traffic lights linking a network of roadway corridors to provide for the better movement of traffic based on actual traffic demand. Data will be collected in real-time from a wide array of new sources at intersections and roadway zones/corridors, which will then optimize the signal timings at each intersection in a network. This will create an integrated system designed to quickly and efficiently counteract impending critical situations, as well as unpredictable traffic overloads and congestion.

“We are proud to have been chosen to provide this vital traffic improvement project for Miami-Dade County and look forward to implementing an intelligent system that optimizes and integrates traffic operations throughout the County. Our proven technology will ease congestion, reduce carbon emissions, and enhance quality of life by allowing Miami-Dade residents to spend 15% less time sitting in traffic.”

—Marcus Welz, CEO of Siemens Mobility’s Intelligent Traffic Systems for North America

To learn more about the Siemens Mobility Team, please visit our site at:

<https://www.mobility.siemens.com/us/en.html>

IOT CONSULTING - SIEMENS ADVANTA

Siemens Advanta Consulting is the global management consultancy of one of the world’s most innovative engineering and technology companies. We navigate organizations through their unique digitalization journey – from strategy to operations. Founded as Siemens’ internal consultancy, we have significantly shaped the success story of Siemens own digital transformation. As Siemens Advanta, we expand our consulting services beyond Siemens to focus today on full end-to-end digitalization services.

Siemens Advanta empowers your unique digital journey from consulting, design & prototyping to solution, implementation and operation, enabled with our deep domain knowledge, a strong technology stack and a powerful ecosystem of partners. Let us tackle your challenges and some of the world's biggest issues.

We enable you to build your digital future. Our 500 future-focused consultants draw on time-tested expertise and experience to help you refine your vision, set clear priorities and choose the right strategy to lead your organization to success in this digital era. With our holistic consulting approach, we work alongside with you from strategy development to implementation.

Digital transformation demands an interconnected approach, bringing together business & portfolio, people & organizations, operations & processes and digital technologies. Our experience is grown from our own digitalization journey as well as having served many other technology companies on their transformation path. This is how we create long-lasting value for your business.

CONSULTING: A clear strategy to lead your business into the future. Our expert team helps you define your vision, set a clear strategy and choose the right approach to lead your business to success.

SOLUTION DESIGN & PROTOTYPING: Setting the right digital foundations. We quickly turn your ideas into reality, creating solutions that master your challenges and deliver impact.

SOLUTION IMPLEMENTATION: Engineering your solutions for success. Every project is as unique as your fingerprint. We leverage existing technology blocks and tailor them to your individual needs.

ENABLEMENT: Enabling transformation while keeping your people and business safe. Let's navigate key decisions that can help your company evolve securely and effectively, and move forward with confidence.

To learn more about Siemens Advanta please visit:

<https://www.siemens-advanta.com/>

FACILITY MAINTENANCE SERVICES

Routine system maintenance and service is an essential component to assuring successful performance over the project's guarantee term. Should the City desire any support of assistance with these tasks, Siemens' local branch office offers a complete range of service solutions. Siemens' service programs keep buildings performing at their best. We approach this topic very seriously. It's part of our commitment to creating perfect places that help organizations achieve their most ambitious goals. At the City of Miramar's option, the Siemens team can integrate customized facility services program into your performance contracting project during development.



Advisory and Performance Services

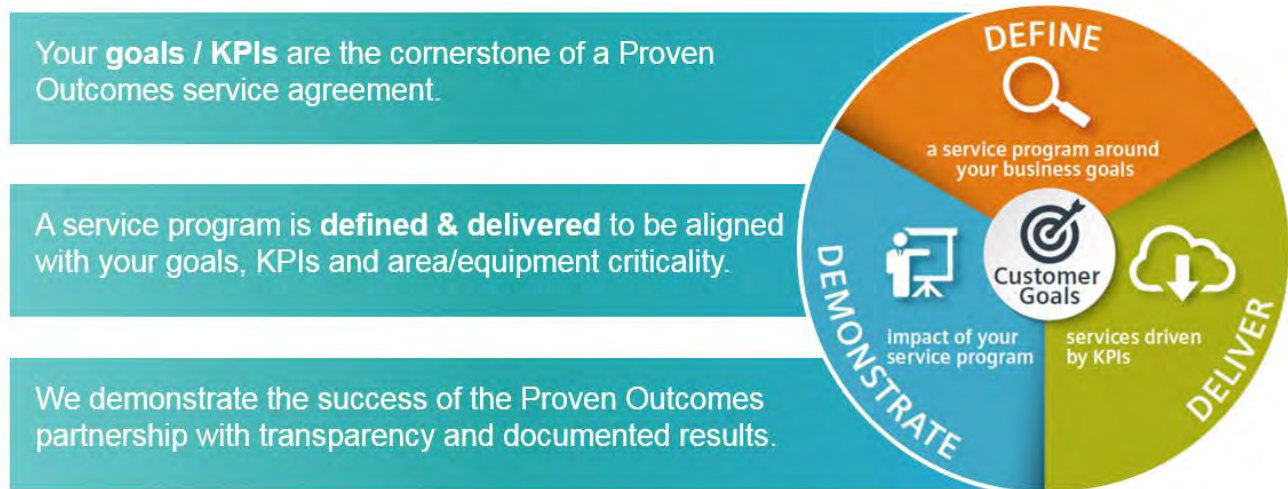
Taking a value-based approach to service, Siemens service professionals will work with the City of Miramar to define a personalized service program based on the goals and outcomes you need to achieve.

Performance Services include building and system services — backed by powerful digital tools — that improve building operations and ensure long-term efficiency, sustainability and reliability. We leverage our complete portfolio of services that include HVAC, building automation and energy management systems as well as fire safety and security to deliver a

service program tailored to your specific needs. Many of these services are offered as digital services that will enhance the capabilities of your facilities staff.

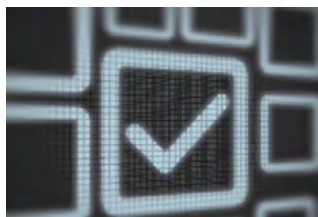
Proven Outcomes

Our Proven Outcomes performance-based service philosophy was designed to better help you achieve your goals through a personalized service program designed to deliver quantifiable value measured against your specific KPIs and goals. The results are demonstrated through reports that quantify your desired outcome and include such items as energy savings, percentage of uptime, productivity, percentage of satisfactory temperature, etc.



Building Automation Services

Below is a listing of some of the Building Automation Services that we provide within our four value categories to ensure that your automation systems and controls are performing at optimal levels, maintaining occupant comfort, and maximizing productivity and energy efficiency.



Manage System Operation & Compliance

- Preventative Maintenance Services
 - Data-driven Services
 - Proactive Services
 - Software
 - Controllers
 - Network
 - Digital & Pneumatic Controls
 - Third-party Services
- Compliance Audits
- Data Backup & Restore Services
- Responsive Services
- Sensor Verification
- Calibration Services
- Emergency Response Services
- Repair & Replacement Services
- System Performance Monitoring



Optimize Performance & Productivity

- Analytics Services
 - CloudOps - Automation
- System Optimizing Services
- Control Loop Tuning
- Integration Services
- Educational Services
- Operator Coaching
- On-site System Operator/Staffing Support Services
- Remote Management Services
- System Performance & Event Management



Protect Lifecycle Investment

- Lifecycle Planning
- Firmware Updates
- Software Updates
- Server & Client Workstation Upgrades
- Technology Migration
- System Retrofit & Extension Services



Enhance Energy Management & Sustainability

- Optimization
- Commissioning
- Facility Improvement Measures (FIMs)
- Performance Assurance

Mechanical Services

Siemens doesn't just take a test-and-inspect approach to Mechanical Services, but instead, we offer outcome-based mechanical services for heating, ventilation and air-conditioning (HVAC) systems that can help you get a handle on the rising costs of owning and operating your facilities. We will work with you upfront to identify where your operating costs are generated and where our services can help you make an impact and improve overall comfort.



**Manage System
Operation & Compliance**

- Preventative Maintenance Services
 - Air-Handlers
 - Boilers
 - Chillers
 - Computer Room Units
 - Cooling Towers
 - Fans
 - Filtration
 - Motors & Pumps
 - Package Units
 - VAV Boxes
 - VFDs



**Optimize Performance
& Productivity**

- Analytics Services
 - CloudOps - Mechanical
- Eddy Current Testing
- Thermographic Studies
- Vibration Analysis
- System Optimization Services
- Non-chemical Water Treatment
- Education Services
- Operator Coaching
- On-site System Operator/Staffing Support Services



**Protect Lifecycle
Investment**

- Comprehensive Maintenance Services
 - Lifecycle Planning
 - Preventative Maintenance
 - Predictive Maintenance
 - Emergency Response Services
 - Repair & Replacement Services
- Limited Access Equipment Installation for Confined Space
- System Retrofit & Extension Services



**Enhance Energy
Management & Sustainability**

- Commissioning
- Demand Flow Optimization Services
- Facility Improvement Measures (FIMs)



Emergency Service

Siemens can also provide 24/7 emergency service between scheduled preventive maintenance calls. Emergencies will be determined by the City of Miramar and Siemens and will be handled on a time and material basis. Siemens is able to respond to emergency calls within two (2) hours of the original call and next day service for routine service calls.

Section H Evidence of Financial Stability

Siemens Industry, Inc.

H. PROPOSERS SHALL PROVIDE EVIDENCE OF FINANCIAL STABILITY FOR THE LAST FIVE YEARS.

Financial Soundness

Siemens is a Fortune 500 Corporation with open financial statements that show outstanding financial stability and security. Selecting Siemens to serve as the Energy Services Company for the Miramar's guaranteed savings project is a prudent investment. Siemens is a 170-year old company, making us both one of the largest and oldest companies in the world. This is vitally important when considering that performance contracting agreements include ongoing guarantee commitments to the City for up to 20 years. Siemens' corporate independence and longevity provides the confidence that we will be with you for the long haul. Siemens is also proud to note its financial stability. Of the firms who may be competing for the City's business, Siemens maintains the highest credit ratings of A1 and A+ from Moody's and Standard and Poor's respectively.

Siemens is a large financially stable firm averaging annual revenues of approximately \$100B over the last 5 years. We have never entered bankruptcy proceedings. Although Siemens does occasionally acquire other firms to allow us to better serve our customers, we have never been acquired nor part of a merger. This fact is of particular note given the climate of instability and consolidation that many firms in the energy services and engineering industry have faced over the last decade. Siemens has watched competitors come into the market only to see them exit the market sometimes not even staying in the market 10 years. With the long term of Performance Contracting projects working with a firm that does not have a demonstrated long term commitment to the business can have devastating consequences.

STATEMENT OF FINANCIAL CONDITION

Siemens strong financial position is clearly demonstrated by our strong corporate credit ratings. Not only an indicator of our financial strength and dependability, Siemens superior credit rating affords our company access to the lowest cost capital. Lower cost of capital reduces our costs of operation and overhead. Lower cost of capital also allows Siemens to offer direct project financing at the lowest rates. The combined benefit of our lower cost of capital allows Siemens to offer superior value to City of Miramar compared to our competitors.

CREDIT RATINGS OF FLORIDA ESCOs

Ability to Meet Guarantee Obligations

Siemens maintains the highest credit rating in the industry. This includes all ESCOs currently active in Florida.

Moody's Credit Ratings		
Rating	Entity	Long - Term Ratings
Aaa		Rated as the highest quality and lowest credit risk
Aa1		
Aa2		
Aa3		
A1	Siemens	Rated as high quality and very low credit risk
A2	Honeywell	
A3	Schneider	
Baa1	Noresco*	Rated as upper medium grade and low credit risk
	AECOM	
Baa2	ESG*	
	Trane	
Baa3		Rated as medium grade with some speculative elements and moderate credit risk
Ba1	FPL Energy Services*	
Ba2		
Ba3		
Ameresco not rated by major credit agencies		
Johnson Controls not rated by Moody's. Rated BBB by S&P		
* ratings based on parent company		

FINANCIAL REPORT

We include in the appendices excerpts from Siemens' Annual Reports for the past five years including:

- Industry's Balance Sheet
- Consolidated Income Statements
- Cash Flow Statement
- Statement of Financial Position

To view the full 2019 Annual Report in its entirety, or to obtain additional financial information, please visit our website at: www.siemens.com and go to the "Investor Relations"

Siemens Industry's audited financials were prepared by:

Ernst & Young GmbH
201 South Biscayne Blvd, Suite 3000
Miami, FL 33131
Phone: (305) 358-4111

A hand holding a lightbulb with a jagged line graph overlaid on a blue background. The lightbulb is held in the center, and the hand is visible on the right side. The background is a solid blue color. Overlaid on the background is a jagged line graph with multiple lines in white, yellow, green, and purple. The lines are jagged and fluctuate across the frame. The text "Section I Prior or Pending Litigation or Investigation" is written in white on a dark blue rectangular background at the bottom right of the image.

Section I Prior or Pending Litigation or Investigation

Siemens Industry, Inc.

I. PRIOR OR PENDING LITIGATION OR INVESTIGATION

Describe any prior or pending litigation or investigation, whether civil or criminal, involving a governmental agency or which may affect the performance of the Services to be rendered herein, in which the Proposer, any of its employees (while in the performance of their duties), Subcontractors or Subconsultants (if any) is or has been involved within the last five years.

Siemens Industry, Inc., a subsidiary member of Siemens Corporation, is a multi-billion dollar company involved in wide ranging construction projects. As such Siemens Industry, Inc. has been involved in miscellaneous litigation (e.g., collection of fees, workers' compensation, etc.) arising out of its business, none of which are of a material nature, individually or collectively, as to adversely impact its ability to completely and satisfactorily perform any of its projects.

Each contractor and consultant that Siemens has partnered with for the City of Miramar project has acknowledged and attested that they have not been subject to any claims or litigations, whether civil or criminal, involving a governmental agency within the last five years.

Section J Prior Complaints

Siemens Industry, Inc.

J. PRIOR COMPLAINTS

Describe and explain any prior complaints (both substantiated and inconclusive) filed with any governmental agency against the Proposer or any of its employees (while in the performance of their duties), Subcontractors or Subconsultants (if any) within the last five years.

Siemens Industry, Inc. and the subcontracted project team have never been suspended or barred from transacting business with any federal, state or local governmental agency or body.



Section K Errors and Omissions


Siemens Industry, Inc.

K. ERRORS AND OMISSIONS

Confirm in your Proposal that your firm has errors and omissions insurance and identify the carrier and amounts.

Please see Siemens' professional liability insurance policy information below.

Professional Liability (Errors and Omissions)		
Insurance Carrier:	HDI - Gerling America Insurance Company	
Address:	161 North Clark St. 48th Floor Chicago, IL 60601	
AM Best Rating: A	AMBEST #: 085259	Financial Size: XV NAIC#: 41343
Policy #:	EOD5618800	Anniversary Rating Date: October 1, 2019
Policy Period:	10/1/19 – 10/1/20	
Claims Based:	YES	
Limits	Current	Max Obtainable
Policy Limit:	\$1,000,000	\$5,000,000
Project Specific Limit:	\$1,000,000	\$5,000,000
Extended Reporting Tail:	Warranty period	Negotiable
Prior Acts:	Yes	
Deductible:	\$1,000 each claim	

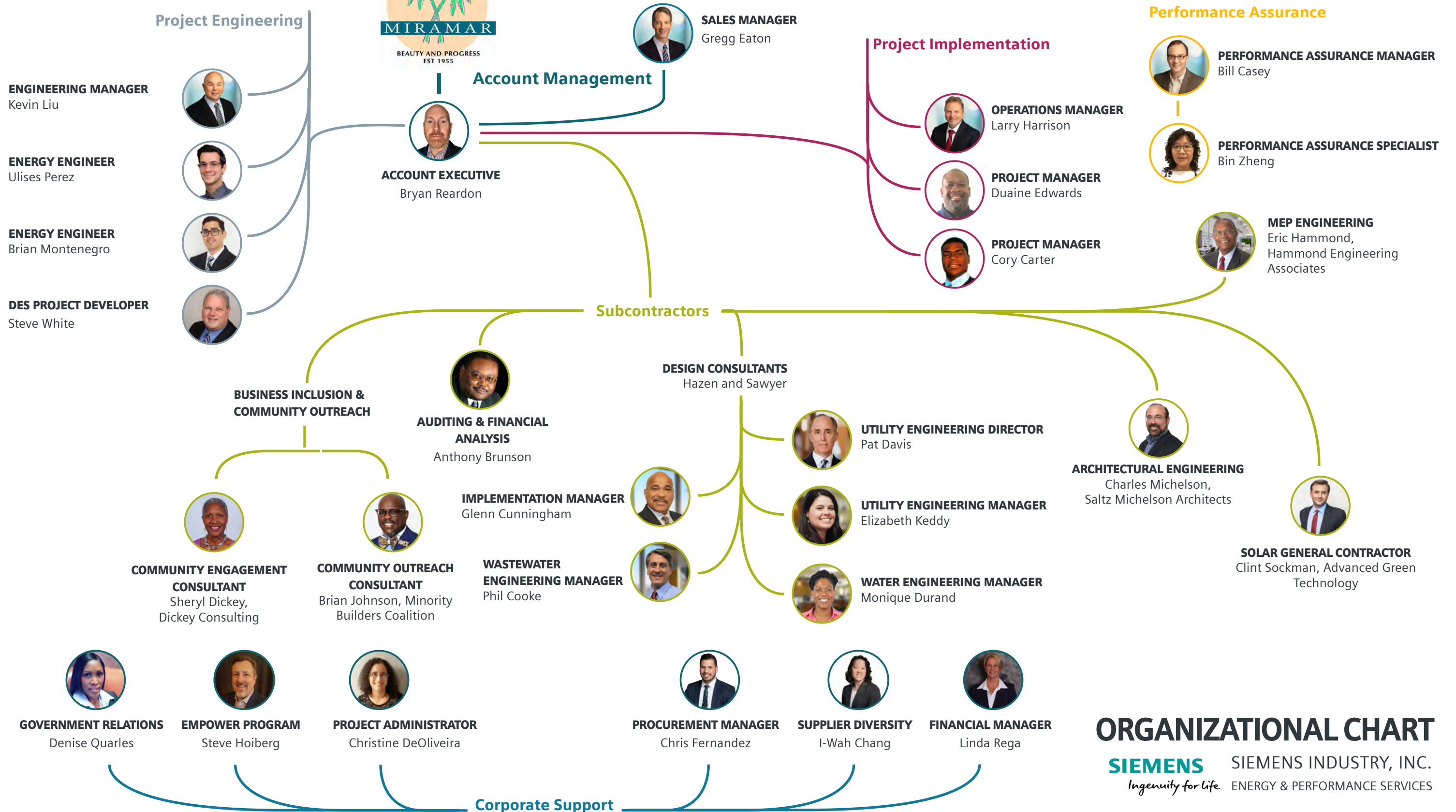
The background of the page features a high-angle, silhouetted photograph of a group of business professionals in a meeting. They are seated around a table, with some leaning forward and others looking towards the center. The setting appears to be a modern office with large windows, as a city skyline is visible in the background. The lighting is warm, suggesting late afternoon or early morning. The overall tone is professional and collaborative.

Section L Key Personnel and Subcontractors or Subconsultants

Siemens Industry, Inc.

L. KEY PERSONNEL AND SUBCONTRACTORS OR SUBCONSULTANTS.

i. Provide an organizational chart showing all individuals, including their titles, who will perform any Work under the Contract. This chart must clearly identify the Proposer’s employees and those of the Subcontractors or Subconsultants (if any).



ii. Describe the expertise of your firm’s professional staff for both the local office and the entire organization

Describe the experience, qualifications, and other relevant information, including relevant experience on similar contracts, for all key individuals and Subcontractors or Subconsultants (if any) who will perform Work under the Contract. This information shall include functions to be performed by key individuals, Subcontractors or Subconsultants to include the number of professionals in each of the following categories: 1) Licensed architectural/engineering consultants; 2) Unlicensed technical support staff; and 3) Administrative staff



Bryan Reardon

- ✓ Siemens’ Florida local government vertical market lead
- ✓ 19 years in the energy business
- ✓ Total project experience in Florida valued at \$120M



Gregg Eaton

- ✓ 26 years developing energy projects
- ✓ LEED Green Associate
- ✓ Energy project experience in Florida as regional sales manager valued at over \$169M



Kevin Liu

- ✓ Registered Professional Engineer
- ✓ 23 years designing energy systems and solutions
- ✓ Certified Energy Manager



Ulises Perez

- ✓ LEED-AP accreditation and EIT certification
- ✓ Masters of Science in Industrial Engineering
- ✓ Engineering experience includes over \$100M in Florida projects



Cory Carter

- ✓ 14 years in the energy business with Siemens
- ✓ Certified Project Management Professional



Chris Fernandez

- ✓ ESCO Field Procurement Manager for the Southeast States
- ✓ 5 years with Siemens
- ✓ Started Siemens career as an intern

Steve White



- ✓ 21 years of energy-related experience
- ✓ Registered Professional Engineer
- ✓ Responsible for financial analysis and modeling as well as solar project development



Duaine Edwards



- ✓ Over 20 years in the energy business
- ✓ Certified Project Management Professional
- ✓ \$66M in energy projects managed with Siemens



I-Wah Chang



- ✓ Certified Professional in Supplier Diversity
- ✓ Siemens' subject matter expert for WMBE participation across the US
- ✓ Leads the project team in developing feasible and responsible supplier diversity plans



Brian Montenegro



- ✓ Certified Energy Manager
- ✓ Certified Energy Auditor
- ✓ Energy Engineering experience includes Deerfield Beach, Broward County, and Fort Lauderdale





John Kelly

- ✓ 30 years of experience in the energy business
- ✓ Licensed Professional Engineer in Florida
- ✓ Certified Building Contractor in Florida



Bin Zheng

- ✓ 19 years in the energy industry
- ✓ Ph.D. in Architectural Engineering
- ✓ Licensed Professional Engineer



Larry Harrison

- ✓ 25 years of facility and project management experience with Siemens
- ✓ Certified Project Management Professional
- ✓ Siemens Global Certification in Large Project Organization



Chris Summers

- ✓ Florida Licensed Professional Engineer
- ✓ Certified Building Contractor
- ✓ Over 25 years of energy related experience



Joe Summerlin

- ✓ 22 years in the energy business
 - ✓ HVAC Journeyman and Certified Energy Manager
-

Licensed architectural/engineering consultants

Name	Role	License(s)
Chris Summers	National Engineering Manager	Professional Engineer, FL Certified Building Contractor, FL
John Kelly, PE	Engineering Design	Professional Engineer, FL Certified Building Contractor, FL
Kevin Liu	Regional Engineering Manager	Professional Engineer, TX #97483
Steve White	DES Development	Professional Engineer, VA
Bin Zheng	Performance Assurance	Professional Engineer
Pat Davis	Water/Wastewater Engineering	Professional Engineer, FL 37167
John Cooke	Water/Wastewater Engineering	Professional Engineer, FL 47137
Elizabeth Keddy	Water/Wastewater Engineering	Professional Engineer, FL 82042
Monique Durand	Water/Wastewater Engineering	Professional Engineer, FL 71393
Charles Michelson, AIA, ACHA, LEED AP	Architectural Consultant	Registered Architect; Florida #9976
Eric Hammond, PE	MEP Consultant	Professional Engineer, Florida PE39048
Clinton Sockman,	Solar General Contractor	NABCEP #PV-101913-002781 Florida Certified Solar Contractor: CVC56792 Florida Roofing Contractor: CCC1329557 Florida Certified General Contractor: CGC1521128

Unlicensed technical support staff

Name	Role
Ulises Perez, CEM	Energy Engineer
Brian Montenegro, CEM	Energy Engineer
Duaine Edwards, PMP	Project Manager
Cory Carter, PMP	Project Manager
Joe Summerlin, CEM	Service Manager
Larry Harrison, PMP	Regional Implementation Manager

Administrative staff

Name	Role
Bryan Reardon	Account Executive
Gregg Eaton	Regional Sales Manager
Chris Fernandez	Procurement
I-Wah Chang	Supplier Diversity
Linda Rega	Financial Manager
Denise Quarles	Government Relations
Steve Hoiberg	Empower STEM Program
Christine DeOliveria	Project Administrator

iii. Describe the team that would serve the City

List each team member's role on this Engagement, professional designation, qualifications, experience, education, and clients with similar services.

ENERGY & PERFORMANCE SERVICES • NATIONAL MANAGEMENT

Key to the effectiveness and success of each of the Siemens team's performance contracts is our complete organization alignment towards our total commitment to meeting and exceeding every promised outcome to our customers. This alignment is driven by John Kovach, Head of Energy Performance Services (EPS) business in the Americas. Prior to this role, he was head of Distributed Energy Services (DES) for four years, where he led a team dedicated to helping public entities and private sector companies make smart, sustainable investments in distributed energy systems. In this role, John was responsible for driving growth across the Siemens DES portfolio and driving excellence in customer project execution by establishing DES regional operations around the world.

Previously, John served as Global Head of the Siemens Data Centers Center of Competence leading the worldwide organization responsible for sales, operations, strategy and product development. John's tenure with Siemens has spanned 20 years, progressing through roles in engineering, sales management, channel marketing, project management, market development and leadership.

NATIONAL Management by Function

- **Dana Rasmussen**

As the Head of Sales for Energy & Performance Services (EPS), Dana is responsible for developing and managing Siemens ESCO business across North America. This includes the development and delivery of performance contracting and energy efficiency programs and services. Dana is active with state government, state agencies and industry working groups to introduce and influence new legislation to improve energy efficiency policy and programs, and works closely with mayors, city councils, school superintendents, higher education management and healthcare professionals to provide energy efficient solutions to their organizations.

- **Chris Summers**

As the Head of Engineering for Energy & Performance Services (EPS) in North America, Chris is responsible for general business activities including improving processes and business functions, departmental training oversight, and strategic plan development. His involvement increases customer satisfaction, helps to meet business objectives, and enhances communication with stakeholders.

- **Frank Gagliardi**

As the Head of Implementation for Energy & Performance Services (EPS), Frank is responsible for the project implementation of all performance contracting projects in North America. He leads a team of Operations Managers and other professionals that are responsible for the contractual implementation of projects, ensuring they are delivered on schedule, within budget, and at a high level of quality and customer satisfaction. Frank and the Operations Managers that he oversees, coach and support project teams during the development, planning and implementation phases on a variety of methods and activities. His passion for excellence in project execution and customer satisfaction is the driving force behind his work.

- **Matthew Walters**

Matthew leads the Distributed Energy Systems (DES) group, which is dedicated to helping public

and private sector companies make smart, sustainable investments in distributed energy systems. Matthew was appointed to head the Center of Competence in 2015, driving the growth of Siemens' broad DES portfolio including power generation, controls, technology/engineering expertise, financial offerings, new business models and establishing Siemens as a leader in DES.

Additional Support

All financial and legal matters relative to the performance contract agreement with the City of Miramar will be spearheaded by our Senior Legal Counsel, **Marc Bouchard**, and Director of Financial Services for Energy, **Linda Rega**. Both Marc and Linda have extensive experience in contract execution, financial management and complex negotiations. Their combined experience and knowledge of performance contracting will be a valuable asset to the City throughout the project.

SIEMENS: YOUR LOCAL ENERGY PARTNER WITH NATIONAL RESOURCES

The City of Miramar Energy, Water, & Waste Water Savings Performance Contract Project will be executed locally beginning with the audit phase through construction and our post project performance assurance commitments. Siemens will assign a single point of contact to work with the City throughout the entire process. Our single point of contact will be the Account Executive, **Bryan Reardon**. Bryan is experienced in leading teams in the evaluation, development and execution of tailored designs and solutions. Bryan is fully dedicated to serving Florida's local government market and he is very familiar with the types of facilities, infrastructure and operations of South Florida's municipalities. Bryan has over 20 years of energy services and consulting experience. He is an outstanding communicator and will continually update the City throughout the project process, ensure Siemens' team is meeting scheduled milestones, and that project deliverables meet the expectations of the City.

Gregg Eaton, Siemens' regional sales manager will support Bryan providing oversight and insuring allocation of corporate resources. As an effective communicator and experienced team leader, Mr. Eaton directs and motivates with an approach that fosters cohesive team alignment and effective resource scheduling while advancing projects which satisfy critical client interests.

All project activities for the City of Miramar will all be handled from our local South Florida headquarters located at 3021 N. Commerce Pkwy, which is less than 2 miles from Miramar's City Hall. As indicated above, Bryan will be your single point of contact throughout all phases. **Bryan can be reached at (727) 512-2220.**

Technical Development & Design

For this project, Siemens will utilize our in-house energy engineering staff to anchor the comprehensive energy audit phase of the program. This team has supported numerous performance contracts for local government in Florida. The engineering team is managed by **Kevin Lui** who is a licensed Professional Engineer. Kevin, along with the Siemens engineering team, is well-versed in the Florida Energy Code as well as the requirements of FS489.145 which regulates Performance Contracting Projects for Local Governments within the State. Other key engineering team members for the City of Miramar include **Ulises Perez**, a Certified Energy Manager who will be the lead energy engineer for the project. Ulises will be assisted with the technical analysis by **Brian Montenegro**, also a Certified Energy Manager and LEED-GA. Ulises & Brian have over 15 years of combined energy related experience, much of which has been in the municipal arena. The development team also includes specific subject matter experts for key specialty disciplines:

- John Kelly – HVAC design and controls sequencing
- Steve White — Distributed and renewable energy systems
- Hazen and Sawyer — Water and Waste Water Processes
- Hammond & Associates — General MEP Design

Project & Construction Management

We understand the importance of choosing a company to work with that is knowledgeable about the local construction industry. The construction execution of the Miramar's Energy Savings Project will be handled by **Cory Carter** and **Duaine Edwards**. Cory and Duaine have a combined 35 years of experience specializing in the energy efficiency industry, and both have considerable experience managing performance contract projects in the municipal market. The project implementation team is managed by **Larry Harrison** who has over 25 years of construction management experience with Siemens.

The Siemens procurement team have partnership agreements and national buying power, which allows us to secure the best materials and pricing for the City. Siemens is a large company with global presence, which means we are able to foster and develop long lasting relationships with a wide variety of subcontractors and suppliers. **Christopher Fernandez** is Siemens' local procurement manager devoted to the Florida market and will oversee all project related procurement activities.

Siemens recognizes the important role that Performance contracting projects can play in promoting local economic development and supporting essential local and small businesses. **I-Wah Chang** heads up Siemens small business outreach program to help cultivate relationships with small and MWBE companies, to be able to work with Siemens and have access to continual Siemens subcontractor opportunities establishing working relationships that are beneficial to all parties. To support I-Wah's our local business inclusion programs, Siemens has also partnered with local organizations **Dickey Consulting** and the **Minority Builders Coalition**.

Performance Assurance

Our ongoing performance assurance services are vital in ensuring our guarantee commitments are met. Siemens' Digital Services Center will ensure that all implemented FIMs function correctly and deliver the savings guaranteed by the program. **Bill Casey**, CEM, CMVP, is our Performance Assurance Operations Manager, and manages the performance assurance and measurement and verification (M&V) team. This group is responsible for all performance assurance activities over the course of a project. They will ensure that the City of Miramar is aware of and in concurrence with all aspects of our M&V and Performance Assurance processes before, during and after implementation. If a problem is detected, they will contact the City immediately so that corrective measures can be taken to preserve the project savings and occupant comfort. The Digital Services Center will also provide the City with ongoing M&V reports for the duration of the program. The Digital Services M&V Team is supported locally by **Bin Zheng**, Siemens's locally based Performance Assurance Engineer. Bin will work with the City of Miramar's staff to conduct regular site visits to help confirm proper system operations and to provide additional insights into how the City can maximize the efficiency of your new equipment.

Proper maintenance and operation of your new systems is an essential component of a successful performance contract. **Joe Summerlin** will act as your local point of contact for staff training and maintenance services. Joe is a Certified Energy Manager who has been with Siemens for over 25 years. In addition to the overseeing the City of Miramar's customized training and maintenance programs, Joe will also participate with the development and implementation teams for project aspects such as mechanical system upgrades and building automation.

iv. Provide resumes with job descriptions

and other detailed qualifications and information on all key personnel who will be assigned to the Contract, including any Subcontractors or Subconsultants. The phrase “all key personnel” includes all partners, managers, senior employees and other professional or technical staff that will perform Work under the Contract.



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Bryan Reardon has over 20 years of industry specific experience serving as his customer's primary point of contact; maintaining overall responsibility for both the solution and project implementation. His core duties as an Account Executive and Project Leader include driving solutions which satisfy the critical needs of the customer, project team strategy and process, financials, contract negotiations and finalizing implementation. Post-implementation he maintains ongoing relationships with his clients to explore additional opportunities for future energy savings.

Mr. Reardon works to identify and oversee all project aspects and team members for successful execution of the identified solution(s), ensuring that the client's vision and objectives are fully achieved. His knowledge is reflected in frequent speaking engagements where he educates audiences on government related Smart City technologies and additional topics which pertain to Florida's energy infrastructure industries; current challenges and how the various elements are evolving to create innovative solutions. In addition to industry recognized speaking events, he is a current member of the Florida League of Cities Legislative Action Committee.

CONTACT

Email: bryan.reardon@siemens.com

Bryan Reardon

Account Executive

EXPERIENCE

- Siemens Industry, Inc. (2015 - present) Account Executive
- 20 years of energy related experience

EDUCATION

- Masters of Arts for Industrial & Organizational Psychology; Appalachian State University
- Bachelors of Arts in Psychology; Furman University

KEY PROJECTS

- | | |
|--|---|
| ■ City of Deerfield Beach; FL | ■ City of West Palm Beach Phases I & II; FL |
| ■ Broward County Government, FL | ■ Pinellas County Schools Phases I to VII; FL |
| ■ City of Fort Myers; FL | ■ City of Marathon Phases I & II; FL |
| ■ Florida Government Utility Authority; FL | ■ City of Hollywood; FL |
| ■ City of Lake Worth; FL | ■ City of Ocala; FL |
| ■ City of Gulf Breeze; FL | ■ Leon County Phases II & III; FL |
| ■ City of Inverness; FL | |
| ■ City of Brooksville; FL | |



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Gregg Eaton is responsible for the management of the Siemens Energy Performance and Sustainability sales team within the Southeast Region of the US. Since 1994, Mr. Eaton has developed a wide variety of future-proof energy savings projects, paving the way for highly successful outcomes.

As an effective communicator and experienced team leader, Mr. Eaton directs and motivates with an approach that fosters cohesive team alignment and effective resource scheduling while advancing projects which satisfy critical client interests.

His core responsibilities also include strategic approaches which ensure that client requirements are fully captured within the overall project vision, from the initial planning phases to contractual reviews and final project execution. This enables development of clearly defined and executable plans while leveraging his extensive leadership and industry relevant experience. Mr. Eaton works to achieve efficient practical solutions that define appropriate strategies with minimal revisions during the lifecycle of the project to solidify success and enable capabilities for future strategic plans.

CONTACT

Email: gregg.eaton@siemens.com

Gregg Eaton

Regional Sales Manager

EXPERIENCE

- Siemens Industry, Inc. (2008 - present) Sales Manager
- 26 years of energy related experience

EDUCATION

- Bachelor of Arts in Economics; Connecticut College

KEY PROJECTS

- | | |
|--|--|
| ■ City of Deerfield Beach; FL | ■ College; FL |
| ■ Florida Atlantic University; FL | ■ Florida State University, Civic Center; FL |
| ■ Florida State University; Outdoor Lighting; FL | ■ City of Lake Worth; FL |
| ■ University of Florida; Veterinary Medicine; FL | ■ City of Hallandale Beach; FL |
| ■ City of Fort Myers; FL | ■ Florida Institute of Technology, Ph 2; FL |
| ■ Florida Gateway College; FL | ■ Charlotte County; FL |
| ■ Florida State University, BioMed; FL | ■ University of Florida, IFAS; FL |
| ■ Florida Governmental Utility Authority; FL | ■ Lynn University; FL |
| ■ Tallahassee Community | ■ Florida Memorial University; FL |
| | ■ Florida A&M University; FL |

CERTIFICATIONS

- LEED Green Associate



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Ulises Perez has over a decade of energy engineering experience pertaining to infrastructure environments. In his role as Senior Energy Engineer, he is responsible for a broad range of program components such as establishing baselines, site field surveys, identifying improvement measures, feasibility audits, investment grade audit reports, developing financial models with complex cashflows, designing and implementing contracted facility improvement measures, overall project management support and assisting the performance assurance team for the duration of the performance guarantee.

Mr. Perez places considerable emphasis on client engagement to build an open rapport; working directly with customers to determine the appropriate future-proof solution. With his outside the box approach, client programs have greatly benefited due to his proactive customer communications, such as brainstorming sessions where Mr. Perez and the customer accurately analyze challenges and put forth viable solution choices, potentially with additional hidden energy savings.

CONTACT

Email: ulises.perez@siemens.com

Ulises Perez

Energy Engineer

EXPERIENCE

- Siemens Industry, Inc. (2012 - present) Energy Engineer
- 12 years of energy related experience

EDUCATION

- Masters of Science in Industrial Engineering; University of Miami
- Bachelor of Science in Mechanical Engineering with a Minor in Mathematics; University of Miami

KEY PROJECTS

- | | |
|--|-----------------------------------|
| ■ City of Deerfield Beach, FL | ■ Florida Memorial University; FL |
| ■ Broward County Government, FL | ■ City of Oviedo; FL |
| ■ City of Fort Myers; FL | ■ City of Sarasota; FL |
| ■ Florida Government Utility Authority; FL | ■ City of Pompano Beach; FL |
| ■ City of Lake Worth; FL | ■ Broward County Schools Ph 2; FL |
| ■ City of Hallandale Beach; FL | ■ Miami-Dade County Ph 2; FL |
| ■ City of Clearwater; FL | |

CERTIFICATIONS

- LEED-AP (Accredited Professional)
- Certified Energy Manager
- EIT (Fundamentals of Engineering Test)



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Brian Montenegro serves as one of Siemens's key Senior Energy Engineers and is responsible for addressing a wide array of client needs, from the initial feasibility studies to the final completion of the project at close-out.

His core professional philosophy for project success relies upon developing strong partner-based relationships with both clients and internal stakeholders. His approach is established on proactive, regular and open communications to shape partnerships which address what Siemens can accomplish beyond initial energy savings. His proactive communication methods enable him to extract details which are pertinent to the program beyond data calculations and provide a comprehensive solution where additional customer requests have bearing on the packaged solution.

Mr. Montenegro is responsible for overall solution development where client needs are anticipated with applicable future growth avenues factored into the project. He produces feasibility studies, investment grade audits, data-based requirements such as cost calculations within highly complex financial models, field surveys, equipment analysis and verification, utility data analysis and usage baselines as well as project reviews. Post-construction, he is actively engaged in performance assurance activities for the duration of the performance guarantee.

CONTACT

Email: brian.montenegro@siemens.com

Brian Montenegro

Energy Engineer

EXPERIENCE

- Siemens Industry, Inc. (2015 - present) Energy Engineer

EDUCATION

- Master of Science in Engineering Management; Florida International University
- Bachelor of Science in Mechanical Engineering; University of Florida

KEY PROJECTS

- City of Deerfield Beach; FL
- Lynn University; FL
- City of Lake Worth; FL
- Broward County; FL

CERTIFICATIONS

- Certified Energy Manager (CEM)
- Certified Energy Auditor (CEA)



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. John Kelly has over 30 years of experience within a variety of engineering management roles pertaining to energy infrastructure environments. His industry related expertise includes development of initial feasibility studies, comprehensive investment grade audit reporting and overall solution development where client needs are anticipated with future growth avenues factored into the project. In addition, Mr. Kelly is responsible for cost calculations within complex financial models, equipment analysis and verification, field surveys and project reviews, ongoing team leadership and coaching as well as leading the performance assurance team for the duration of the program performance guarantee to ensure maximum operational efficiency that meets or exceeds contractual targets.

Mr. Kelly takes pride in developing future-proof system solutions that seamlessly form a program where all aspects work together cohesively, including overall design, equipment, machinery and assigned staff. His industry related proficiency allows for anticipating unforeseen or highly complex client challenges and conceptualizing innovative solutions.

CONTACT

Email: john.kelly@siemens.com

John Kelly

Design Engineer

EXPERIENCE

- Siemens Industry, Inc. (2015 - present) Design Engineer
- 30 years of energy related experience

EDUCATION

- Master of Engineering Management; University of Central Florida
- Bachelor of Science in Mechanical Engineering; University of Florida

KEY PROJECTS

- | | |
|---|--------------------------------------|
| ■ Columbia International University; FL | ■ Pinellas County Schools Ph 7; FL |
| ■ University of Florida; FL | ■ MK Rawlings School Renovations; FL |
| ■ Florida Gateway College; FL | ■ Pinellas County Schools Ph 6; FL |
| ■ Tallahassee Community College; FL | ■ Pinellas County Schools Ph 5; FL |
| ■ Lynn University; FL | ■ Leon County Courthouse; FL |
| ■ City of Inverness; FL | ■ Pinellas County Schools Ph 4; FL |
| ■ City of Gulf Breeze; FL | |
| ■ City of Brooksville; FL | |

CERTIFICATIONS

- Licensed Professional Engineer; Florida
- Certified Building Contractor; Florida
- General Contractor; South Carolina



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Responsible for the development and successful completion of co-generation and renewable energy projects. Specific responsibilities include: Financial and engineering management, financial analysis and cash flow modeling, structured project financing, project valuation development, budget analysis and execution, data synthesis and analysis for energy markets and system design and construction.

CONTACT

Email: steve.white@siemens.com

Steve White

DES Project Developer

EXPERIENCE

- Siemens Industry, Inc. (2013 - present) Project Developer
- 21 years of energy related experience

EDUCATION

- BS in Civil Engineering, Virginia Tech
- MBA, Concentration in Finance, University of North Carolina at Charlotte

KEY PROJECTS

- | | |
|--------------------------------|---------------------------------|
| ■ City of Lake Worth, FL | ■ Three Rivers Landfill Gas, SC |
| ■ Greer/Greenville CNG | ■ Iredell County Landfill Gas |
| ■ Lambert Airport CNG | ■ Lynchburg Landfill Gas, VA |
| ■ Bear Valley District | ■ Deerfield Beach, FL |
| ■ Baton Rouge Landfill Gas, LA | |

CERTIFICATIONS

- Registered Professional Engineer, Virginia
- LEED Green Associate



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Energy Operations Manager with primary, supervisory responsibility for overseeing the engineering team, involving subject matter experts and providing processes to optimize energy projects for clients.

- Management of engineering, reviewing savings calculations and costs.
- Performance contract management.
- Complex energy management systems and mechanical projects.
- Design of mechanical and lighting system improvements.
- Development and implementation of turnkey engineered systems.
- Technical presentations to customers.

CONTACT

Email: kevin.liu@siemens.com

Kevin Liu

Regional Engineering Manager

EXPERIENCE

- Siemens Industry, Inc. (2000 - present) Engineering Manager
- 23 years of of experience with the design and implementation of energy systems and solutions

EDUCATION

- Louisiana State University • BS, Mechanical Engineering

KEY PROJECTS

- State and Local Government: City of Houston, TX; City of Willis, TX; City of Pearland, TX; City of Rosenberg, TX; City of Bellaire, TX; City of Port Arthur, TX
- Federal: Lackland Air Force Base, TX; Laughlin Air Force Base, TX; Dyess Air Force Base, TX

CERTIFICATIONS

- Registered Professional Engineer, TX (License #97483)
- Certified Energy Manager



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Christopher (Chris) Summers is the Director of Engineering for Siemens Energy Performance and Sustainability in the United States. For nearly three decades, his leadership has led Florida's energy infrastructure improvement programs to highly successful outcomes, enabling capabilities for future strategic plans.

Mr. Summers places a focused interest upon the successful selection of a well-rounded and highly skilled operational team. He targets industry experts that understand critical client requirements and provide relationship critical skills that ensure client satisfaction during all project lifecycle phases. He navigates his team and their assigned programs through all phases of the performance contract, including initial sales, budget and finance, audits and engineering, planning and solution development, ongoing performance and client contract maintenance. These carefully selected professionals respond to critical needs with detailed and concise solutions that not only mitigate and correct pressing issues, they develop solutions which evolve the way our clients live and work.

CONTACT

Email: christopher.summers@siemens.com

Chris Summers

National Head of Engineering, EPS

EXPERIENCE

- Siemens Industry, Inc. (2014 - present) Engineering Manager
- 27 years of energy related experience

EDUCATION

- Masters of Mechanical Engineering; University of South Florida
- Bachelors of Mechanical Engineering; University of South Florida

KEY PROJECTS

- | | |
|--|---|
| ■ City of Deerfield Beach | ■ BioMed |
| ■ Broward County Government | ■ Tallahassee Community College |
| ■ Florida Atlantic University | ■ City of Lake Worth |
| ■ University of Florida, Veterinary Medicine | ■ Florida Institute of Technology, Ph 2 |
| ■ City of Fort Myers | ■ University of Florida, IFAS |
| ■ Florida Government Utility Authority | ■ City of Gulf Breeze |
| ■ Florida State University, | ■ City of Inverness |

CERTIFICATIONS

- Professional Engineer (PE); Florida & South Carolina
- Certified Building Contractor; Florida



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Duaine Edwards is a Certified Project Manager (PMP) with over 20 years of experience specializing in the energy efficiency industry, focused on establishing and maintaining strong working relationships with his clients.

Mr. Edwards acts as the Senior Project Manager for the duration of the entire program lifecycle. He is responsible for a variety of duties including audit management, developing and executing project specific safety plans, managing on-site field inspections to verify work performed meets quality standards with intent of engineering design, management of critical path schedules, administration of project changes and financial budgets.

His work approach includes a critical focus on truly understanding the needs of the customer while demonstrating a high degree of integrity and accountability; allowing full engagement with the client. This philosophy reflects a dedicated and vested interest in the successful development and operational execution excellence for all assigned projects. A key strength within his relationship building skillset includes the application of extensive industry knowledge to educate and navigate clients to highly successful outcomes despite changing circumstances.

CONTACT

Email: duaine.edwards@siemens.com

Duaine Edwards

Project Manager

EXPERIENCE

- Siemens Industry, Inc. (2002 - present) Project Manager
- 20 years of energy related experience

EDUCATION

- Bachelor of Science in Electrical Engineering;
- Florida A&M University & Florida State University

KEY PROJECTS

- | | |
|---|---------------------------------------|
| ■ City of Fort Myers; FL | University; FL |
| ■ City of Palatka | ■ Lynn University; FL |
| ■ Housing & Urban Development (HUD); FL | ■ City of Pompano Beach; FL |
| ■ Charlotte County; FL | ■ Florida Institute of Technology; FL |
| ■ City of Belle Glade; FL | ■ Florida Memorial University; FL |
| ■ Florida Memorial | |

CERTIFICATIONS

- Project Management Professional (PMP)



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

As a certified Project Manager (PMP), Mr. Carter's approach is based upon the philosophy that the cornerstone of a successful project points directly to trust-based client relationships which include open and clear lines of communication.

He fully manages assigned projects during the entire program lifecycle by continuously monitoring, evaluating and determining project health; adjusting the roadmap as required. Mr. Carter's core duties are primarily focused on management of the engineering team during audit phases, establishing a project specific safety plan, oversight of field inspections, ensuring all work performed meets or exceeds critical quality standards, balancing project changes, scheduling resources and staff as well as maintaining full financial control of the project.

In cases where urgent action is required, Mr. Carter is adaptive and highly responsive with a prompt flexible approach. His industry specific project management expertise maintains a cohesive team unit, inclusive of all internal project staff and external client stakeholders when needs and requirements vary or even appear to be conflicting. This approach establishes continuous alignment of project scope and efficiency of progression while offering flexibility to modify the program as required.

CONTACT

Email: cory.carter@siemens.com

Cory Carter

Project Manager

EXPERIENCE

- Siemens Industry, Inc. (2005 - present) Project Manager
- 15 years of energy related experience

EDUCATION

- MBA; Business Administration and Management; Belhaven University
- Bachelor of Science in Industrial Technology; Mississippi State University

KEY PROJECTS

- Broward County Government
- City of Fort Myers; FL
- City of Monticello; AR
- City of Crystal Springs; MS
- Washington County; MS
- City of Vicksburg; MS
- City of Monroe; LA
- Greenwood Housing Authority; MS

CERTIFICATIONS

- Project Management Professional (PMP)



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Larry has over 25 years of facility and project management experience with Siemens in a variety of vertical markets. His projects have ranged from interior energy upgrades and renovations to managing the design and construction effort of a 144,000 sq. ft. Sport Fisheries Hatchery for the Department of Fish & Game. His experience in project management has included: establishing and maintaining strong working relationships with customers; assisting engineering teams during audit development; establishing and facilitating project specific safety plans; identifying, managing and mitigating project specific risks; managing on-site field inspections to ensure work performed meets project quality standards and the overall intent of the engineering design; created and managed project critical path schedules; managed project changes with customers and subcontractors; facilitated on-site meetings with subcontractors, engineers and the customer; managed RFIs; managed the submittal process; and managed full financial control of the project.

CONTACT

Email: larry.harrison@siemens.com

Larry Harrison

Regional Operations Manager

EXPERIENCE

- 25 years of energy related experience

EDUCATION

- University of Wisconsin, Madison School of Business — Project Management

KEY PROJECTS

- | | |
|--|---|
| <ul style="list-style-type: none"> ■ Higher Education:
Columbia International University, Tallahassee Community College, Florida State University (BioMed), Florida Atlantic University, University of Florida (Veterinary Medicine), Florida Gateway College | <ul style="list-style-type: none"> ■ State and Municipal:
Broward County, FL; Charlotte County, City of Lake Worth, City of Hallandale, City of Pompano Beach, City of Deerfield Beach, City of Fort Myers |
|--|---|

CERTIFICATIONS

- Project Management Institute – Project Manager Professional (PMP) Certification
- Siemens Large Project Organization Global Certification
- U.S. Corps of Engineers Energy Management in Federal Facilities Certification
- OSHA General Industry Safety and Health Certification



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Responsible for managing the ongoing customer relationship and ensuring customer satisfaction. Duties include ensuring customer satisfaction is achieved, assisting customers determine and attain long term goals, developing HVAC, BMS, and Electrical Services projects. Responsible for assembling and aligning Siemens internal team.

Joe Summerlin joined the Siemens team in 1993; during his tenure he has held positions at multiple levels within the service department. Joe brings a combination of customer relationship experience and technical knowledge to our project team.

CONTACT

Email: joe.summerlin@siemens.com

Joe Summerlin

Service Manager

EXPERIENCE

- Siemens Industry, Inc. (2013 - present) Service Account Executive
- 28 years of energy related experience

EDUCATION

- HVAC Class A Journeyman, Local 725

KEY PROJECTS

- | | |
|---|-------------------------------|
| ■ Broward County, FL | ■ Florida Memorial University |
| ■ Miami-Dade County | ■ City of Coral Gables |
| ■ Baptist Health South FL (BHM, SMH, DR, WKBH, Homestead) | ■ University of Miami |



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

As a Certified Measurement and Verification Professional (CMVP), Mr. Casey oversees measurement and verification (M&V) planning, implementation and reporting to meet the standard practice requirements of IPMVP or FEMP for all guaranteed energy projects.

Mr. Casey and his team deliver on-time reporting of accurate performance results and work quickly with you to identify and mitigate any potential savings shortfalls to ensure continued project success. Supervising over 125 projects in construction and performance, he has designed and executed M&V plans specifically suited for Federal, State and Local Entities; Healthcare Facilities; Public Housing; K-12 and Higher Education; and Wastewater Treatment Plants.

Mr. Casey's background as a scientist gives him the unique ability to establish inexpensive yet statistically sound sampling and analysis on each project. Mr. Casey's team also supports customers with Enhanced Performance Services such as energy benchmarking, control strategy optimization and energy auditing to help you continue to lower your operating costs.

CONTACT

Email: william.casey@siemens.com

Bill Casey

Performance Assurance Manager

EXPERIENCE

- Siemens Industry, Inc. (2010 - present) Performance Assurance
- 20 years of energy related experience

EDUCATION

- M.S., Resource Management, University of Florida, School of Forest Resources and Conservation - Gainesville, FL
- B.S., Environmental and Forest Biology, SUNY College of Environmental Science and Forestry - Syracuse, NY

KEY PROJECTS

- | | |
|--------------------------------------|---|
| ■ City of Troy; NY | ■ Rensselaer County Facilities (2 Phases); Troy, NY |
| ■ CHS Sister's Hospital; Buffalo, NY | ■ Buffalo State College; Buffalo, NY |
| ■ City of Geneva WWTP (2 Phases); NY | ■ Tonawanda City Schools (Phase 2); Tonawanda, NY |
| ■ City of Auburn Hydro; NY; | |

CERTIFICATIONS

- Certified Energy Manager (CEM)
- Certified Measurement and Verification Professional (CMVP)
- Envelope Specialist (2009 - 2012)



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Ms. Zheng serves as the local M&V engineer, working with Clients to insure persistence of savings. Bin conducts regular site visits and meetings with customers to review system performance and discuss opportunities to maximize system efficiency and performance.

Ms. Zheng's responsibilities include:

- Provides recommendations on energy system optimization and implementation
- Develops FDD rules in HVAC systems and chiller plants
- Writes sequence of operation
- Conducts full-scale energy audits
- Identifies energy savings and facility improvement measures
- Conducts project economic analysis
- Generates investment grade reports
- Ensures implementation results.

CONTACT

Email: bin.zheng@siemens.com

Bin Zheng

Performance Assurance Specialist

EXPERIENCE

- 19 years of energy related experience

EDUCATION

- Ph.D. in Architectural Engineering, Univ. of Nebraska-Lincoln

CERTIFICATIONS

- P.E. in Mechanical Engineering (FL, NE, TX)

KEY PROJECTS

- City of Deerfield Beach; FL
- Broward County Government, FL
- City of Fort Myers; FL
- Florida Government Utility Authority; FL
- City of Lake Worth; FL
- Columbia International University; FL
- University of Florida; FL
- Florida Gateway College; FL
- Tallahassee Community College; FL
- Lynn University; FL



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Ms. Quarles offers 20 years of experience spearheading powerful alliances among government, academic, nonprofit, community, and private sector organizations. Led by influence, gaining consensus to build key relations with government entities - creating Atlanta's 1st ever comprehensive sustainability plan, enabled the city to procure its 1st electric vehicles, pass its 1st commercial energy efficiency ordinance, and created a self-sufficient policy office.

She combines strong leadership diplomacy to effectively navigate diverse organizations and advance agreement of key stakeholders to ensure project success. Passion for implementing smart, sustainable, and resilient infrastructure initiatives that reduce cost/waste and improve quality of life. She is a recognized subject matter expert in smart city infrastructure solutions, legislative affairs, resource development, presenting government policies, and detailing potential impact.

CONTACT

Email: denise.quarles@siemens.com

Denise Quarles

Government Relations

EXPERIENCE

- Siemens Industry, Inc. (2016 - present) Government Relations
- 12 years of energy related experience

EDUCATION

- B.S., Chemical Engineering, Wayne State University - Detroit, MI
- MBA, University of Detroit Mercy - Detroit, MI

EMPLOYMENT HISTORY

- City of Atlanta, GA - 3 years
- University of West Georgia - 2 years
- Southwire Company - 3 years



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Mr. Hoiberg started his career by working as a program administrator in the Office of International Studies and Programs at the University of Nebraska at Omaha, where he co-managed the Program for International Professional Development. After a one year hiatus working as a global development consultant for ACI Worldwide (Banking Software), where he developed and taught courses such as Business Ethics at the company's global locations, Mr. Hoiberg accepted the job with Siemens.

Throughout his tenure with Siemens, he has helped grow the higher education business across Building Technologies' portfolio (Energy, Building Automation, Security, Fire) year over year. In FY17, new orders surpassed \$430 million, accounting for a 14% growth over the previous year. Much of this business success can be traced to forming strong, mutually-beneficial alliances with customers and associations, solutions development and the creation of powerful, joint higher education partnership programs, including workforce development and customer-focused user groups.

Because of the success of higher education in the United States, a decision was made to globalize his role, taking the best practices developed in the US and expanding them and extending these to other countries around the globe, including Australia and Hong Kong.

CONTACT

Email: steve.hoiberg@siemens.com

Steve Hoiberg

Empower Program Director

EXPERIENCE

- Siemens Industry, Inc. (2007 - present) Sustainability Education; Empower Program
- 12 years of energy related experience

EDUCATION

- Bachelor of Arts in English, Iowa State University
- Masters in Applied Linguistics, Iowa State University

KEY PROJECTS

- | | |
|--------------------------------------|---|
| ■ West Virginia University | Lake City, FL |
| ■ University of Florida Vet Med Ph3, | ■ Tallahassee Community College Variety of Facilities |
| ■ Florida State University, | ■ University of Florida Vet Med Ph2 |
| ■ AES Columbia University | ■ University of Louisville Ph3 |
| ■ University of Florida Vet Med Ph1 | ■ 2016 Florida State University |
| ■ Southern Methodist University | ■ Deerfield Beach |
| ■ Florida Gateway College, | |

CERTIFICATIONS

- Certificate in Business Analysis, University of Nebraska at Omaha
- Certificate of Business Marketing Strategy, Kellogg School of Management, Northwestern University
- Certificate of Technical Leadership
- LEED GA
- APPA's Professional Development Committee



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Christine acts as a hub between the EPS Implementation team and all central support functions on EPS projects in the Southeast region of the United States, to ensure smooth transition through project milestones. She provides assistance in all aspects of project execution, including issuance of subcontracts and purchase orders, preparation of monthly billings, release of payments to subcontractors and suppliers, financial reporting, document control, and project safety. Christine is a power user in Siemens' internal project controlling systems and works closely with EPS Implementation team to allow for greater focus on job execution, while ensuring implementation of Siemens' core business processes.

CONTACT

Email: christine.deoliveira@siemens.com

Christine DeOliveira

Associate Project Manager

EXPERIENCE

- Siemens Industry, Inc. (2008 - present) Project Administrator
- 12 years of energy related experience

EDUCATION

- Mercy College, NY – Major in Psychology; dual minor in Elementary & Special Education

KEY PROJECTS

- | | |
|--|-------------------------------------|
| ■ City of Deerfield Beach; FL | ■ University of Florida; FL |
| ■ Broward County Government, FL | ■ Florida Gateway College; FL |
| ■ City of Fort Myers; FL | ■ Tallahassee Community College; FL |
| ■ Florida Government Utility Authority; FL | ■ Lynn University; FL |
| ■ City of Lake Worth; FL | ■ City of Sumter, SC |
| ■ Columbia International University; SC | ■ Florida Atlantic University |

CERTIFICATIONS

- Notary Public, State of GA



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Christopher joined the Siemens Industry, Inc. projects business in 2015 as an intern for project procurement. Christopher now has 5 years of experience in supplier management, negotiation & contract management, and project sourcing.

Christopher is the ESCO Field Procurement Manager for the Southeast states, as well as Siemens Solutions and Service projects across the state of Florida. In his role, Christopher is responsible for assisting Sales and Operations to develop and negotiate subcontractor and material pricing in line with Siemens and customer sourcing policies, and drive supplier management and local strategies that bring value to our customers and minimize risk. This includes any diversity, small business, local, state, federal, or customer specific requirements for sourcing. Chris interfaces with Siemens Small Business/Diversity, Commodity, and Electrical Estimating resources.

CONTACT

Email: christopher.fernandez@siemens.com

Chris Fernandez

Procurement Manager

EXPERIENCE

- Siemens Industry, Inc. (2015 - present) Energy Engineer
- 5 years of energy related experience

EDUCATION

- University of Central Florida – Mechanical Engineering

KEY PROJECTS

- City of Deerfield Beach; FL
- Broward County Government, FL
- City of Fort Myers; FL
- Florida Government Utility Authority; FL
- City of Lake Worth; FL
- Columbia International University; SC
- University of Florida; FL
- Florida Gateway College; FL
- Tallahassee Community College; FL
- Lynn University; FL



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

Ms. Chang leads project teams in the development of feasible and responsible project-specific supplier diversity plans to achieve maximum diversity participation. Subject Matter Expert for writing an appropriate and feasible MWBE utilization plan to meet the participation targets. Review contract for participation targets, host project-specific outreach events, host general outreach events to increase subcontractor and supply base, and documenting good faith efforts.

During her tenure at Siemens, I-Wah has supported the local diversity (MWBE) aspect of many energy conservation projects and business line projects. Ms. Chang prefers to support on energy conservation projects because more opportunities are available for local MWBEs due to the varying trades that can be utilized during the project. As a supplier diversity professional focused on MWBE participation in the construction industry, I-Wah understands the challenges between subcontractors and suppliers and supports project teams in understanding how to spread MWBE participation across the various diverse certifications and achieve maximum MWBE participation.

CONTACT

Email: i-wah.chang@siemens.com

I-Wah Chang

Supplier Diversity Specialist

EXPERIENCE

- Siemens Industry, Inc. (2013 - present) Supplier Diversity
- 7 years of energy related experience

EDUCATION

- Georgia Institute of Technology, Bachelor of Science in Business Administration

KEY PROJECTS

- | | |
|----------------------------------|------------------------------------|
| ■ Deerfield Beach, FL | ■ MD Dept of General Services |
| ■ Pennsylvania Convention Center | ■ NY Javits Center |
| ■ Virginia Science Museum | ■ LaQuardia Airport |
| ■ City of Richmond VA | ■ KCI Airport |
| ■ DASNY ESPC | ■ SCE (Southern California Edison) |

CERTIFICATIONS

- Operations & Supply Chain Management
- Information Technology Management
- Industrial & Organizational Psychology
- Certified Professional in Supply Management (CPSM)
- Certified Professional in Supplier Diversity (CPSD)



Siemens Industry, Inc.
Smart Infrastructure

PROFILE

At Siemens, Linda has structured and sourced financing for over \$150MM projects. She serves as a primary resource for five North American business zones and specializes in Military and Public Housing projects. Linda provides customer support to secure the optimal financial program for each UESC project. This support includes direct interface with the customers' financial decisionmakers to ensure the customers' preferences for lenders and financial structures are incorporated.

She develops various cash flow models so the optimal financial structure can be evaluated and proposed to the client. In order to provide access to competitively priced funds, Siemens Financial Services Group maintains relationships with many funding sources including Siemens Public, third party lenders, local banks, and institutional sources of funding, including Federal and state governments and utility companies.

CONTACT

Email: linda.rega@siemens.com

Linda Rega

Financial Services Manager

EXPERIENCE

- Siemens Industry, Inc. (2012 - present) Financial Manager

EDUCATION

- B.S., Economics, Eastern Illinois University, IL, USA
- M.S.A., Accounting, Roosevelt University, IL, USA

CERTIFICATIONS

- Certified Public Accountant, State of Illinois
- LEED Green Associate

v. List names and addresses of all first tier Subcontractors, Subconsultants, or Suppliers who will perform and/or provide Work or Services under the Contract.

Hazen

Utility Systems Engineering Consultant:

Hazen and Sawyer, local Broward County

4000 Hollywood Boulevard
Suite 750N
Hollywood, FL 33021
Contact: Patrick Davis



MEP Engineering Consultant:

Hammond & Associates, CBE

150 NW70th Avenue
Suite 10
Contact: Eric Hammond



Community Outreach Consultant:

Broward County Minority Builders Coalition

665 S.W. 27th Ave., Suite 16
Fort Lauderdale, FL 33312
Contact: Brian Johnson



Community Engagement Consultant:

Dickey Consulting Services, CBE

1033 Sistrunk Blvd, Ste 206
Fort Lauderdale, FL 33311
Contact: Sheryl Dickey, President



Solar General Contractor:

Advanced Green Technology, local Broward County

1950 NW 22nd St.
Ft Lauderdale, FL 33300
Contact: Rob Kornahrens, President



Architectural Services:

Saltz Michelson Architects, CBE

3501 Griffin Rd.
Ft Lauderdale, FL 33312
Contact: Natalia Castro, COO

Auditing and Financial Analysis:

Anthony Brunson, PA, CBE, local Miramar

3350 SW 148th Avenue, Suite 110
Miramar, FL 33027
Contact: Anthony Brunson, President





Patrick Davis, PE

Vice President

Mr. Davis a Vice President with Hazen, has served as Project Director on over \$900 million of public works construction and has been involved in an engineering capacity on over \$1.6 billion of constructed local public works projects.

Education

BSCE, University of
Massachusetts, Dartmouth, 1980

Certification/License

Professional Engineer: FL, NY,
MA, VA, NC

Areas of Expertise

- Planning, Permitting, Design, Procurement, and Construction Management of Wastewater, Water and Stormwater Facilities
- Water Resource Planning
- Project Management
- Conventional and Alternative Delivery Systems Procurement, International Procurements

Experience

- 40 total years
- 38 years with Hazen

Professional Activities

American Society of Civil
Engineers

American Water Works
Association

ASHRAE, NSPE, TAPPI

National AWWA Dual Distribution
Committee

Water Environment Federation

With 36 years of Florida-specific experience, Mr. Davis has assumed a leading role in assisting public utilities and providing regulatory advice on water supply and treatment issues, as well as all facets of wastewater regulations. A current focus of his consulting practice is the development of alternative water supply projects to ensure adequate supply to meet the growing potable water demand across the nation.

Patrick A. Davis has over 40 years of experience and has directed or participated in the master planning, permitting, design and program and construction management of water resources facilities in Florida, the Northeast, Central / South America, the Middle East and Asia. In Florida, Mr. Davis has served as project director on over \$900 million of public works construction and has been involved in an engineering capacity on well over \$1.5 billion of constructed local public works projects.

Mr. Davis has earned a reputation as an effective designer of all aspects of wastewater collection, treatment, disposal and reuse, particularly in S. Florida.

Mr. Davis served as project director for numerous wastewater treatment facilities in Florida. He directed the Miramar \$70 million wastewater treatment program in 1991-97; the BCOES \$65 million wastewater treatment program in 1986-91; the 2010 upgrade to 100 mgd (\$40M) and the current 2020 fine bubble conversions. He directed Broward's \$27 million regional wastewater transmission system project in 1991-96. He served as officer-in-charge of Hollywood's \$80 million WWTP program in 1988-1991. He recently directed the Miami-Dade \$600M HLD SRWWTP project.

Mr. Davis was the primary author of Broward County's Energy Conservation Master Plan. Mr. Davis was also the project director of engineering for a resultant energy savings project delivered through an ESCO contracting vehicle. That award winning project utilized FOG to augment digester bio-gas production generation used to power a cogen facility. Mr. Davis has led Hazen and Sawyer efforts on behalf of SE Florida's

Patrick Davis, PE

Hazen



Glenn Cunningham, PE

Senior Associate

Mr. Cunningham has administered large scale construction contracts for the City of Miramar's Water Reclamation Facility contracts as well as at other large, local water and wastewater treatment plants, including North Regional WWTP for Broward County, and Southern Regional WWTP in the City of Hollywood, and Southern Region WWTP in Palm Beach County.

Education

ME, City College of New York,
1984, Civil Engineering

BS, Cranfield Institute of
Technology, 1977, Agricultural
Engineering

Certification/License

Professional Engineer: FL

Areas of Expertise

- Project Management
- Construction Administration
- Pump Station and Pipeline Design
- Water/Wastewater/Solid Waste Facility Design
- Air Pollution and Odor Control Systems
- Quality Assurance/Quality Control

Experience

- 40 total years
- 34 years with Hazen

Professional Activities

National Society of Professional
Engineers

Water Environment Federation

American Society of Civil
Engineers

Florida Engineering Society

Specifically, Mr. Cunningham administered the energy services contract at Broward County's NRWTP to construct a fats, oils, and grease (FOG) facility to enhance biogas production and convert to energy through a cogeneration facility. Mr. Cunningham's implementation management of the FOG and the cogeneration (cogen) facility enabled the County to successfully start cogen operations and realize energy savings immediately.

Miramar Wastewater Reclamation Facility Reuse Expansion, Miramar, FL

Mr. Cunningham served as the Construction Manager/Resident Project Representative (RPR) for the first expansion project. The reuse facilities were expanded from 2 mgd to 4 mgd. The project included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, an emergency generator, a ground storage tank, and high service pumps. Mr. Cunningham also served as the RPR for the Wastewater Booster Pump Station, Effluent Reuse Distribution Pump Station and the Inline Sludge Pump Station for the City of Miramar.

North Regional Wastewater Treatment Plant, Broward County, FL

Mr. Cunningham served as the construction project manager/resident project representative for multiple projects at NRWTP, including the Updating project which expanded NRWTP from 80 to 100 mgd, upgraded solids dewatering facilities, updated existing facilities and converted surface aeration to fine bubble diffusion; the Capacity Improvements project to increase disposal capacity through the addition of two deep injections wells and six individual well booster pumps; of the facility; the Digester 3 Cover project; the Generator 4 project, the Chlorination project; and the Headworks Gates Replacement project. As a subconsultant to a major energy company, Mr. Cunningham also administered the

Glenn Cunningham, PE

Hazen



Monique Durand, PE

Associate

Ms. Durand has over 16 years of experience in planning, design, permitting, and construction management of water and wastewater treatment facilities.

Education

MS, Virginia Polytechnic Institute and State University, 2005, Environmental Engineering

BS, Midwestern State University, 2003, Environmental Science

Certification/License

Professional Engineer: FL

Areas of Expertise

- Water and Wastewater Treatment Plant Design
- Wastewater Collection System Design
- Construction Management
- Permitting
- Pipeline Design
- Water Supply Planning

Experience

- 16 total years
- 13 years with Hazen

Professional Activities

American Water Works Association

Water Environment Federation

City of Miramar Risk and Resilience Assessment and Emergency Response Plan, FL

Ms. Durand is currently serving as the Project Manager for the City of Miramar America's Water Infrastructure Act, 2018 Risk and Resilience Assessment and Emergency Response Planning. Phase 1 of the projected scope included a risk and resilience assessment (RRA) of the City's water systems, including treatment facilities, storage tanks, pump stations and pipelines. The RRA also included comprehensive series of workshops with leaders from utility departments, field inspections of critical assets, and development of a report that is "for official use only" and certified by the Environmental Protection Agency. The detailed RRA report provides an implementation plan for capital and operational needs for risk and resilience management of the system. The second phase, development of the Emergency Response Plan (ERP) for the City, is currently ongoing. The ERP will include response protocols for emergencies/events identified as a threat during the RRA.

Construction Management Services for City of Miramar Wastewater Reclamation Facility Expansion Program Basis of Design Report and Improvements, City of Miramar, FL

Ms. Durand participated as Field Engineer in field testing activities to obtain information to support subsequent design efforts such as BioWin™ wastewater process modeling. Tasks included process sampling, sample preparation including onsite filtering and flocculating of samples, and performing nutrient analysis of samples.

Hollywood Water Treatment Plant Improvements Conceptual Design Report, Seminole Tribe of Florida, FL

Ms. Durand participated as Project Engineer for the development of the conceptual design report for the improvements to the STOF water treatment facility. The project scope included an assessment of overall WTP safety, reliability and redundancy, recommendations for improving chemical storage and feed facilities, recommendations for a new raw water supply well, assessment of membrane treatment facilities, and evaluation of finished water quality goals.

Monique Durand, PE

Hazen



J. Philip Cooke, PE

Associate Vice President

Mr. Cooke has more than 31 years of experience and has directed the planning, design, and permitting of pipeline and marine outfall projects.

Education

ME, University of Florida, 1990,
Environmental Engineering

BS, University of Florida, 1989,
Environmental Engineering

Certification/License

Professional Engineer: FL, NY

Areas of Expertise

- Design, Permitting, and Construction of Pipeline Projects
- Environmental Resource Permitting
- Water and Wastewater Treatment
- Hydraulic Modeling
- NPDES Permitting

Experience

- 30 total years
- 29 years with Hazen

Professional Activities

American Society of Civil Engineers

Water Environment Federation

American Water Works Association

Construction Management Association of America

His typical assignments range from conceptual layout, design, and construction management to environmental and analytical monitoring and permitting of pipeline projects in public right-of-way. He has participated in water and wastewater assignments for both municipal and industrial clients. He has extensive experience obtaining construction and operating permits with local, State of Florida, and federal regulatory agencies.

Wastewater Reclamation Facility Reuse Expansion to 7.5 mgd, City of Miramar, FL

Mr. Cooke served as Project Manager for the Miramar Wastewater Reclamation Facility Reuse Expansion. The facility capacity expansion was to be from 4 mgd to 6 mgd, however based on a validation study performed by Hazen prior to design, a paper uprating from 4 mgd to 5 mgd of was obtained for the existing facilities. As such, on the expansion is completed in late 2020, the facility will have a permitted capacity of 7.5 mgd. New facilities included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, a ground storage tank, and high service pumps.

Wastewater Master Plan, Hollywood, FL

Mr. Cooke served as Project Manager and Lead Engineer for the City of Hollywood's most recent utilities master plan. Completed in 2007, the Wastewater Master Plan identified capital improvements to meet the needs of the City of Hollywood service area through the year 2025. Improvements were analyzed and recommended for the four primary operational components of the City's wastewater utility: collection/transmission, treatment, effluent disposal, and residuals management. The Master Plan considered a range of factors including population growth, re-development, aging of existing infrastructure, septic to sewer conversion, and new regulations. When the state of Florida passed critical legislation pertaining to the continued use of the open ocean outfall in June 2008, the Master Plan was then amended in October 2008 to evaluate impacts and recommend a compliance approach.

SRWWTP Effluent Reuse Upgrade (Contract 4), Various Utilities, FL

Upon completion and acceptance of the Reuse Filter Pilot Study, in 1991, Mr. Cooke served as design engineer on the 8-mgd reclaimed water sys-

Hazen

J. Philip Cooke, PE



Elizabeth Keddy, PE, LEED AP

Associate

Ms. Keddy has over 13 years of experience leading the planning, design, permitting, construction, operation and maintenance of water, wastewater, stormwater, water reuse, sustainability and energy projects. She has a proven track record of reducing energy costs while increasing the efficiency and reliability of water utility operations.

Education

ME, Environmental Engineering,
University of Florida, 2010

BS, Environmental Engineering,
University of Florida, 2007

Certification/License

Professional Engineer: FL, MA

Leadership in Energy and
Environmental Design Accredited
Professional (LEED AP)

Areas of Expertise

- Energy management
- Asset management
- Process energy audits
- Sustainability
- Renewable energy
- Energy recovery

Experience

- 13 total years
- <1 year with Hazen

Professional Activities

American Water Works
Association, Florida Section

Florida Water Environment
Association

She identifies energy saving projects through investment grade energy audits, pump and blower efficiency testing, and real-time power monitoring with cloud-based data analytics. She has let over 60 energy audits of water and wastewater facilities, including 350 pump and blower efficiency tests. Mrs. Keddy has designed 2 MW of renewable energy systems, including solar, hydro, biogas and geothermal. She has secured \$190M in funding and financing for energy efficiency, renewable energy, water conservation and water quality projects.

Energy Management Program, SUEZ North America

As Energy Manager for SUEZ North America, Mrs. Keddy reduced energy costs by \$20M for over 90 water and wastewater utilities by optimizing pump and process operations, repairing and replacing inefficient equipment, and redesigning systems to be more sustainable. She established a mid-term energy management program, including setting strategic goals and key performance indicators (KPIs) to track progress towards those goals. She identified and prioritized energy conservation measures (ECMs) based on payback, client needs and ease of implementation. She mobilized a group of 40 Energy Champions across North America to share best practices and she was one of the founding members of a global SUEZ Energy Management Committee. Mrs. Keddy wrote standards and guidelines for efficient design, replacement, operation and maintenance of pumps, aeration systems, lighting, HVAC and power monitoring that became international standards for SUEZ.

Wastewater Treatment Plant Energy Audit and Aeration Control, Springfield Massachusetts

Ms. Keddy led the implementation of an investment grade energy audit, including 43 pump, blower and fan efficiency tests. The audit identified \$825,000 of annual electricity savings with an average payback of less than 3 years. Based on the results of the audit, she completed the prelim-

Elizabeth Keddy, PE, LEED AP

Hazen



Sheryl Dickey

Community Relations Support

Sheryl A. Dickey is a community and economic development professional with more than 30 years of experience and a track record of success in these areas. She brings a high level of energy and the ability to participate in a leadership or team member role to ensure successful completion of a wide range of projects.

Owned and operated by Sheryl A. Dickey, DCS is an economic development, project management, public relations consulting firm. The company and its associates provide services to public and private enterprises, coordinating, implementing and promoting projects related to economic and community development, project management, international trade/business development, housing, public relations, public involvement, and other marketing initiatives. DCS has been in business for twenty years.

Education

BSSW, Ohio State University

Certification/License

Charrette Planner, National Charrette Institute

Public Meeting Facilitator, National Charrette Institute

Areas of Expertise

- Community and Business Development Expert
- Public Engagement Specialist
- Collaborative Change Agent
- Longtime Broward County
- Business Owner

Experience

- 30 total years

Professional Activities

International Economic Development Council

Greater Fort Lauderdale Chamber of Commerce

APTA COMTO AMAC

Water & Wastewater Services Neighborhood Improvement Program

Dickey Consulting Services, Inc. provided support in the planning and implementation of Public Communication and Public Outreach activities for the Program Management Team. Accomplishments included the development and maintenance of stakeholder and community database for diverse elements of the City of Fort Lauderdale community. Developed and implemented media communication plans for positive public perception and support for the program to promote a positive image of the programs Management team. Developed communication and outreach activity plans. Provided translation services for Haitian and Hispanic residents in the community.

North Central County Neighborhood Improvement Project

Public Outreach efforts included composition of a database of homeowners and businesses. Prepared project collateral brochures, flyers, fact sheets, notification letters, news articles and public notices. Adhered to sensitive timelines to execute news releases, distributions, and event reminders. Coordinated and attended public meetings with established neighborhood associations, community groups, PTAs and business owners. The overall objective of the project was to provide support to the planning and implementation of program development, public communication, awareness and outreach.

Chen & Associates Broadview Park Neighborhood Improvement Project

Dickey Consulting staff attended and participated in community meetings scheduled by the residents' HOA project team, County staff and Commissioners. Staff also assisted with the coordination of meetings with the purpose of educating affected residents of the community. A media involvement plan was implemented and all public inquiries was documented and tracked accordingly. Outreach efforts required the development and implementation of surveys, fact sheets, news bulletins and various communication materials. We utilized partner graphic and printing firms to aid in printing of the materials used in conjunction with all media and public distribution.

Sistrunk Streetscape

Project tasks required the coordination of pre-construction public meetings for the community. Our experienced staff provided face to face site visits to monitor the various phases of project and ensured that deadlines were met. We prepared updated and distributed public service announcements that addressed project concerns throughout the life of the project. Our firm also performed document control services: scanning, validating and distributing documents to project team, and other pertinent parties.





ERIC HAMMOND, PE
PRINCIPAL-IN-CHARGE &
MECHANICAL ENGINEER

EDUCATION:

- Bachelor of Science,
Mechanical Engineering,
University of the West Indies,
1973
- Diploma, Electrical Engineering,
University of Technology, 1967

REGISTRATION/LICENSES:

Georgia Professional Engineer
#042812

AFFILIATION:

- Georgia Institute of Consulting,
Engineers
- National Fire Protection
Association

YEARS WITH THE FIRM:

45

Eric Hammond has over 45 years of experience in Mechanical, Plumbing and Fire Protection design and Construction, Management. He oversees all technical and administrative policies and management of the firm. He has facilitated many new and existing municipal projects, to include public safety and transportation, judicial buildings, fire stations, parking garages, emergency operations, community centers, senior centers, recreational centers, parks, and renovation and remodeling of building facilities. He makes ethical and cost efficient decisions that result in exceptional client satisfaction. He attends meetings during the design phase and remains active in all projects throughout completion. He performs necessary code research within his discipline and collaborates with the Architect and project Owner.

Relevant Project Experience

City of Miramar Police Headquarters, Miramar; Project Dates: 2015 to 2017 – FL his facility is a three story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes.

City of Miramar Cultural Art | Park; Project Date: 2005 to 2006 – Hammond & Associates, Inc. were the engineer of record who provided Plumbing & Fire Protection design for this new "state of the art" venue for cultural events. The configuration was an amphitheater surrounded by three sides, by the facades of the New Performing Arts Center and City Hall. The Cultural Center has a combined space of 50,000 square feet with a 800 seat performing arts theatre along with an elegant banquet hall with lakeside seating. There is an on-site art gallery with lush botanical garden with public art pieces. This is another signature project for the City of Miramar.

South Florida Regional Transit Authority (SFRTA), Pompano Beach, FL; Project Dates 2016 to 2018 – SFRTA Operations Center is a 75,000 sq. ft facility. The new site includes a 4-level parking garage with 400 parking spaces, supporting both the Operations Center and parking for Tri-Rail passengers. Scope of work for the project included an air-cooled chilled water system which provided air for the Operation Center and a 1500 KW generator.

Homestead Field Station, South Florida Water Management District; 2018 to Ongoing – The project consisted of demolishing 3 existing buildings and constructing new replacement buildings. The 3 existing buildings required replacement with a building that met present code requirements and facility needs. The project included an office center, and storage and maintenance facility. The new building was approximately 15,340 square feet.

Alexander Orr Waste Water Treatment Plant, Miami, FL; Project Dates: 2000 to 2001 – Project consisted of The project required the renovation of the treatment facility. Provided HVAC designs for the installation of an air conditioning system for the waste water treatment plant within the specified space. Attended site meetings, responded to Requests for Information, reviewed shop drawings, and prepared construction reports. Role: Principal-in-Charge.

Building 7 Lift Station & Holding Tank, Miami International Airport, FL; Project Dates: 2001 to 2002 – Provided engineering designs for construction documents for the installation of a small split system and ventilation for the space. Provided complete construction administration through final project completion.

Industrial Waste Upgrade Buildings 25 & 48, Miami International Airport, FL; Project Dates 2002 to 2003 – Provided Electrical engineering design services. Conducted preliminary site visits, gathered information and coordinated with Florida Power & Light for service verification in preparation for the construction document drawings. Based on findings from the preliminary site investigations, Electrical drawings were done to provide power to the motors, valves, etc.

Anthony (Tony) Brunson, CPA

SUBJECT MATTER EXPERT



Tony is the firm's state and local government specialist, with over 35 years of public accounting experience working with public entities. Tony is a former member of the Florida Institute of Certified Public Accountants State and Local Government Committee, which authored "Compliance Auditing in Florida" and "Financial and Compliance Audits of Florida Special Districts" practice aids that gained national recognition.

He is an expert in cost allocation methodology. Among the clients he has served are South Florida Regional Transportation Authority (Tri-Rail), South Florida Water Management District, Broward County Aviation Department, City of Ft. Lauderdale, Miami-Dade County Public Schools, to name a few.

Moreover, Tony serves as expert witness in matters involving construction claims and cost allocation methods due to his in-depth knowledge of federal and state cost theories and practices.

Additionally, Tony has been appointed by Florida courts as a Receiver and/or Trustee as a result of various bankruptcy proceedings and/or guardianship matters.

EDUCATION:

- B.S., Jackson State University
- MBE, Dartmouth College
- Certified Public Accountant

RELEVANCY TO SCOPE OF WORK

- 35+ years of experience with cost allocation methods and command of grant compliance and governmental accounting procedures.

RELEVANT EXPERIENCE

(Principal) Broward County Aviation Department (BCAD) – Joint Venture Airport Expansion Program (AEP), Fort Lauderdale, FL

- \$4 billion financial consultant services contract and provided Construction Management, Project Controls, and Financial Planning services.
- Comprehensive financial & construction oversight and airport cost center reports were submitted, and successfully presented to the Broward County Board of County Commissioners.
- Capital cash flow, capital program funding evaluation, financial modeling, and cost center rate restructuring were developed and implemented.
- Project control savings and revenues totaled over \$15 million.

(Principal) Miami Dade County Aviation Department (MDAD) Joint Venture \$5.4 billion Capital Improvement Program (CIP) Miami, FL

- \$4 billion financial consultant services contract and provided Construction Management, Project Controls, and Financial Planning services.
- Comprehensive financial & construction oversight and airport cost center reports were submitted, and successfully presented to the Broward County Board of County Commissioners.
- Capital cash flow, capital program funding evaluation, financial modeling, and cost center rate restructuring were developed and implemented.
- Project control savings and revenues totaled over \$15 million.





Personal Resume



Clint Sockman

Project Executive

BIO

Clint Sockman is the Vice President for Advanced Green Technologies and Advanced Roofing Inc. and oversees the sales and operations for solar and roofing projects in the United States. Mr. Sockman has been with AGT/ARI since 2005 and has two decades of experience in the roofing and solar industries and is responsible for the completion of twentyfive-million square feet of commercial re-roofing projects and over two hundred solar photovoltaic installations.

EDUCATION

University of Cincinnati, Information Systems with minor in International Business

LICENSES

- State of Florida Certified Solar Contractor: CVC56792
- State of Florida Certified Roofing Contractor: CCC1329557
- State of Florida Certified General Contractor License # CGC1521128
- NABCEP License #PV-101913-002781

ACCREDITATIONS

- North American Board of Certified Energy Practitioners (NABCEP)
- Occupational Safety and Health Administration (OSHA) 30 HR Certified
- Construction Specifications Institute Construction Documents Technologist
- American Society of Professional Estimators
- Solar Energy International – Solar Electric Grid Direct Design

TOP SOLAR JOBS

Lockheed Martin – Orlando	2.3MW	10/2016 - 03/2017
Lockheed Martin – Tampa	2.25 MW	03/2015 - 09/2015
United Therapeutics – LB2 Jax Net Zero Center	973.20KW	11/2018 - 05/2019 (anticipated)
United Therapeutics – Assist Call Center Melbourne	254,610 MW	03/2017 - 06/2018
United Therapeutics – Satellite Beach – Solar Service	39.96 KW	10/2017 - 02/2018
FIU College of Engineering & Computing	1.41 MW	01/2016 - 06/2016
Daytona International Speedway – Lot 10	1.28 MW	11/2015 - 11/2016
Lake Worth Landfill	2.01 MW	12/2016 - 05/2017
Palm Beach Zoo	93,000 MW	04/2016 - 05/2016
Resolve Marine	91,166 MW	03/2016 - 05/2016



AWARDS

- **2016:** 1st Place Sustainability from the Florida Roofing and Sheet Metal Association S.T.A.R Awards
Program: Lockheed Martin Solar Carport
- **2015:** 1st Place Sustainability from the Florida Roofing and Sheet Metal Association S.T.A.R Awards
Program: UM Frost School of Music
- **2014:** 1st Place Sustainability from the Florida Roofing and Sheet Metal Association S.T.A.R Awards
Program: JM Family Enterprises

advanced green technologies

Resumes of Key Personnel

SALTZ MICHELSON
ARCHITECTS



CHARLES A. MICHELSON AIA, ACHA, LEED AP, President

Role: Principal-in-Charge

As the Principal, Mr. Michelson maintains an active role in the planning, design, and production of architectural projects for the firm. With his background in Urban Planning, he participates in programming, feasibility studies, site planning and other research projects. As Principal-in-Charge of the firm's public projects, Mr. Michelson has been responsible for overseeing the new construction, renovation and additions to numerous public buildings and has provided design services for numerous governmental facilities.

Years of Experience

40

Years of Experience with Firm

40

Education

University of Miami Master of Urban & Regional Planning, 1981
B. Architecture, 1979

Registrations

Registered Architect:
Florida #9976
Georgia#00874

National Council of Architectural Registration Boards (NCARB) #31861

American College of Healthcare Architects (ACHA) Certified #0624

ASHA Healthcare Construction Certificate, 2004

Affiliations

South Florida Hospital & Healthcare Association (SFHHA)
Board of Directors

Florida Healthcare Engineering Association (FHEA)

American Institute of Architects (AIA)

AIA Fort Lauderdale President, 2015
Board of Directors, 2014
Treasurer, 2017

AIA Florida
Citizen Architect

Representative Projects

Lauderhill Mall Transit Center, Lauderhill, FL: Development of a new, 3,000 SF transit center within the Lauderhill Mall to serve over 8,000 daily transit passengers. The new building will include 10+ bus bays, drivers' lounge, breakroom with dedicated restrooms and locker areas, customer service area with multiple "point-of-sales" deal window drawers, separate public restrooms, security booth, and related mechanical and electrical equipment. **This project will be the first totally net-zero facility in Broward County.**

Ravenswood Transit Facility Enhancement & Retrofit, Dania Beach, FL: Renovations and modernization to the facility's infrastructure including replacement of automatic gates, building structural repair, parking garage grading/drainage, and exterior renovation to protect underground fuel storage tanks.

Downtown Bus Terminal Lighting Condition, Fort Lauderdale, FL: Coordination and study with Broward County for complete lighting upgrade to the bus terminal. Report included light studies photometrics, cost estimating and fixture specifications.

FAU Chiller Expansion, Boca Raton, FL: As a subconsultant to SGM Engineering, research of stair options and preparation of construction documents for the stair to the roof, details, and patching and repairing miscellaneous infrastructure work.

Broward College Chiller Building, Pembroke Pines, FL: A new chiller plant and modular classrooms at the South Campus of Broward College. The Chiller Plant includes the design of a dual chiller chilled water plant of approximately 3,500 square feet. The initial machine design capacity is 650 tons each, with a deductive alternate to make one (1) chiller 450 tons. The plant was designed for future expansion to include initial header pipe sizes, cooling tower water make-up, and electrical service to accommodate a future build-out of 4,300 tons.

Broward College Building 33 Expansion for Chiller Plant, Fort Lauderdale, FL: As a subconsultant to SGM Engineering, preparation of construction documents for the expansion and modification to the building in order to provide a new chiller and cooling tower.

911 Dispatch Center Investigative Reports, Five Locations in Broward County, FL: An Investigative Facilities Report for five Broward County 911 Dispatch Centers to observe the locations and provide a status of the physical plant, personnel inventory, and expansion capability. The reports were based on field observations, as-built drawings, and information provided by Broward County and the 911 Dispatch Centers' personnel.

Section N CBE, SBE, and/or Local Businesses

Siemens Industry, Inc.

N. CBE, SBE, AND/OR LOCAL BUSINESSES

The City strongly encourages and supports Proposers who are registered as CBE, SBE, and/or Local Businesses. Additional points will be allotted in the evaluation process for such businesses.

Siemens Industry Inc. is not certified as a CBE/SBE, however we are a local business, and we are fully committed to fostering the growth and utilization of CBE, SBE, & LBE businesses as part of every project that we undertake. Our team is committed to working with your procurement department and local business diversity team to find and contract with members of your CBE, SBE, & LBE business community to assist in the business development and capacity building of your local certified companies.

COMMITMENT TO SMALL AND DIVERSE LOCAL BUSINESSES

Siemens finds strength and innovation in the diversity of both our organization and our local business partners. Our goal is to create value on a daily basis for our customers and society. To fulfill this vision, our company reflects the communities we serve and the many people with whom we do business. Having a workforce drawn from all segments of society, regardless of background, is both the right thing to do and an essential core part of our successful business strategy. It is undoubtedly linked to our productivity, product quality, and commercial success. This reinforces our belief that diversity and inclusion are critical to establishing and sustaining the competitive workforce required to maintain leadership in the global marketplace.

“Diversity strengthens our innovative capacity, unleashes the potential of Siemens’ employees and thereby directly contributes to our business success”

-Janina Kugel, Human Resources Board Member
& Chief Diversity Officer



Siemens applies these key principles in our subcontracting plans for selecting and developing our CBE, SBE, & LBE business partners. Our diverse background and engrained company-wide emphasis on diversity guides us in our philosophy and commitment to our CBE, SBE, & LBE partnerships. Siemens strongly believes that in order to partner with diverse companies, everyone involved must view the interaction and partnership as a journey, not merely completing a checkbox activity as part of a contractual obligation. Siemens recognizes the importance of Supplier Diversity and has proactively invested in dedicated resources for Government Project Sourcing, including public-facing projects.

Partnering with diverse local companies benefits the Customer by delivering better overall project outcomes and ensures that these opportunities stay within the Local Community. When opportunities stay within the local Community, the companies hire residents and those residents spend their money in the local Community, driving economic growth, and striving for Community improvement. There is a lot to be said about pride in seeing the product of one’s own hard work and labor in their Community.

SIEMENS BUSINESS DIVERSITY AND INCLUSION PROGRAM

Subcontractor and supplier diversity have been integral to our business success and our ability to positively impact our communities but cannot be achieved without a commitment of focus and investment of resources. Siemens has a Small Business and Supplier Diversity Program with a portion of the program focused on identifying and working with local small and diverse businesses. Siemens has a resource who is focused on small business and supplier diversity.

The resource, **I-Wah Chang**, focuses on helping Siemens to understand our Customers' diversity and inclusion goals and to help align Customer projects in meeting those goals. The role is focused on expanding our subcontracting base by focusing on identifying, meeting, and prequalifying local, small, and diverse businesses by utilizing a variety of methods, such as attending outreach events, hosting Siemens outreach events, and performing email-based general solicitations. Siemens believes that true diversity and inclusion of CBE, SBE, & LBE takes time and constant effort and does not happen overnight.

Siemens has hosted multiple trade-specific Outreach Events in Florida and we have also co-hosted Outreach Events with local organizations. Miami-Dade Chamber of Commerce presented the Siemens & Miami-Dade County Public Schools Outreach Event (5/24/2018), Siemens and Deerfield Beach hosted the Siemens & Deerfield Beach Sustainability Contractors Event (2/25/2020), Siemens hosted an Orlando Outreach Event (5/15/2017), Contractor Open House held at our Miramar office (2/21/2018), Panama City Beach Outreach Event (1/22/2020), Pensacola Outreach Event (1/23/2020), and Tampa Outreach Event (1/28/2020).

Part of our standard procurement process is to invite multiple companies to respond to our solicitations. We will not just work with the same subcontractors on every project. To ensure that we promote the broadest inclusion for our subcontracting opportunities, Siemens frequently holds subcontractor outreach events and advertises project opportunities in publications that primarily serve the minority and small business communities. We also hold pre-bid and pre-award meetings to ensure that respondents know what to expect and understand how to bid to us. This helps ensure all bidders have access to the same project information and are given equal opportunity to compete. In addition to assuring access to opportunity, Siemens also provides a wealth of resources to support interested CBE, SBE, & LBE businesses creating a level playing field and path for success.



Contractor Open House at Miramar Office

Siemens has examples of many companies with whom we began a relationship through meeting at a Siemens-hosted Outreach Event and have developed the relationship to where the companies are on the short-list of subcontractors for projects. We have an example of a diverse business where the relationship began over 10 years ago with a contract less than \$15,000 and the relationship has grown to other areas of the country. The company has expanded from performing lighting retrofits to water conservation work and to weatherization work.

SUPPORTING AND PROMOTING THE SUCCESS OF OUR CBE, SBE, & LBE BUSINESS PARTNERS

Recognizing that the success of our subcontractors is essential to the success of the overall project and of our Customers. Siemens has developed several specific programs to help support and promote the success of our CBE, SBE, & LBE business partners. Below is a list of the types of programs and resources that can be made available to participants in the Miramar project's subcontracting program.

PREQUALIFICATION SEMINARS to provide companies with information and assistance with securing the required prequalification required to bid on subcontractor opportunities with Siemens.

BID PREPARATION SEMINARS to provide companies with information about how to read our drawings, what we expect to be included in each bid, and how to prepare more competitive and accurate bid packages.

INSTALLATION TRAINING VIDEOS for CBE, SBE, & LBE business partners and their employees to learn how to install Siemens products and equipment.

TRAINING WORKSHOPS that include Installation Training, Estimation Training, and Introductory OSHA 10 Training.

FINANCE PROGRAM FOR SMALL AND MINORITY BUSINESSES

To address small businesses' common financial challenge of cash flow, Siemens provides an optional supply chain finance program that allows suppliers and contractors to receive payment within 15 days of submitting an invoice, regardless of whether Siemens has been paid for the work or not. This innovative supply chain finance program has earned Siemens positive feedback and recognition from both contractors (large and small) and government entities.



I-Wah Chang, Siemens' Supplier Diversity Specialist, will manage the diversity and inclusion outreach programs for Miramar's project.

Small Business and Supplier Diversity Spend Achievements

Siemens has consistently demonstrated itself as an industry wide and business community leader in supporting and promoting minority, women-owned, small, and emerging businesses. Recognizing the truth in the adage that you get what you measure, Siemens Procurement and Business Intelligence developed Siemens Central Analysis & Intelligence (SCAI) that enables transparency into procurement related figures, results, and details. SCAI enables our teams to analyze and report small and diverse business subcontracting information broken out by Division, Zone, or Branch across all of Siemens' business lines. These data metrics allow us to track and demonstrate progress towards our corporate wide commitment to expanding partnerships with CBE, SBE, & LBE businesses.

Our commitment and focus on the value generated from strong CBE, SBE, & LBEs has resulted in roughly half a billion dollars of revenue for our CBE, SBE, & LBE business partners and their local communities every year. These efforts generate significant benefits for Siemens, our local business partners, our customers, and the communities in which we all live.

	Proposed Small Business Target (%)	Proposed Small Business Target (\$)	Achieved Small Business Target (%)	Achieved Small Business Target (\$)
FY13	27%	\$540 Million	18.2%	\$470.1 Million
FY14	21.4%	\$556 Million	20.7%	\$468 Million
FY15	21.4%	\$514 Million	20.7%	\$495 Million
FY16	21.4%	\$535 Million	20.8%	\$501 Million
FY17	21.4%	\$500 Million	20.4%	\$522 Million
FY18	21.4%	\$500 Million	22.1%	\$565 Million
FY19	21.4%	\$428 Million	21.4%	\$483 Million
FY20	22.2%	\$466 Million		

The following results detail Small and Diverse Business Achievement results for Fiscal Year 2019 for the Siemens Building Technologies Division. These metrics have been segmented by United States, Southeast Region, within the State of Florida, and within our Miramar office.

NATIONALLY: For FY19, BT nationally spent \$1.077 Billion, with \$254.618 Million or 26.5% with small and diverse businesses.

SOUTHEAST ZONE: For FY19, the Southeast Zone spent \$98 Million, with \$23.28 Million or 25.3% with small and diverse businesses.

STATE OF FLORIDA: For FY19, the Branches in Florida spent \$39.4 Million, with \$7.21 Million or 20.1% with small and diverse businesses.

MIRAMAR OFFICE: For FY19, the Miramar Office has spent \$15.8 Million, with \$3.18 Million or 22.2% with small and diverse businesses.

We acknowledge the City's requirements to reach 10% CBE subcontractors, and we have a tangible approach to exceed this goal. We have already partnered with four CBE for the Miramar project, and there will be additional opportunities for more CBEs to join our team.

SIEMENS COMMITMENT TO THE CITY OF MIRAMAR

Siemens is committed to utilizing our best and good faith efforts to working with the City of Miramar to provide the greatest number of opportunities for CBE, SBE, & LBE firms and to ensure their inclusion in the project contributes to the advancement of these companies and the community.

The following section provides specifics on the planning, outreach, and measurements that Siemens will conduct with our partners **Dickey Consulting** and **Minority Builder's Coalition** to ensure the inclusion of CBEs, SBEs, and LBEs participating in Miramar's guaranteed savings performance contract project.

Miramar Project Subcontracting Plan

STEP 1 – Corporate recognition of the importance of having a dedicated project-specific resource focused on increasing the participation of CBE, SBE, & LBE on all Siemens projects.

Recognizing the importance of investing in dedicated resources focused on project level sourcing requirements, Siemens created the Supplier Diversity Specialist Position within our procurement department. This unique and collaborative role provides project-specific support across the United States to promote local business and supplier diversity participation.

STEP 2 – Specialized resources understand the nuances of a specific diversity market environment.

Locally, Siemens has partnered with the Broward County Minority Builders Coalition and Dickey Consulting Services (DCS) as an integral part of our team for developing, communicating, and executing a successful CBE, SBE, & LBE engagement and inclusion plan. DCS will be a prominent management team member planning, executing, and evaluating the program with Siemens staff. Siemens, Broward County Minority Builders Coalition, and DCS will work together to ensure Siemens is aligned with and helps to advance Miramar's inclusion of CBE, SBE, and LBE entities.

STEP 3 – Recognize the need to host an Outreach Event to meet or perform a General Interest Solicitation to broaden the local supply base of diverse companies.

The Siemens Project Management, Procurement, and local partners teams will work with the City's procurement and economic diversity staff to develop and plan both a general interest solicitation and CBE, SBE, & LBE outreach event to raise awareness of subcontracting opportunities as part of this project. Both the Outreach Event and General Interest Solicitation will allow for Siemens to broaden the local supply base of diverse companies. To ensure success with this initiative, Siemens and its' partners DCS and the Minority Builders Coalition will develop and coordinate a Specialized Training Program for CBEs, SBEs, & LBEs. Once

Siemens identifies the scope of work for the program, the local partners will identify local firms in those NAICS Codes to recruit for a six-week training program. This 9-hour course will consist of soft and technical information presented by Siemens staff to educate the participants about Siemens and its solicitation process. Once the firms graduate, they will be able to respond to the program solicitations in their fields with only those firms who were in the class. Specific portions of the program work will be bid out for response by only the class participants. This will ensure that local CBEs, SBEs, & LBEs learn how to do business with Siemens. This benefits Siemens as it enlarges the pool of subcontractors they can rely upon. The City of Miramar will have assisted in expanding the pool of local businesses who have expertise in bidding with the private sector and government projects. This Training program will be conducted during the Investment Grade Audit.

STEP 4 – Educate CBE, SBE, & LBE firms about how ESCOs, specifically Siemens, develop projects and how the specific trades fit into the projects.

DCS will assist Siemens staff with the Outreach event and during the Outreach Event. The Sales Executive will provide an overview of Siemens Energy Performance Solutions and the different types of work that we do. They will also explain the Energy Service Performance Contract (ESPC) industry, high-level steps of how ESPCs are developed, the types of services that Siemens offers as an ESCO, and how the trades fit into ESPCs.

STEP 5 – Educate CBE, SBE, & LBE firms on how to do business with Siemens, what is expected, and the resources that Siemens can offer.

The Outreach Events are free to attend and offer CBE, SBE, & LBE firms the opportunity to meet and network with local Siemens representatives, third-party business development agencies, City of Miramar representatives, and one another. As part of this event, the Siemens Procurement Manager will review Siemens Sourcing Methodology, subcontractor qualifications requirements, and next steps in the process to become a potential subcontractor. Attendees will also have the opportunity to learn about the optional Siemens Supply Chain Finance Program, which helps to address cash flow issues.

STEP 6 – Assess scopes of work and potentially carve out smaller scopes to ensure they are an appropriate size for CBE, SBE, & LBE firms.

Siemens understands the importance of ensuring that contract scopes are the appropriate size for contracting with certified CBE, SBE, & LBE firms. We will take the time to reasonably structure the scopes of work to fit the market capabilities to ensure that we do not inadvertently preclude CBE, SBE, & LBE firms from participation. DCS will assist the Siemens team with reviewing the scopes to ensure CBE, SBE, & LBE firms are not inadvertently precluded from participation as part of the evaluation process.

STEP 7 – Identify opportunities for CBE, SBE, & LBE firms to participate in solicitations.

Small and diverse businesses are considered for participation in every Siemens project. Procurement will review our internal databases and lists for subcontractors with whom we have done business with in the past. DCS and Siemens Procurement will also work with new CBE, SBE, & LBE firms identified through the Outreach Event and General Interest Solicitation.



Brian Johnson, Minority Builders Coalition, has partnered with Siemens as a consultant and will support our community outreach efforts in the City of Miramar.

STEP 8 – Ensure solicitations are made available in a timely manner.

By hosting Outreach Events and performing broad-based General Interest Solicitations proactively before opportunities are available, Siemens can build a pool of contractors who have already expressed interest in working with Siemens. This dynamic pool of subcontractors allows our Procurement team to proactively and quickly solicit subcontractor participation in Siemens projects. DCS and the Siemens Procurement staff will work the graduates of the Specialized Training Program to ensure they are actively participating in the solicitation process.

STEP 9 – Review and de-scope bids with CBE, SBE, & LBE firms when they are unsuccessful in being awarded the opportunity.

While Siemens wants to see CBE, SBE, & LBE firms be awarded with the opportunities on which they bid, the CBE, SBE, & LBE firms still need to successfully bid these opportunities. Our Procurement and Operations teams will work with unsuccessful bidders to de-scope their proposals and learn how to improve on future opportunities. DCS will encourage and arrange these de-scope educational meetings to ensure CBE, SBE and LBE firms are provided with a continued learning opportunity to propose on other bids.

STEP 10 – Continue to provide feedback during and after completion of performance on opportunities.

Siemens utilizes our Project Management and Controlling Tool (PMCT) to track subcontractor and overall project performance. Operations and Procurement will continue to work with subcontractors during and after project implementation to help them understand how they can improve performance and expand their future business opportunities with Siemens. DCS will follow up with all firms to ensure feedback is given and a matrix for improvement is provided.

Value for CBE, SBE, & LBE Participants

The ultimate goal is to provide the greatest number of opportunities for CBE, SBE, & LBE firms who participate in this process to secure work within this specific process. However the relationships, experience, and knowledge gained are all transferable benefits and skills that will help these companies also become more successful at securing future subcontracting opportunities with Siemens and other large firms in the area, as well as future work with the City.

Siemens plans to exceed the 10% goal by its inclusion on the management team of DCS and its Specialized Training Program that ensures a portion of the program work will only be solicited to its participants. A workforce development program will be coordinated to put local Miramar and Broward County residents to work for the subcontractors on the project.

PARTICIPATION PLAN

Please find Siemens Participation Plan for the City of Miramar on the following page.



Sheryl Dickey of Dickey Consulting, has partnered with Siemens to support our community engagement efforts in the City of Miramar.

SIEMENS

Industry

Acknowledgment of CBE, Small, and Local Business Participation Goal

The City of Miramar requires a minimum of 10% of services to be performed by a CBE, SBE, and/or Local (Miramar) Business for the GUARANTEED ENERGY, WATER AND WASTEWATER PERFORMANCE SAVINGS CONTRACTING SERVICES Project.

Siemens Industries, Inc acknowledges this project requirement and affirms the following:

- A: We will fully comply with the City's non-discrimination policies.
- B: We will provide a good faith effort to solicit approved Broward County Office of Economic and Small Business Development firms or Local Businesses (businesses within Miramar) to achieve the Project Plan stated above.
- C: We acknowledge that the Project will be monitored throughout the Contract term and the monthly utilization reports will be required to demonstrate compliance with Project.

Proposer's Authorized Signature

Company: Siemens Industry, Inc.

Signed by: 

Print Name: John Kovach

Date: 7/24/2020

Title: V.P. Energy Performance Services

Siemens Industry, Inc.

3021 Commerce Pkwy
Miramar, FL, 33025
USA

Tel: +1 954 364-6600
Fax: +1 954 364-6767

Section O Performance Bond

Siemens Industry, Inc.

O. PERFORMANCE BOND

The City may request the successful contractor to provide a performance bond for the duration of the project.

Prequalification/Bonding capacity for SII and Rating (As of 7-1-19)

- Liberty Mutual provides bonds for Contract (or "bid") Amounts \geq \$1M and \leq \$10M.
- Chubb and Zurich are co-sureties for Contract (or "bid") Amounts less than \$1M or greater than \$10M.

Bonding Capacity

- **Liberty Mutual**

Per Job: \$250,000,000
Aggregate: \$750,000,000

Bonding Capacity (for co-Surety bonds where both take 50%)

- **Chubb (Federal Insurance Company) & FD (Fidelity and Deposit Company of Maryland, subsidiary of Zurich)**

Per Job: \$250,000,000
Aggregate: \$1,500,000,000

- **Zurich**

Per Job: \$250,000,000
Aggregate: \$1,500,000,000

Bond/Surety Agent or Broker

- Marsh USA Inc.

Marisol Mojica
445 South Street, Suite 210
Morristown, NJ 07962

Bonding Company Name and AM Best Rating

- Fidelity and Deposit Company of Maryland (Zurich Insurance Group Ltd)

1299 Zurich Way, Schaumburg, IL 60196-1056.
Rating by AM Best: A+ (Superior)
Financial Size Category: XV (\$2 Billion or greater)
Maximum Federal Register Bond Limit (per bond): \$14,504,000
NAIC #39306

- Federal Insurance Company (Chubb Corporation)

15 Mountain View Road, Warren, NJ 07059.
Rating by AM Best: A++ (Superior)
Financial Size Category: XV (\$2 Billion or greater).
Maximum Federal Register Bond Limit (per bond): \$1,000,918,000
NAIC #20281

- Liberty Mutual Insurance Company (Liberty Mutual Holding Company Inc.)

175 Berkeley Street, Boston, MA 02117
Rating by AM Best: A (Excellent)
Financial Size Category: XV (\$2 Billion or greater).
Maximum Federal Register Bond Limit (per bond): \$1,330,705,000
NAIC #23043



Section P Affidavits and Acknowledgements

Siemens Industry, Inc.

P. AFFIDAVITS AND ACKNOWLEDGEMENTS.

ACKNOWLEDGEMENTS AND REQUIRED FORMS

Please find all acknowledgements to addenda on the following pages. All required forms are included following the addenda acknowledgements.

Siemens Industry Inc. ("SII") has reviewed the RFP Documents. We agree with the intents and purposes described in the RFP and sample contract attached thereto. If awarded the project, SII reserves the right to discuss the Contract terms with the City of Miramar in order to reach a mutually satisfactory document encompassing all of the intents and purposes described in the RFP Documents. SII and the City of Miramar shall review the proposed contract terms and reach a mutually agreeable contract within a reasonable time after the award of the project.

COVID-19

As a result of the global Covid-19 Virus outbreak, temporary delays in delivery, labor or services from Siemens and its sub-suppliers or subcontractors may occur. Among other factors, Siemens' delivery is subject to the correct and punctual supply from sub-suppliers or subcontractors, and Siemens reserves the right to make partial deliveries or modify its labor or services. While Siemens shall make every commercially reasonable effort to meet the delivery or service or completion date mentioned above, such date is subject to change.

Date of Issuance of Addendum: **May 26, 2020**

CITY OF MIRAMAR
Procurement Department
ADDENDUM NO. 1

To

**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 1** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 1** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 1** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 1 by including a signed copy of this form in each Proposal.

Due to the COVID-19 PANDEMIC, THE CITY OF MIRAMAR IS CURRENTLY CLOSED TO THE PUBLIC. THE FOLLOWING CHANGES HAVE BEEN MADE TO ACCOMMODATE THE PRE-PROPOSAL CONFERENCE AND SITE VISITS.

**I. THE SOLICITATION TIMETABLE IN SECTION 2-5 OF THE RFQ
HAS BEEN AMENDED AS FOLLOWS:**

RFQ Advertised	Thursday, April 30, 2020
NON-MANDATORY: Pre-Proposal Conference will be held virtually via webex. <i>(Please see updated Webex information below)</i>	Thursday, May 28, 2020 at 10:00 AM
NON-MANDATORY Site Visits by appointment only (Please see instructions below for site visits)	<p>Appointments will be scheduled during one of the following timeframes:</p> <p>Public Works Site Visits: June 1, 2020 9AM -12PM OR June 2, 2020 9AM – 12PM</p> <p>Utilities Site Visits: June 3, 2020 9AM -11 AM OR June 4, 2020 9 AM - 11 AM</p>

Deadline for written questions and requests for information	Tuesday, June 9, 2020
Due Date and Time for this RFQ (<i>Due to COVID-19 Proposal submission instructions will be issued via subsequent Addendum.</i>)	June 30, 2020 at 2:00 P.M.

II. **UPDATED WEBEX INFORMATION FOR PRE-PROPOSAL CONFERENCE ON THURSDAY MAY 28, 2020 AT 10:00 A.M**

Meeting Link:

<https://miramarfl.webex.com/miramarfl/j.php?MTID=md6bf110b16c9b7d12f96aee33e573678>

Join By Phone:

+ 1-415-655-0001 US Toll

Meeting number (access code) 474 471 794

Join from a video system or application

Dial 474471794@miramarfl.webex.com

You can also dial 173.243.2.68 and enter your meeting number.

III. **INSTRUCTIONS FOR SITE VISITS**

1. Each person that will attend a site visit must complete the Waiver of Liability form and the COVID-19 Questionnaire below. The Questionnaire must be completed the day of the site visit. The Waiver of Liability Form and Questionnaire must be submitted to City staff conducting the site visit before commencement of the visit.
2. Due to COVID-19 and the City's requirements to maintain social distancing there will be a limited number of vendors allowed at each site visit. Each vendor must provide a list of locations / equipment that they would like to see along with any preference for a timeframe shown in the table above by 4:00 PM on Thursday, May 28, 2020. A confirmation will be provided via e-mail for a date and time. Please be reminded also that some of the City's equipment may be visible through Google Earth and the Broward County Property Appraisal's (BCPA) website.
3. Vendors that will attend site visits MUST show up with proper Personal Protective Equipment (PPE) which includes face masks and gloves. The City reserves the right to also take the temperature of each participant on the site visit. Individuals that are not wearing the requested PPE will not be allowed on the site visits.
4. To ensure all vendors are provided with the same information, the site visits will be for viewing purposes only. Only responses to questions and information provided in writing via an addendum will be binding in this RFQ process.

IV. **THE FOLLOWING WAIVER OF LIABILITY IS ADDED TO THE SOLICITATION DOCUMENTS AS SECTION 15 AND MUST BE COMPLETED AND SUBMITTED BEFORE THE SITE VISIT.**

SECTION 15

CITY OF MIRAMAR RELEASE, WAIVER OF LIABILITY AND ASSUMPTION OF RISK FOR PROJECT SITE VISIT(S)

In consideration of being permitted to enter, visit or tour , The City of Miramar's _____ ("Project Premises") with the property address of _____, for inspection in relation to RFQ No. 20-02-15 for Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services, by signing below the UNDERSIGNED HEREBY:

1. ACKNOWLEDGES THAT THE VISIT TO OR TOUR OF THE PROJECT PREMISES IS POTENTIALLY HAZARDOUS and involves certain risks, including the risks of serious bodily injury, death, and property damage.
2. ASSUMES FULL AND SOLE RESPONSIBILITY FOR BODILY INJURY, DEATH, OR PROPERTY DAMAGE arising out of or related to the visit to or tour of the Project Premises, whether caused by the negligence of the Releasees or otherwise.
3. RELEASES, WAIVES, DISCHARGES, AND COVENANTS NOT TO SUE the City of Miramar ("City"), its officers, officials, agents, and employees ("Releasees"), from and for any and all claims, losses, or damages, and any claims or demands therefore (including, without limitation, legal fees and disbursements) on account of bodily injury, death, or property damage (including the loss therefrom) arising out of, from, or in any manner related or connected to the visit to or tour of the Project Premises or the entry by the UNDERSIGNED upon the Project Premises, whether caused by the negligence of the Releasees or otherwise.
4. AGREES TO ASSUME THE RESPONSIBILITY AND LIABILITY for damage or injury to all persons and to all property, including the loss of use therefrom, arising out of, from, or in any manner connected with the UNDERSIGNED'S entry upon or use of the Project Premises. Notwithstanding any provision or agreement to the contrary, UNDERSIGNED shall defend, indemnify and hold harmless the Releasees against all claims, damages and losses (including without limitation legal fees and disbursements) for injury to persons or damage to property, including the loss of use therefrom, arising out of, from, or in any manner connected with the UNDERSIGNED'S entry upon or occupancy of the Project Premises.
5. AGREES THAT THIS RELEASE, WAIVER OF LIABILITY, AND ASSUMPTION OF RISK EXTENDS TO ALL ACTS OF NEGLIGENCE BY RELEASEES, AND IS INTENDED TO BE AS

RFQ No. 20-02-15
Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services
Addendum No. 1
Page 4 of 6

BROAD AND INCLUSIVE AS IS PERMITTED BY THE LAWS OF THE STATE OF FLORIDA and that if any portion thereof is invalid, agrees that the balance shall, notwithstanding, continue in full legal force and effect. This Release sets forth all agreements and understandings of UNDERSIGNED with respect to the subject matter hereof.

6. AGREES TO ABIDE by the City's safety policies and procedures, criteria and requirements at the Project Premises, and all safety instructions and directions provided by the City at the Project Premises.

I HAVE READ THIS RELEASE, WAIVER OF LIABILITY, AND ASSUMPTION OF RISK, FULLY UNDERSTAND ITS TERMS, UNDERSTAND THAT I HAVE GIVEN UP SUBSTANTIAL RIGHTS BY SIGNING IT, AND HAVE SIGNED IT FREELY, KNOWINGLY AND VOLUNTARILY WITHOUT ANY INDUCEMENT, ASSURANCE, OR GUARANTEE BEING MADE TO ME AND INTEND MY SIGNATURE TO COMPLETELY AND UNCONDITIONALLY RELEASE ALL LIABILITY TO THE GREATEST EXTENT ALLOWED BY LAW. This document is binding upon me and my family, heirs, children, assigns, personal representatives and anyone with the authority to act on my behalf.

By: _____
Releasor's Signature

Company Name: _____

Print Name: _____

Title: _____

Date: _____

V. AVAILABILITY OF RFQ FORMAT

Please note that the RFQ is available in Word format and Attachment 1 is available in Excel Format. Requests for any part of the RFQ in a format other than the advertised pdf format must be made in writing and it will be provided via email.

In accordance with Section 1-4(a)(1) of the Solicitation, "It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the performance of this Solicitation. Pleas of ignorance by the proposer of conditions that exist or that may exist will not be accepted as a basis for varying the requirements of this solicitation.

ADDENDUM ACKNOWLEDGEMENT

BY: Bryan Reardon
PRINT NAME

Reardon William
SIGNATURE

Digitally signed by Reardon William
DN: cn=Reardon William,
o=Siemens,
email=bryan.reardon@siemens.com
Date: 2020.06.29 13:45:11 -04'00'

COMPANY NAME: Siemens Industry

Date of Issuance of Addendum: **June 25, 2020**

CITY OF MIRAMAR
Procurement Department
ADDENDUM NO. 2
To
**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 2** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 2** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 2** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 2 by including a signed


DUE DATE and TIME:

By way of this addendum, all sections of the RFQ that refers to the due date and time shall be changed from June 30, 2020 at 2:00 PM to July 28, 2020 at 2:00 PM.

In accordance with Section 1-4(a)(1) of the Solicitation, "It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the performance of this Solicitation. Pleas of ignorance by the proposer of conditions that exist or that may exist will not be accepted as a basis for varying the requirements of this solicitation.

ADDENDUM ACKNOWLEDGEMENT

BY: Bryan Reardon
PRINT NAME

Reardon
William

SIGNATURE

Digitally signed by Reardon William
DN: cn=Reardon William,
o=Siemens,
email=bryan.reardon@siemens.com
Date: 2020.06.25 13:13:45 -04'00'

COMPANY NAME: Siemens Industry

Date of Issuance of Addendum: July 2, 2020

CITY OF MIRAMAR
Procurement Department
ADDENDUM NO. 3

To
**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 3** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 3** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 3** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 3 by including a signed copy of this form in each Proposal.

A. QUESTIONS AND ANSWERS:

1. What is the age and condition of the anaerobic digestion equipment including the covers, boiler, heat exchanger, and gas safety equipment?

ANSWER: The Anaerobic digesters and equipment are 24 years old. All of the equipment is at the point of its life expectancy.

2. Please provide a hydraulic profile of the plant.

ANSWER: The City has available the hydraulic profile of the plant in 2009. Please see Attachment 1.

3. What is the age and type and materials of diffused aeration equipment in the aeration tanks?

ANSWER: All of the header is original since 1996. In 2010, all of the fine ceramic bubbler diffusers were replaced. (Sanitare) is the manufacturer of the diffusers.

4. What is the age, type, HP, voltage, design air flow capacity and discharge pressure of the aeration blowers?

ANSWER: Blowers 1-3 original equipment installed in 1996 and Blowers 4 and 5 installed in 2009. Please review Attachment 2 (Aeration Blowers) for detailed information.

5. What is the sludge age or MCRT of the activated sludge process?

ANSWER: Sludge age or MCRT averages between 4 to 5 days.

6. What is the number, type, condition and age of the sludge dewatering equipment in use at the plant?

ANSWER: There are (2) GBT's and (2) BFP's which are 24 years old They were just recently refurbished between the latter part of 2018 and completed in December of 2019. All of the units are showing the sign of age. See attached design data for both see Attachment 3 (Belt Filter Press) and Attachment 4 (Gravity Belt Thickeners).

7. Is there a stated SBE/CBE goal for the project? Do subcontractors and subconsultants qualify for the 5% SBE/CBE proposal ranking preference? What list of SBE/CBE firms does the city utilize?

ANSWER: See items 2 and 3 of this addendum. There will be no preference points applied for SBE/CBE.

8. In Article 3 of the proposed Agreement, please explain how a fiduciary duty would be expected or applied to a City-Contractor relationship.

ANSWER: Please refer to Article 3, item 3.1 for additional clarification.

9. The proposed Agreement appears to be for consulting services and does not include typical construction terms that are normally included in the contract for construction. Is it more appropriate to provide a design-build construction contract instead of a contract for consulting services?

ANSWER: Contract terms and conditions will be revised and negotiated with the Successful proposer as necessary.

10. The City requests a limitation of liability in the Agreement equal to the amount of the fee paid to the energy savings performance contractor. Will the City provide and equal limitation of liability to the energy savings performance contractor that is equal to the project cost?

ANSWER: No

11. The proposed Agreement includes a request for a four year warranty and guarantee against design errors and omissions including replacement of defective work. On what design basis does the City prove that errors and omissions exist in the design and determine that any work is defective?

ANSWER: As construction commences and the project progresses, should the contractor realize any deficiencies in the scope of work that attribute directly to the design, the contractor will notify the City and then the City will file a claim against the error & omission clause accordingly.

12. Do we need to provide a bonding capacity letter as part of the response?

ANSWER: No. The City may require a payment and performance bond which will be negotiated with the successful proposer.

13. Section 1-11 includes the following statement which seems to state that submitted materials for this RFQ response would be made immediately available for public records requests:

Proposers are provided with notice that all information submitted as part of or in support of Proposals will be available for public inspection after opening of the Proposals, in compliance with Chapter 119, Florida Statutes, popularly known as the "Public Records Law". Any person wishing to view the Proposals must make an appointment with the City's Clerk.

Generally, written RFQ submittals are not made available for public review until the conclusion of the cone of silence to help protect the competitive process. For example, short listed companies invited to participate in team interviews, would not be allowed to have access to the submitted materials of the other shortlisted companies in advance of the interviews. Can the City clarify if respondents' submitted responses will be held confidential through the selection process?

ANSWER: The City follows the requirements of Florida Statute 119 for all public records requests (see Section 119.071(2)).

14. Can the city please provide your electric bill history for the previous 12 months.

ANSWER: Please see Attachment 13

15. Can the city please provide your natural gas bill history for the previous 12 months.

ANSWER: Please see Attachment 14

16. Can the city please provide your water bill history for the previous 12 months.

ANSWER: Please see Attachment 15

17. If not providing utility billing data, which buildings utilize natural gas?

ANSWER: None.

18. Are streetlights owned and operated by City?

ANSWER: Streetlights owned and operated by FPL are approximately 3,177+/-; owned and operated by Broward County are approximately 67+/-; owned by FDOT and operated by City are approximately 309+/-; and owned and operated by the City of Miramar are approximately 479+/-.

19. Are all the facilities viewable from a common BMS front end? If yes what system?

ANSWER: 5 facilities are controlled by City's Trane Ensemble BMS, and 16 by the City's Niagara/Distech BMS

20. Is any of the BMS equipment maintained by a third party? If yes please provide copies of agreements.

ANSWER: Yes, the Trane Ensemble BMS by Trane

21. Is any of the HVAC equipment maintained by a third party? If yes please provide copies of agreements.

ANSWER: Please refer to the Attachment 5 (AC Maintenance) and Attachment 6 (Blizzard AC Maintenance).

22. Two natural gas meters were found outside the Multicultural Center building labeled "boiler".

a. Does this building have boilers?

ANSWER: No

b. If so, what are they used for?

ANSWER: Cooking

c. What other systems at the facility if any are utilizing natural gas?

ANSWER: No

23. Does the city use reclaimed water for all irrigation? If not what other water sources are used?

ANSWER: The City has been using the reclaimed water for irrigation where it is available. The Wastewater Reclamation Facility is currently undergoing an expansion so it can eventually produce 7.5 MGD reclaimed water.

24. Please briefly describe the City's irrigation controls.

ANSWER: The City follows the SFWMD guidance on irrigation rules.

25. Request for utility consumption data, which I am told has already been requested by other firms.

ANSWER: Please refer to question no.39.

26. SBE/CBE – The first phase of the project is the Audit phase which we conduct with our in-house engineering staff. However, it is our intent to maximize SBE/CBE participation during the implementation phase; how should we best reflect this in the RFQ to maximize our Local Business score?

ANSWER: Please see items # 2 and 3 of this addendum.

27. Paragraph 2.3.3 states that the selected firm will “conduct analysis of proposed energy, water and wastewater conservation measures, and their costs, savings and benefits.” For clarity, can you confirm that it is the intent of the City to move forward with implementation of approved conservation measures with the selected firm, and after the Investment Grade Audit?

ANSWER: Confirmed.

28. Allow us to request a review of documentation submitted by external entities in support of this RFQ.

ANSWER: The City conducted market research to determine the feasibility of this project. An appointment can be made with the Procurement Contact to view documentation.

29. Regarding the City’s RFQ No. 20-04-10, please elaborate on the dynamics of these two RFQs.

ANSWER: RFQ is for 20-04-10 is for Renewable Energy, the project only include the Utilities Department and the City absorbs the cost for that project.

30. Due to the current COVID 19 pandemic, we are working remotely among some of our staff, as well as our clients (who are required to fill out and sign the Reference Questionnaire form), are true “wet” signatures required for the original copy requested in the RFQ, or will electronic signatures suffice?

ANSWER: The City will accept electronic signatures

31. The City has indicated that 5 points will be awarded for a CBE/SBE firm submitting on this RFQ; however, this appears to conflict with Sec2-455b of the City Code says that the CBE/SBE provision shall not apply to professional services procured pursuant to CCNA, which is true for this RFQ. Is the City going to revise the points system for this RFQ to be compliant with City Code?

ANSWER: By way of this addendum, all references to Preference Points shall be removed and not applied (See revised Evaluation Criteria in item # 3 of this addendum.

32. We would like to request membrane pilot tests and operational data for the membrane performance at the West Water Plant.

ANSWER: There is no membrane pilot tests. However, for the operational data for both East and West WTPs, please refer to question no.39 (MOR reports).

33. The City of Miramar Utilities Department has previously contracted for professional services with engineering consulting firms, who are/is also an ESCO, to perform plant evaluations of system improvements including evaluation and recommendations of possible energy savings methodologies. Will these firms be permitted to respond to this RFQ?

ANSWER: The RFQ is open to the public and all eligible firms are welcomed to submit their proposals.

34. In addition to the firms that attended the site visits with us today, can you please advise which other firms have attended the site visits?

ANSWER: The following firms attended site visits: Wharton-Smith, Inc., Trane, Energy Systems Group, Siemens Industry, AECOM, Ameresco, Honeywell, Ardurra, Garth Solutions, Inc.

35. What is the current status of the AMI water meter replacement plan? Will the ongoing AMI program part of the Guaranteed Energy Savings Performance Contract?

ANSWER: AMI water meter replacement is an ongoing CIP project. We do not expect the AMI program is part of this contract but will be open to ideas that can prove to be valuable to the City.

36. What is the current status of the LED streetlight conversion plans? Will the City-owned Street lights be part of the Guaranteed Energy Savings Performance Contract?

ANSWER: The LED streetlight conversion plans are going forward and will be a part of the Guaranteed Energy Savings Performance Contract.

37. Can you provide Utility expenditures for all major buildings and Utilities?

ANSWER: Please refer to question no.39.

38. Will Consulting/Engineering firms that have done business or are currently under contract with City of Miramar Utilities be permitted to submit a proposal response as the Prime ESCO Contractor?

ANSWER: Yes.

39. We would like to request the following information in advance of Thursday's Pre-proposal conference and site visits.

- List of the City plants and type

ANSWER: Wastewater Reclamation Facility (WWRF), West Water Treatment Plant (West WTP), East Water Treatment Plant (East WTP)

- Plant layouts, treatment processes, dimensions, capacities

ANSWER: WWRF-please refer to Attachment 7 - 2017 CAR Report_WWRF.pdf. For East WTP, please refer to Attachment 8 - East WTP Flow Diagram.pdf. The flow diagram for West WTP is currently being developed and not available at this time. However, the City will be able to provide more information if specific items are requested.

- Energy usage at each plant

ANSWER: Please refer to Attachment 9 -FPL Energy Reports

- Flows at each plant

ANSWER: Permitted capacity: WWRF-12.7MGD, West WTP-11.75 MGD, East WTP-6 MGD

- Permits

ANSWER: Please refer to Attachment 10 for WWRF permit. No detailed operation permits both East and West WTPs as confirmed by FDEP and Chief Operators.

- Monthly Reports

ANSWER: Please refer to Attachment 11 for the Membrane Softening Water Treatment Plant Monthly Operations Report ("MOR") for both East and West WTP and Attachment 12 – Department Monthly Report ("DMR") for WWRF. (Please note Attachment 11 and Attachment 12 are available in Excel format upon request).

- Chemical dosing and usage

ANSWER: Please refer to Attachment 11 MOR and Attachment 12 DMR

- Inflow and outflows water chemistry

ANSWER: Please refer to Attachment 11 MOR and Attachment 12 DMR

40. Can you please provide Attachment 1 – Inventory List in excel format?

ANSWER: Yes, requests for documentation in word of excel format must be made in writing to the Procurement contact listed in the RFQ.

41. Can I use a drone to take pictures?

ANSWER: The City prefers the use of Broward County Aerial photos and photos that were taken during site visits.

2. PARTICIPATION PLAN FOR THE PROJECT

The City requires a minimum of 10% of services to be performed by a CBE, SBE, and/or Local (Miramar) Business.

Proposers shall submit an Assurance Statement on company letterhead, signed by an authorized representative, affirming that company will comply with the City's non-discrimination policies, acknowledging the percentage requirements established for this Project, and agree to provide a good faith effort to solicit approved Broward County Office of Economic and Small Business Development firms or Local Businesses (businesses within Miramar) to achieve the Project Plan stated above.

The Project will be monitored throughout the Contract term and monthly utilization reports will be required to demonstrate compliance with Project goals in this regard. Contract penalties will be assessed for non-compliance. Submittals received without the required Assurance Statement may be considered Non-Responsive.

3. By way of this addendum, Section 2-11 of the RFQ is amended as follows:

2-11 EVALUATION CRITERIA

A. Following the closing of the Solicitation, the Proposals will be evaluated by an evaluation committee appointed by the City. The evaluation committee may be comprised of any combination of City personnel and representatives selected by the City with the appropriate experience and/or knowledge to ensure that the committee is well balanced. The scoring of Proposals is based on a point total and not a percentage factor.

B. The evaluation committee will first evaluate, score and rank responsive Proposals based on the criteria listed below. The criteria are itemized with their respective weights for a maximum total of 100 points. A Proposer may receive the maximum points, a portion of this score, or no points at all, depending upon the merits of the Proposal as judged by the evaluation committee. A Proposal that fails to adequately show the qualifications and experience necessary for this Project shall be deemed “Non-Responsive” and will not be considered.

C. The evaluation committee reserves the right, but is not obligated, to require oral presentations from one or more of the Proposers, either before or after the initial ranking, and shall have the option to short-list and re-rank after the receipt of additional information from such presentations, follow-up questions and answers, on-site Proposer demonstrations, reference checks or site visits.

Criteria	Points
1. Consultant’s background, qualifications, credentials and in-house expertise, factoring in the proposed Proposer team’s current workload and experience working together on similar energy performance projects. Provide details regarding three similar municipal projects performed by Proposer	30
2. Staff experience and resumes of team’s personnel, including assigned Project manager’s experience	15
3. Ability to finance project and methodology of finance plan for guarantee savings to the City	25
4. Understanding of the Project, technical approach, Commitment and innovation to project success	20
5. Participation Plan for the Project	10
TOTAL	100

ADDENDUM ACKNOWLEDGEMENT

BY: Bryan Reardon
PRINT NAME

Reardon William
SIGNATURE

Digitally signed by Reardon William
DN: cn=Reardon William,
o=Siemens,
email=bryan.reardon@siemens.com
Date: 2020.07.03 13:40:22 -04'00'

COMPANY NAME: Siemens Industry

RFQ No. 20-02-15
Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services
Addendum No. 3
Page 9 of 9

Date of Issuance of Addendum: **July 13, 2020**

CITY OF MIRAMAR
Procurement Department
ADDENDUM NO. 4

To

**GUARANTEED ENERGY, WATER AND WASTEWATER
PERFORMANCE SAVINGS CONTRACTING SERVICES**

Proposers are hereby notified that this **Addendum No. 4** shall be attached to and made part of the above named Request for Qualifications (the "RFQ") issued on April 30, 2020.

This **Addendum No. 4** is issued to add to, delete from, modify, clarify and/or amend the RFQ. The item(s) contained in this **Addendum No. 4** shall have full force and effect as part of the RFQ and shall prevail to the extent of any conflict with the original RFQ.

The Proposer shall acknowledge receipt of this Addendum No. 4 by including a signed copy of this form in each Proposal.

PROPOSAL SUBMITTAL:

In an effort to lessen contact due to the COVID-19 PANDEMIC , all Proposals in response to this RFQ must be submitted electronically to the City's secured e-mail address at bids@miramarfl.gov and must not be delivered to the City Clerk's Office.

The subject of the e-mail must be entitled as follows when submitting the proposal:

"RFQ 20-02-15 – ("Company's Name")"

Please note that an automatic confirmation e-mail will be sent for files received.

In accordance with Section 1-4(a)(1) of the Solicitation, "It is the sole responsibility of the Proposer to become thoroughly familiar with the Solicitation requirements and all terms and conditions affecting the performance of this Solicitation. Pleas of ignorance by the proposer of conditions that exist or that may exist will not be accepted as a basis for varying the requirements of this solicitation.

ADDENDUM ACKNOWLEDGEMENT

BY: Bryan Reardon
PRINT NAME

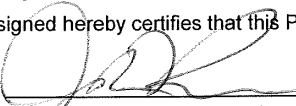
Reardon William
SIGNATURE
Digitally signed by Reardon William
DN: cn=Reardon William,
o=Siemens,
email=bryan.reardon@siemens.com
Date: 2020.07.24 08:16:37 -04'00'

COMPANY NAME: Siemens, Industry

Required Forms

1. PROPOSAL COVER PAGE (SECTION 4)

SECTION 4 PROPOSAL COVER SHEET – RFQ #20-02-15

PROPOSER'S NAME (Name of firm, entity, or organization): Siemens Industry, Inc., Smart Infrastructure	
FEDERAL EMPLOYER IDENTIFICATION NUMBER: 13-2762488	
NAME AND TITLE OF PROPOSER'S CONTACT PERSON:	
Name: Bryan Reardon	Title: Account Executive, City Infrastructure
MAILING ADDRESS:	
Street Address: 3021 North Commerce Parkway	
City, State, Zip: Miramar, FL 33025	
TELEPHONE: (727) 512-2220	FAX: () Email: bryan.reardon@siemens.com
PROPOSER'S ORGANIZATION STRUCTURE:	
<input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Proprietorship <input type="checkbox"/> Joint Venture <input type="checkbox"/> Other (explain):	
IF CORPORATION:	
Date Incorporated/Organized: November 28, 1972	
State of Incorporation/Organization: Delaware	
States registered in as foreign Corporation: N/A	
PROPOSER'S SERVICES OR BUSINESS ACTIVITIES OTHER THAN WHAT THIS SOLICITATION REQUESTS:	
Building Automation, Mechanical Services, Electrical Services, Distributed Energy Services, Smart Grid and Micro Grid Solutions, Enlighted Building IoT Platform, Real-time Energy Management, Fire and Security, Smart Building Commissioning, Air IQ (mechanical services for airborne contaminants), Siemens Financial Services, Battery Storage, Product Lifecycle Management Software, Wind Energy Generation, Mobility (streetlights, traffic signalization, e-mobility solutions, rail systems), Smart Cities & IOT Consulting, Cyber Security Consulting, Mindsphere IoT Platform	
LIST NAMES OF PROPOSER'S SUBCONTRACTORS AND/OR SUBCONSULTANTS FOR THIS PROJECT:	
Hazen and Sawyer Hammond & Associates Engineering Dickey Consulting Services Broward County Minority Builders Coalition, Inc. Saltz Michelson Architects Anthony Brunson P.A. Advanced Green Technology	
PROPOSER'S AUTHORIZED SIGNATURE:	
The undersigned hereby certifies that this Proposal is submitted in response to this Solicitation.	
Signed by: 	Date: 6/23/20
Print name: John Kovach	Title: VP, EPS

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

2. PROPOSER INFORMATION FORM (SECTION 5)

SECTION 5

PROPOSER'S INFORMATION FORM

All information supplied in connection with this form is subject to review and verification. Any and all determinations concerning this information will be used to determine eligibility for participation in the award. Inaccurate or incomplete answers may result in your Proposal being deemed "Non-Responsive."

- (1) How many years has your organization been in business under your present business name? 11 years
- (2) State of Florida business tax receipt type and number: Mechanical, CMC056249; Electrical, EF20001195
- (3) County (state county) business tax receipt type and number: HVAC, 183-1873; Alarm, 181-3435;
- (4) City business tax receipt license type and number: 97000002

PROPOSERS MUST INCLUDE A COPY OF EACH LICENSE LISTED WITH PROPOSAL

- (5) Describe experience providing services/commodities for similar (government) organizations:

Siemens helps create perfect places to live and work by leveraging innovation that saves money and reduces energy, creating smarter and more sustainable communities. We implement energy conservation solutions for municipalities with local, diverse supplier bases. We contribute to social sustainability by using these infrastructure upgrades to promote living labs and STEM education, thereby stimulating local economic development and job creation. Our extensive expertise in guaranteed performance-based solutions, combined with our scalable, proven portfolio, allows Siemens to efficiently and effectively meet the needs of all cities.

- (6) Have you ever had a contract terminated (either as a prime contractor or sub-contractor) for failure to comply, breach, or default?

_____ yes ✓ _____ no

(IF YES, PLEASE ENCLOSE A DETAILED EXPLANATION ON SEPARATE SHEET)



RICK SCOTT, GOVERNOR

JONATHAN ZACHEM, SECRETARY



**STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

CONSTRUCTION INDUSTRY LICENSING BOARD

THE BUILDING CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

KELLY, JOHN JAMES

SIEMENS INDUSTRY, INC.
1000 DEERFIELD PARKWAY
BUFFALO GROVE IL 60089

LICENSE NUMBER: CBC1260122

EXPIRATION DATE: AUGUST 31, 2020

Always verify licenses online at MyFloridaLicense.com



Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.



RICK SCOTT, GOVERNOR

JONATHAN ZACHEM, SECRETARY



STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
CONSTRUCTION INDUSTRY LICENSING BOARD

THE MECHANICAL CONTRACTOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

LANZILLO, EDWARD JEROME

SIEMENS INDUSTRY INC
3021 N COMMERCE PARKWAY
MIRAMAR FL 33025

LICENSE NUMBER: CMC056249

EXPIRATION DATE: AUGUST 31, 2020

Always verify licenses online at MyFloridaLicense.com



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**STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION**

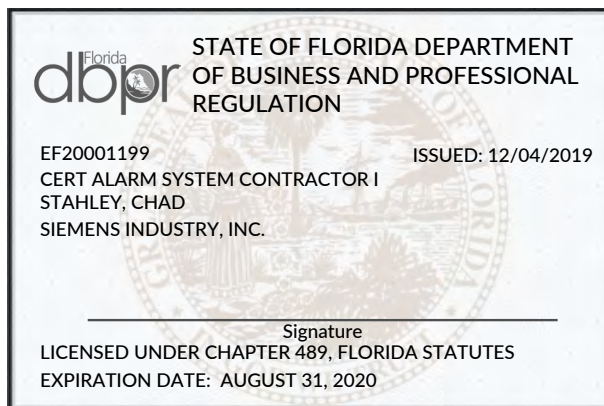
ELECTRICAL CONTRACTORS LICENSING BOARD
2601 BLAIR STONE ROAD
TALLAHASSEE FL 32399-0783

(850) 487-1395

Congratulations! With this license you become one of the nearly one million Floridians licensed by the Department of Business and Professional Regulation. Our professionals and businesses range from architects to yacht brokers, from boxers to barbeque restaurants, and they keep Florida's economy strong.

Every day we work to improve the way we do business in order to serve you better. For information about our services, please log onto www.myfloridalicense.com. There you can find more information about our divisions and the regulations that impact you, subscribe to department newsletters and learn more about the Department's initiatives.

Our mission at the Department is: License Efficiently, Regulate Fairly. We constantly strive to serve you better so that you can serve your customers. Thank you for doing business in Florida, and congratulations on your new license!



Ron DeSantis, Governor

Halsey Beshears, Secretary

**STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
ELECTRICAL CONTRACTORS LICENSING BOARD**

LICENSE NUMBER: EF20001199

EXPIRATION DATE: AUGUST 31, 2020

THE ALARM SYSTEM CONTRACTOR I HEREIN IS CERTIFIED UNDER THE PROVISIONS OF CHAPTER 489, FLORIDA STATUTES

STAHLEY, CHAD
SIEMENS INDUSTRY, INC.
12114 MONTEITH GROVE DRIVE
HUNTERSVILLE NC 28078



ISSUED: 12/04/2019

Always verify licenses online at MyFloridaLicense.com

Do not alter this document in any form.

This is your license. It is unlawful for anyone other than the licensee to use this document.

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA:
Business Name: SIEMENS INDUSTRY INC

Receipt #: 183-1873
Business Type: HEATING/AIRCONDITION CONTRAC
(MECHANICAL CONTR)

Owner Name: EDWARD J LANZILLO/QUAL
Business Location: 3021 N COMMERCE PKWY
MIRAMAR

Business Opened: 08/15/1997
State/County/Cert/Reg: CMC056249
Exemption Code:

Business Phone: 954-364-6600

Rooms **Seats** **Employees** **Machines** **Professionals**
300

For Vending Business Only						
Number of Machines:				Vending Type:		
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
150.00	0.00	0.00	0.00	0.00	0.00	150.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

DUCHARME, MCMILLEN & ASSOC. ATTN:
PO BOX 80600
INDIANAPOLIS, IN 46280

Receipt # 1CP-18-00012236
Paid 07/23/2019 150.00
07/22/2019 **Effective Date**

2019 - 2020

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA:
Business Name: SIEMENS INDUSTRY INC

Receipt #: 181-3435
Business Type: ELECTRICAL/ALARMS/CONTRACTOR
(ELECTRICAL CONTR)

Owner Name: MATTHEW W JORDAN-QUALIFIER
Business Location: 3021 N COMMERCE PKWY
MIRAMAR
Business Phone: 954-364-6600

Business Opened: 07/27/1998
State/County/Cert/Reg: EC13005752
Exemption Code:

Rooms **Seats** **Employees** **Machines** **Professionals**
10

For Vending Business Only						
Number of Machines:				Vending Type:		
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
27.00	0.00	0.00	0.00	0.00	0.00	27.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

DUCHARME, MCMILLEN & ASSOC. ATTN: :
PO BOX 80600
INDIANAPOLIS, IN 46280

Receipt # 1CP-18-00012239
Paid 07/23/2019 27.00
07/22/2019 Effective Date

2019 - 2020

BROWARD COUNTY LOCAL BUSINESS TAX RECEIPT

115 S. Andrews Ave., Rm. A-100, Ft. Lauderdale, FL 33301-1895 – 954-831-4000

VALID OCTOBER 1, 2019 THROUGH SEPTEMBER 30, 2020

DBA: SIEMENS INDUSTRY INC
Business Name:

Receipt #: 181-3435
Business Type: ELECTRICAL/ALARMS/CONTRACTOR
(ALARM CONTR)

Owner Name: STAHLEY, CHAD
Business Location: 3021 N COMMERCE PKWY
MIRAMAR

Business Opened: 07/27/1998
State/County/Cert/Reg: EF20001199
Exemption Code:

Business Phone: 954-364-6600

Rooms **Seats** **Employees** **Machines** **Professionals**

10

For Vending Business Only						
Number of Machines:			Vending Type:			
Tax Amount	Transfer Fee	NSF Fee	Penalty	Prior Years	Collection Cost	Total Paid
27.00	3.00	0.00	0.00	0.00	0.00	30.00

THIS RECEIPT MUST BE POSTED CONSPICUOUSLY IN YOUR PLACE OF BUSINESS

THIS BECOMES A TAX RECEIPT

WHEN VALIDATED

This tax is levied for the privilege of doing business within Broward County and is non-regulatory in nature. You must meet all County and/or Municipality planning and zoning requirements. This Business Tax Receipt must be transferred when the business is sold, business name has changed or you have moved the business location. This receipt does not indicate that the business is legal or that it is in compliance with State or local laws and regulations.

Mailing Address:

DUCHARME, MCMILLEN & ASSOC. ATTN: .
PO BOX 80600
INDIANAPOLIS, IN 46280

Receipt # 02C-19-00001337
Paid 02/19/2020 3.00

2019 - 2020



City of Miramar Business Tax Receipt

Business ID
97000002

Issue Date: 10/01/2019
Expiration Date: 09/30/2020

SIEMENS INDUSTRY, INC
C/O DUCHARME, MCMILLEN & ASSOCIATES
BL COMPLIANCE SERVICES
P O BOX 80600
INDIANAPOLIS, IN 46280

(954) 602-3040 or (954) 602-3061 Phone
(954) 602-3470 or (954) 602-4498 Fax
businessstax@miramarfl.gov

Home-Based Restrictions Only
Mail & Phone Only
No Employees at Home
No Work on Premises
No Clients at Home
No Deliveries to Home
Office Only

Cottage-Based Restrictions
Cottage food businesses are allowed in accordance with Florida Statute 500.80, except that the home shall not be used for retail. Please see regulations title 21 part 101.
Only one employee allowed which includes family members residing at the home. No commercial vehicles parked overnight on the premises.

BUSINESS TAX RECEIPT

This is to certify that the person or firm named herein has paid into my hands minimum payment of tax as set out herein for the use and benefit of the City aforesaid, and is licensed to engage in the business of:

CONTRACTOR	CONTRACTOR	13347
STORAGE WA	STORAGE WA	13352
HAZ MAT AN	HAZ MAT AN	17937
BUS/RET/WH	PER SQ FT	20108
FIXED FIRE	FIXED FIRE	20109
GENERATOR	GENERAT AC	24118

Business Location:

3021 COMMERCE PARKWAY
MIRAMAR FL 33025



**This License is NOT Transferable
Your Business Tax Receipt Must be displayed.**

3. PROPOSER'S DISCLOSURE OF SUBCONTRACTORS, SUBCONSULTANTS, AND SUPPLIERS (IF ANY) (SECTION 6)

SECTION 6 PROPOSER'S DISCLOSURE OF SUBCONTRACTORS, SUBCONSULTANTS, AND SUPPLIERS (IF APPLICABLE)

Please list all Subcontractors, Subconsultants and Suppliers to be used in connection with performance of the Contract (use additional pages if necessary):

Company Name: Hazen and Sawyer

Address: 4000 Hollywood Boulevard, Suite 750N

City, State, & Zip Code: Hollywood, FL 33021

Company Name: Advanced Green Technology

Address: 1950 NW 22nd St.

City, State, & Zip Code: Fort Lauderdale, FL 33300

Company Name: Hammond & Associates

Address: 150 NW 70th Avenue, Suite 10

City, State, & Zip Code: Plantation, FL 33317

SECTION 6

PROPOSER'S DISCLOSURE OF SUBCONTRACTORS, SUBCONSULTANTS, AND SUPPLIERS(CONTINUED)

Company Name: Dickey Consulting Services

Address: 1033 Sistrunk Blvd, Ste 206

City, State, & Zip Code: Fort Lauderdale, FL 33311

Company Name: Saltz Michelson Architects

Address: 3501 Griffin Rd

City, State, & Zip Code: Fort Lauderdale, FL 33312

Company Name: Anthony Brunson

Address: 3350 SW 148th Avenue, Suite 110

City, State, & Zip Code: Miramar, FL 33027

**FAILURE TO COMPLETE AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

- FORMS -

SECTION 6

PROPOSER'S DISCLOSURE OF SUBCONTRACTORS, SUBCONSULTANTS, AND SUPPLIERS(CONTINUED)

Company Name: Minority Builders Coalition

Address: 665 S.W. 27th Ave. Suite #16

City, State, & Zip Code: Fort Lauderdale, FL 33312

4. DRUG-FREE WORKPLACE AFFIDAVIT (SECTION 7)

SECTION 7 DRUG-FREE WORKPLACE AFFIDAVIT

FLORIDA STATE STATUTE 287.087

Identical Tie Bids: Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

- a) Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- b) Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
 - 1) Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
 - 2) In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 893, Florida Statutes, or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five days after such conviction.
 - 3) Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
 - 4) Make a good faith effort to continue to maintain a drug-free workplace through the implementation of this section.


SECTION 7

- FORMS -

DRUG-FREE WORKPLACE AFFIDAVIT (CONTINUED)

FLORIDA STATE STATUTE 287.087

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.



Proposer's Signature

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

- FORMS -

5. ANTI-KICKBACK AFFIDAVIT (SECTION 8)

SECTION 8 ANTI-KICKBACK AFFIDAVIT

STATE OF FLORIDA)
 lll)
COUNTY OF BROWARD) *SS: Miramar, FL*

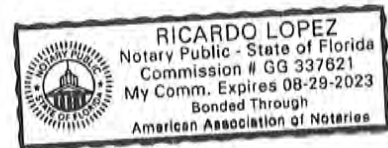
I, the undersigned, hereby duly sworn, depose and say that no portion of the sum herein proposed, or compensation that may be received as a result of this Proposal, will be paid to any employees of the City of Miramar, its elected officials, and Siemens Industry, Inc. or its design consultants, as a commission, kickback, reward or gift, directly or indirectly by me or any member of my firm or by an officer of the corporation.

By: *[Signature]*
Title: Head, Energy & Performance Services

Sworn to (or affirmed) and subscribed before me
by means of ☐ physical presence or ☒ online notarization,
this 23 day of JUNE, 2020 (year), by Sofia Kowacki.

[Signature]
Notary Public
State of Florida at Large

My commission expires: August 29, 2023



**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

6. NON-COLLUSIVE AFFIDAVIT (SECTION 9)

SECTION 9 NON-COLLUSIVE AFFIDAVIT

State of Florida)
) ss:
County of MIL D-DIE)

John Kovach, being first duly sworn, deposes and says that:

a) He/she is the Representative
(Owner, Partner, Officer, Representative or Agent) of
Siemens Industry, Inc. the Proposer that has submitted the attached
Proposal;

b) He/she is fully informed respecting the preparation and contents of
the attached Proposal and of all pertinent circumstances respecting such Proposal;

c) Such Proposal is genuine and is not collusive or a sham Proposal;

d) Neither the said Proposer nor any of its officers, partners, owners,
agents, representatives, employees or parties in interest, including this affiant, have
in any way colluded, conspired, connived or agreed, directly or indirectly, with any
other Proposer, firm, or person to submit a collusive or sham Proposal in connection
with the Work for which the attached Proposal has been submitted; or to refrain
from proposing in connection with such Work or have in any manner, directly or
indirectly, sought by person to fix the price or prices to be negotiated or that to be
negotiated by any other Proposer, or to fix any overhead, profit, or cost elements of
the Proposal price to be negotiated or to be negotiated by any other Proposer, or
to secure through any collusion, conspiracy, connivance, or unlawful agreement
any advantage against (Recipient), or any person interested in the proposed Work;

e) The price or prices to be negotiated will be fair and proper and will not
be tainted by any collusion, conspiracy, connivance, or unlawful agreement on the
part of the Proposer or any other of its agents, representatives, owners, employees
or parties in interest, including this affiant.

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

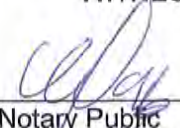
**SECTION 9
NON-COLLUSIVE AFFIDAVIT (CONTINUED)**

ACKNOWLEDGMENT

State of FLORIDA)
) ss:
County of M. Dade)

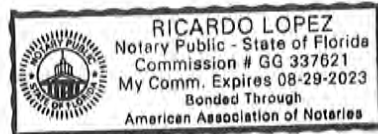
BEFORE ME, the undersigned authority, JOHN KOUACH,
personally appeared to me and known by me _____ or produced identification DL 119
to be the person described herein and who executed the foregoing Affidavit and
acknowledged to and before me that _____ executed said
Affidavit for the purpose therein expressed.

WITNESS my hand and official seal this 23rd day of JUNE, 2020



Notary Public
State of Florida At Large

My commission expires: 08/29/2023



**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

7. NON-DISCRIMINATION AFFIDAVIT (SECTION 10)

SECTION 10 NON-DISCRIMINATION AFFIDAVIT

I, the undersigned, hereby duly sworn, depose and say that the organization, business or entity represented herein shall not discriminate against any person in its operations, activities or delivery of Services under any agreement it enters into with the City of Miramar. The same shall affirmatively comply with all applicable provisions of federal, state and local equal employment Laws and shall not engage in or commit any discriminatory practice against any person based on race, age, religion, color, gender, sexual orientation, national origin, marital status, physical or mental disability, political affiliation or any other factor which cannot be lawfully used as a basis for Service delivery.

By: _____

Title: Head of Energy & Performance Services

Sworn to (or affirmed) and subscribed before me

by means of ☒ physical presence or ☐ online notarization,
this 23 day of JULY, 2020 (year), by JOHN KOVACH.

Notary Public
State of Florida at Large

My commission expires: 08/29/2023



**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

8. BUSINESS/VENDOR PROFILE SURVEY (SECTION 11)

BUSINESS EMPLOYING MIRAMAR RESIDENTS AFFIDAVIT

The completed and signed form must be returned with the Vendor's submittal if the Vendor is claiming the Business Employing Miramar Residents preference.

Vendor: Siemens Industry, Inc. - Energy & Performance Services
Address: 3021 N Commerce Pkwy, Miramar, FL 33025
Telephone Number: 727-512-2220 E-Mail Address: bryan.reardon@siemens.com
Solicitation No. and Title: Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Services
RFQ #20-02-15

By signing below, I hereby certify that Vendor has 213 employees (in the company's local workforce Broward and Miami-Dade Counties), of which 13 are full time equivalent Miramar residents.

[Signature]
Signature

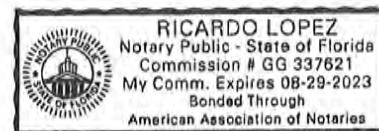
VP, EPS
Title

6/23/20
Date

Sworn to (or affirmed) and subscribed before me
by means of ☒ physical presence or ☐ online notarization,
this 23rd day of June, 2020 (year), by JOHN KOVACH.

STATE OF Florida
COUNTY OF Miami Dade

[Signature]
Notary Public (Sign name of Notary Public)



My commission expires: 08/29/2023 (SEAL)

Personally Known _____ or Produced Identification X
Type of Identification Produced Doc License

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR PROPOSAL NON-RESPONSIVE**

9. PUBLIC ENTITY CRIMES (SECTION 12)

SECTION 12 PUBLIC ENTITY CRIMES

SWORN STATEMENT PURSUANT TO SECTION §287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES:

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted to The City of Miramar

by John Kovach

for Siemens Industry, Inc.

whose business address is 3021 N Commerce Pkwy, Miramar, FL 33025

and (if applicable) its Federal Employer Identification Number (FEIN) is 13-2762488

(If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:

2. I understand that a "public entity crime" as defined in Section §287.133(1)(g), Florida Statutes, means a violation of any state or federal Law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or of the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

3. I understand that "convicted" or "conviction" as defined in Section §283.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, non-jury trial, or entry of a plea of guilty or nolo contendere.

4. I understand that an "affiliate" as defined in Section §287.133(1)(a), Florida Statutes, means:

a. A predecessor or successor of a person convicted of a public entity crime;
or

b. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another

person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

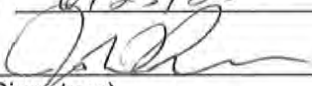
5. I understand that a "person" as defined in Section §287.133(1)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bids on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
6. Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement (Indicate which statement applies).

☒ Neither the entity submitting this sworn statement, nor any of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

☐ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

☐ The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989. However, there has been a subsequent proceeding before a Hearing Officer of the State of Florida, Division of Administrative Hearings and the Final Order entered by the Hearing Officer determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list (attach a copy of the final order).

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND, THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THE PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION §287.017, FLORIDA STATUTES, FOR CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

DATED: 6/23/20
BY: 
(Signature)
NAME: John Kovach
(Print)
TITLE: VP, EPS

STATE OF FLORIDA)
 M. BLOE) ss:
COUNTY OF BROWARD)

SWORN TO AND SUBSCRIBED before me this 23rd day of JUNE, 2020, by JOHN KOVACH, who is personally known to me or has produced Dr. License as identification.


Notary Public
State of Florida at Large
My commission expires: 08/24/2023



END OF DOCUMENT

**FAILURE TO COMPLETE, SIGN AND RETURN THIS FORM
MAY DEEM YOUR BID NON-RESPONSIVE**

10. FORM W-9 REQUEST FOR TAXPAYER IDENTIFICATION NUMBER AND CERTIFICATION (SECTION 13)

SECTION 13

<p>Form W-9 (Rev. January 2003) Department of the Treasury Internal Revenue Service</p>	<p>Request for Taxpayer Identification Number and Certification</p>	<p>Give form to the requester. Do not send to the IRS.</p>																																													
<p>Print or type See Specific Instructions on page 2.</p>	<p>Name Siemens Industry, Inc.</p>																																														
	<p>Business name, if different from above</p>																																														
	<p>Check appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Other ▶ <input type="checkbox"/> Exempt from backup withholding</p>																																														
	<p>Address (number, street, and apt. or suite no.) 100 Technology Drive</p>	<p>Requester's name and address (optional) City of Miramar 2300 Civic Center Place Miramar, FL 33025</p>																																													
	<p>City, state, and ZIP code Alpharetta GA 30005</p>	<p>List account number(s) here (optional)</p>																																													
<p>Part I Taxpayer Identification Number (TIN)</p>																																															
<p>Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN on page 3.</p>																																															
<p>Note: If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.</p>																																															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="9" style="text-align: center;">Social security number</td> </tr> <tr> <td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td><td style="width: 10%;"> </td> </tr> <tr> <td colspan="9" style="text-align: center;">or</td> </tr> <tr> <td colspan="9" style="text-align: center;">Employer identification number</td> </tr> <tr> <td style="width: 10%;">1</td><td style="width: 10%;">3</td><td style="width: 10%;">2</td><td style="width: 10%;">7</td><td style="width: 10%;">6</td><td style="width: 10%;">2</td><td style="width: 10%;">4</td><td style="width: 10%;">8</td><td style="width: 10%;">8</td> </tr> </table>			Social security number																		or									Employer identification number									1	3	2	7	6	2	4	8	8
Social security number																																															
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<p>Part II Certification</p>																																															
<p>Under penalties of perjury, I certify that:</p>																																															
<p>1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and</p>																																															
<p>2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and</p>																																															
<p>3. I am a U.S. person (including a U.S. resident alien).</p>																																															
<p>Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. (See the instructions on page 4.)</p>																																															
<p>Sign Here</p>	<p>Signature of U.S. person </p>	<p>Date ▶ 6/23/20</p>																																													
<p>Purpose of Form</p>																																															
<p>A person who is required to file an information return with the IRS, must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.</p>																																															
<p>U.S. person. Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:</p>																																															
<p>1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued).</p>																																															
<p>2. Certify that you are not subject to backup withholding, or</p>																																															
<p>3. Claim exemption from backup withholding if you are a U.S. exempt payee.</p>																																															
<p>Note: If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.</p>																																															
<p>Foreign person. If you are a foreign person, use the appropriate Form W-8 (see Pub. 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).</p>																																															
<p>Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the recipient has otherwise become a U.S. resident alien for tax purposes.</p>																																															
<p>If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement that specifies the following five items:</p>																																															
<p>1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.</p>																																															
<p>2. The treaty article addressing the income.</p>																																															
<p>3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.</p>																																															
<p>4. The type and amount of income that qualifies for the exemption from tax.</p>																																															
<p>5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.</p>																																															

Cat. No. 10231X

Form W-9 (Rev. 1-2003)

11. REFERENCE QUESTIONNAIRES

SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens Industries

Agency Giving Reference: Broward County Facilities Management Division

Contact Person Name: E. Henry Kraft, Construction Project Manager, Engineering Tech Supervisor

Address: 115 South Andrews Avenue, Suite 326, Fort Lauderdale, FL 33301

Telephone: 954.488.0257

E-Mail: ekraft@broward.org

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	YES/ Satisfactory	
2	How would you rate the firm's quality of work?	YES/ Satisfactory	
3	How would you rate the experience of the firm's staff?	YES/ Satisfactory	
4	How would you rate the firm's commitment to the success of the project?	YES/ Satisfactory	
5	How would you rate how the firm managed it's workload while providing service to your agency?	YES/ Satisfactory	
6	Would your agency use this firm to provide services again? (Circle One)	YES	

Additional Comments: _____

E. Henry Kraft Digitally signed by E. Henry Kraft
 Date: 2020.06.11 15:03:38 -04'00'
 Signature _____

Title _____

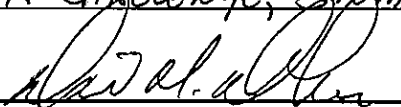
SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens
Agency Giving Reference: FLORIDA GOVERNMENTAL UTILITY AUTHORITY
Contact Person Name: DAVID H. AZCENA
Address: 280 WICKIWA SPRINGS Rd - Suite 2070 LONGWOOD, FL 32779
Telephone: 407-629-6900 x113
E-Mail: ddilena@govmserv.com

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	✓	
2	How would you rate the firm's quality of work?	✓	
3	How would you rate the experience of the firm's staff?	✓	
4	How would you rate the firm's commitment to the success of the project?	✓	
5	How would you rate how the firm managed it's workload while providing service to your agency?	✓	
6	Would your agency use this firm to provide services again? (Circle One)	YES/ Satisfactory	NO/ Unsatisfactory

Additional Comments: WORKING WITH SIEMENS WAS A COMPLETE PLEASURE. THEY ARE ABSOLUTELY THE BEST AT WHAT THEY DO. EVERY TIME THERE WAS A QUESTION, SIEMENS HAD AN ANSWER. EVERY TIME THERE WAS A CHALLENGE, SIEMENS HAD A SOLUTION.


Signature

CFO FOR THE FGUA
Title

FAILURE TO COMPLETE AND RETURN THIS FORM MAY
DEEM YOUR PROPOSAL "NON-RESPONSIVE."

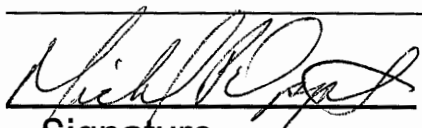
SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens
Agency Giving Reference: Florida Atlantic University
Contact Person Name: Michael Dipple
Address: 777 Glades Road, Boca Raton, Florida
Telephone: (561) 609-5243
E-Mail: mdipple@fau.edu

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	✓	
2	How would you rate the firm's quality of work?	✓	
3	How would you rate the experience of the firm's staff?	✓	
4	How would you rate the firm's commitment to the success of the project?	✓	
5	How would you rate how the firm managed it's workload while providing service to your agency?	✓	
6	Would your agency use this firm to provide services again? (Circle One)	YES/ Satisfactory	NO/ Unsatisfactory

Additional Comments: VERY SKILLED ENGINEERS - EXCELLENT PM & COST TRACKING


Signature

Director, Engineering Utilities
& Energy Management
Title

FAILURE TO COMPLETE AND RETURN THIS FORM MAY
DEEM YOUR PROPOSAL "NON-RESPONSIVE."

SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): _____
Agency Giving Reference: University of Florida
Contact Person Name: Mark Helms
Address: 3280 Radio Road Gainesville, Florida 32611
Telephone: 352-294-0559
E-Mail: markhelms@ufl.edu

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	X	
2	How would you rate the firm's quality of work?	X	
3	How would you rate the experience of the firm's staff?	X	
4	How would you rate the firm's commitment to the success of the project?	X	
5	How would you rate how the firm managed it's workload while providing service to your agency?	X	
6	Would your agency use this firm to provide services again? (Circle One)	<div style="border: 1px solid black; padding: 2px; display: inline-block;">YES</div>	NO/ Unsatisfactory

Additional Comments: Siemens has been a great partner on a number of ESCO projects on the UF campus. The most recent is the construction of a \$25M energy plant that serves our Vet Med complex. I would highly recommend their team of professionals.



Signature

AVP FACILITIES SERVICES

Title

**FAILURE TO COMPLETE AND RETURN THIS FORM MAY
DEEM YOUR PROPOSAL "NON-RESPONSIVE."**

SECTION 14 REFERENCE QUESTIONNAIRE

Reference For (Proposer's Name): Siemens
 Agency Giving Reference: Florida State Univeristy
 Contact Person Name: Dennis Bailey
 Address: Mendenhall Bldg A, 969 Learning Way, Tallahassee, FL 32306
 Telephone: (850) 644-3369
 E-Mail: DBailey@admin.fsu.edu

Provide a reference for the above-named firm by indicating below the level of satisfaction (Satisfactory or Unsatisfactory) with services provided to your agency. If a question should not apply, please indicate that the question is not applicable by writing ("N/A") for that question. **This form must be completed and signed by the agency giving the reference and not the proposer.**

	QUESTION	Satisfactory	Unsatisfactory
1	How would you rate the overall experience and qualifications of the firm to provide Guaranteed energy, water, and wastewater performance savings contracting services?	X	
2	How would you rate the firm's quality of work?	X	
3	How would you rate the experience of the firm's staff?	X	
4	How would you rate the firm's commitment to the success of the project?	X	
5	How would you rate how the firm managed it's workload while providing service to your agency?	X	
6	Would your agency use this firm to provide services again? (Circle One)	YES/ Satisfactory	NO/ Unsatisfactory

Additional Comments: _____

Dennis Bailey
Signature

Sr. Assoc. VP for Facilities
Title

FAILURE TO COMPLETE AND RETURN THIS FORM MAY
DEEM YOUR PROPOSAL "NON-RESPONSIVE."

12. PARTICIPATION PLAN

SIEMENS

Industry

Acknowledgment of CBE, Small, and Local Business Participation Goal

The City of Miramar requires a minimum of 10% of services to be performed by a CBE, SBE, and/or Local (Miramar) Business for the GUARANTEED ENERGY, WATER AND WASTEWATER PERFORMANCE SAVINGS CONTRACTING SERVICES Project.

Siemens Industries, Inc acknowledges this project requirement and affirms the following:

- A: We will fully comply with the City's non-discrimination policies.
- B: We will provide a good faith effort to solicit approved Broward County Office of Economic and Small Business Development firms or Local Businesses (businesses within Miramar) to achieve the Project Plan stated above.
- C: We acknowledge that the Project will be monitored throughout the Contract term and the monthly utilization reports will be required to demonstrate compliance with Project.

Proposer's Authorized Signature

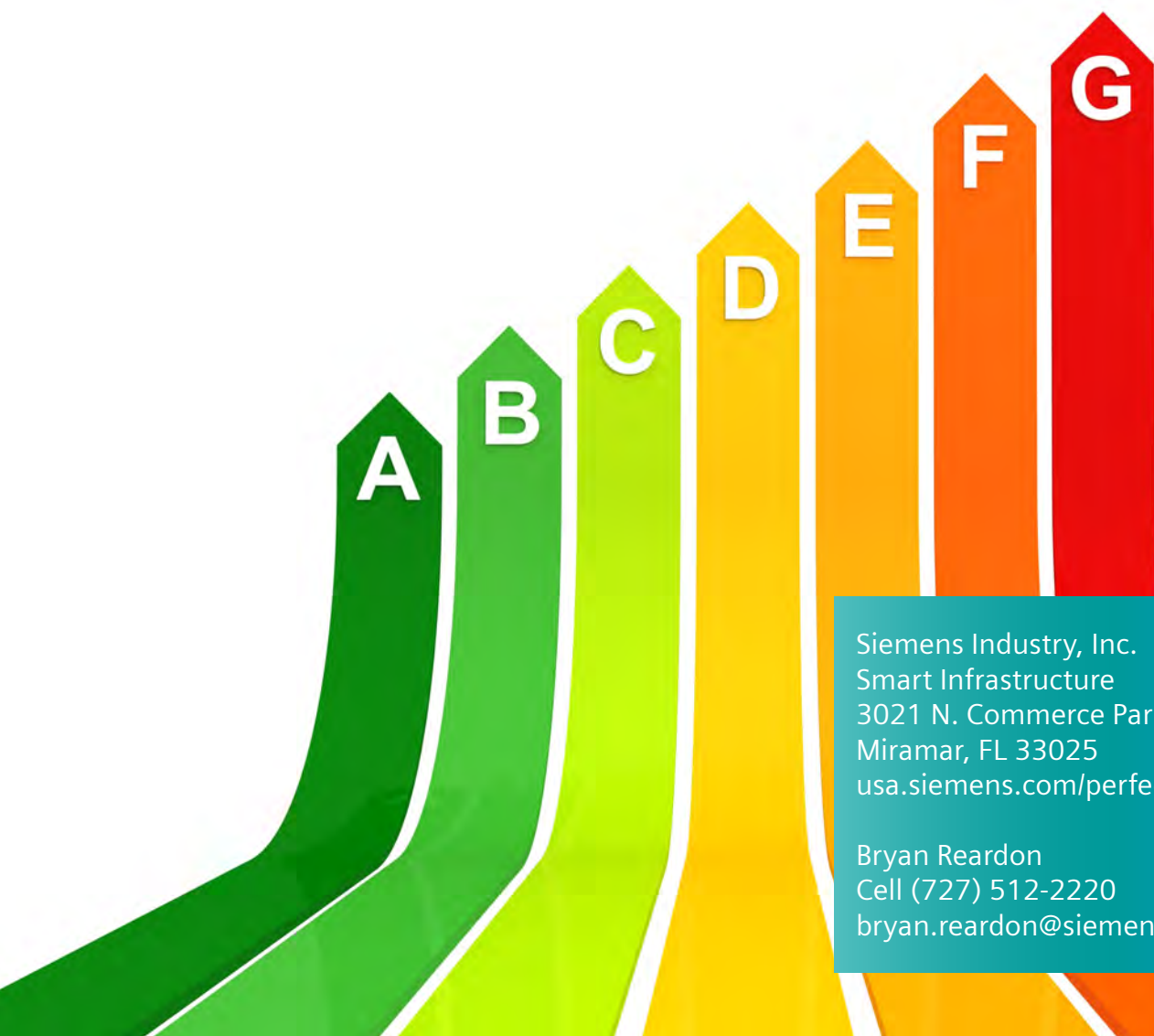
Company: Siemens Industry, Inc.

Signed by: 

Print Name: John Kovach

Date: 7/24/2020

Title: V.P. Energy Performance Services



Siemens Industry, Inc.
Smart Infrastructure
3021 N. Commerce Parkway
Miramar, FL 33025
usa.siemens.com/perfect-places

Bryan Reardon
Cell (727) 512-2220
bryan.reardon@siemens.com



Submitted by: Siemens Industry, Inc.

City of Miramar

Guaranteed Energy, Water, and Wastewater
Performance Savings Contracting Services
RFQ #20-02-15

July 28, 2020



BACKUP

Appendices

Siemens Industry, Inc.



Financial Statement Excerpts

Siemens Industry, Inc.

B.1 Consolidated Statements of Income

(in millions of €, per share amounts in €)	Note	Fiscal year	
		2016	2015
Revenue		79,644	75,636
Cost of sales		(55,826)	(53,789)
Gross profit		23,819	21,847
Research and development expenses		(4,732)	(4,483)
Selling and general administrative expenses		(11,669)	(11,409)
Other operating income	5	328	476
Other operating expenses	6	(427)	(389)
Income (loss) from investments accounted for using the equity method, net	4	134	1,235
Interest income		1,314	1,260
Interest expenses		(989)	(818)
Other financial income (expenses), net		(373)	(500)
Income from continuing operations before income taxes		7,404	7,218
Income tax expenses	7	(2,008)	(1,869)
Income from continuing operations		5,396	5,349
Income from discontinued operations, net of income taxes	3	188	2,031
Net income		5,584	7,380
Attributable to:			
Non-controlling interests		134	98
Shareholders of Siemens AG		5,450	7,282
Basic earnings per share	27		
Income from continuing operations		6.51	6.38
Income from discontinued operations		0.23	2.47
Net income		6.74	8.84
Diluted earnings per share	27		
Income from continuing operations		6.42	6.30
Income from discontinued operations		0.23	2.44
Net income		6.65	8.74

B.2 Consolidated Statements of Comprehensive Income

(in millions of €)	Note	Fiscal year	
		2016	2015
Net income		5,584	7,380
Remeasurements of defined benefit plans	16	(2,636)	(370)
<i>therein: Income tax effects</i>		1,065	(107)
Items that will not be reclassified to profit or loss		(2,636)	(370)
<i>therein: Income (loss) from investments accounted for using the equity method, net</i>		-	(42)
Currency translation differences		(888)	1,089
Available-for-sale financial assets		434	354
<i>therein: Income tax effects</i>		4	(7)
Derivative financial instruments	22, 23	210	(43)
<i>therein: Income tax effects</i>		(89)	(7)
Items that may be reclassified subsequently to profit or loss		(244)	1,399
<i>therein: Income (loss) from investments accounted for using the equity method, net</i>		(141)	149
Other comprehensive income, net of income taxes		(2,879)	1,029
Total comprehensive income		2,705	8,408
Attributable to:			
Non-controlling interests		134	133
Shareholders of Siemens AG		2,571	8,275

B.3 Consolidated Statements of Financial Position

(in millions of €)		September 30,	
	Note	2016	2015
Assets			
Cash and cash equivalents		10,604	9,957
Available-for-sale financial assets		1,293	1,175
Trade and other receivables	8	16,287	15,982
Other current financial assets	9	6,800	5,157
Inventories	10	18,160	17,253
Current income tax assets		790	644
Other current assets		1,204	1,151
Assets classified as held for disposal	3	190	122
Total current assets		55,329	51,442
Goodwill	11	24,159	23,166
Other intangible assets	12	7,742	8,077
Property, plant and equipment	12	10,157	10,210
Investments accounted for using the equity method	4	3,012	2,947
Other financial assets	13	20,610	20,821
Deferred tax assets	7	3,431	2,591
Other assets		1,279	1,094
Total non-current assets		70,388	68,906
Total assets		125,717	120,348
Liabilities and equity			
Short-term debt and current maturities of long-term debt	15	6,206	2,979
Trade payables		8,048	7,774
Other current financial liabilities		1,933	2,085
Current provisions	17	4,166	4,489
Current income tax liabilities		2,085	1,828
Other current liabilities	14	20,437	20,368
Liabilities associated with assets classified as held for disposal	3	40	39
Total current liabilities		42,916	39,562
Long-term debt	15	24,761	26,682
Post-employment benefits	16	13,695	9,811
Deferred tax liabilities	7	829	609
Provisions	17	5,087	4,865
Other financial liabilities		1,142	1,466
Other liabilities		2,471	2,297
Total non-current liabilities		47,986	45,730
Total liabilities		90,901	85,292
Equity	18		
Issued capital		2,550	2,643
Capital reserve		5,890	5,733
Retained earnings		27,454	30,152
Other components of equity		1,921	2,163
Treasury shares, at cost		(3,605)	(6,218)
Total equity attributable to shareholders of Siemens AG		34,211	34,474
Non-controlling interests		605	581
Total equity		34,816	35,056
Total liabilities and equity		125,717	120,348

B.4 Consolidated Statements of Cash Flows

(in millions of €)	Fiscal year	
	2016	2015
Cash flows from operating activities		
Net income	5,584	7,380
Adjustments to reconcile net income to cash flows from operating activities – continuing operations		
Income from discontinued operations, net of income taxes	(188)	(2,031)
Amortization, depreciation and impairments	2,764	2,549
Income tax expenses	2,008	1,869
Interest (income) expenses, net	(325)	(442)
(Income) loss related to investing activities	(373)	(1,603)
Other non-cash (income) expenses	400	366
Change in operating net working capital		
Inventories	(1,009)	(793)
Trade and other receivables	(579)	(811)
Trade payables	327	(247)
Billings in excess of costs and estimated earnings on uncompleted contracts and related advances	20	914
Additions to assets leased to others in operating leases	(484)	(451)
Change in other assets and liabilities	(281)	852
Income taxes paid	(1,718)	(2,306)
Dividends received	302	495
Interest received	1,219	1,138
Cash flows from operating activities – continuing operations	7,668	6,881
Cash flows from operating activities – discontinued operations	(57)	(270)
Cash flows from operating activities – continuing and discontinued operations	7,611	6,612
Cash flows from investing activities		
Additions to intangible assets and property, plant and equipment	(2,135)	(1,897)
Acquisitions of businesses, net of cash acquired	(922)	(8,254)
Purchase of investments	(271)	(568)
Purchase of current available-for-sale financial assets	(1,139)	(899)
Change in receivables from financing activities	(1,356)	(1,667)
Disposal of investments, intangibles and property, plant and equipment	377	3,474
Disposal of businesses, net of cash disposed	9	445
Disposal of current available-for-sale financial assets	1,031	651
Cash flows from investing activities – continuing operations	(4,406)	(8,716)
Cash flows from investing activities – discontinued operations	262	2,889
Cash flows from investing activities – continuing and discontinued operations	(4,144)	(5,827)
Cash flows from financing activities		
Purchase of treasury shares	(463)	(2,700)
Other transactions with owners	(13)	10
Issuance of long-term debt	5,300	7,213
Repayment of long-term debt (including current maturities of long-term debt)	(2,253)	(354)
Change in short-term debt and other financing activities	(1,408)	351
Interest paid	(809)	(596)
Dividends paid to shareholders of Siemens AG	(2,827)	(2,728)
Dividends attributable to non-controlling interests	(236)	(145)
Cash flows from financing activities – continuing operations	(2,710)	1,051
Cash flows from financing activities – discontinued operations	–	5
Cash flows from financing activities – continuing and discontinued operations	(2,710)	1,056
Effect of changes in exchange rates on cash and cash equivalents	(98)	83
Change in cash and cash equivalents	660	1,923
Cash and cash equivalents at beginning of period	9,958	8,034
Cash and cash equivalents at end of period	10,618	9,958
Less: Cash and cash equivalents of assets classified as held for disposal and discontinued operations at end of period	13	–
Cash and cash equivalents at end of period (Consolidated Statements of Financial Position)	10,604	9,957

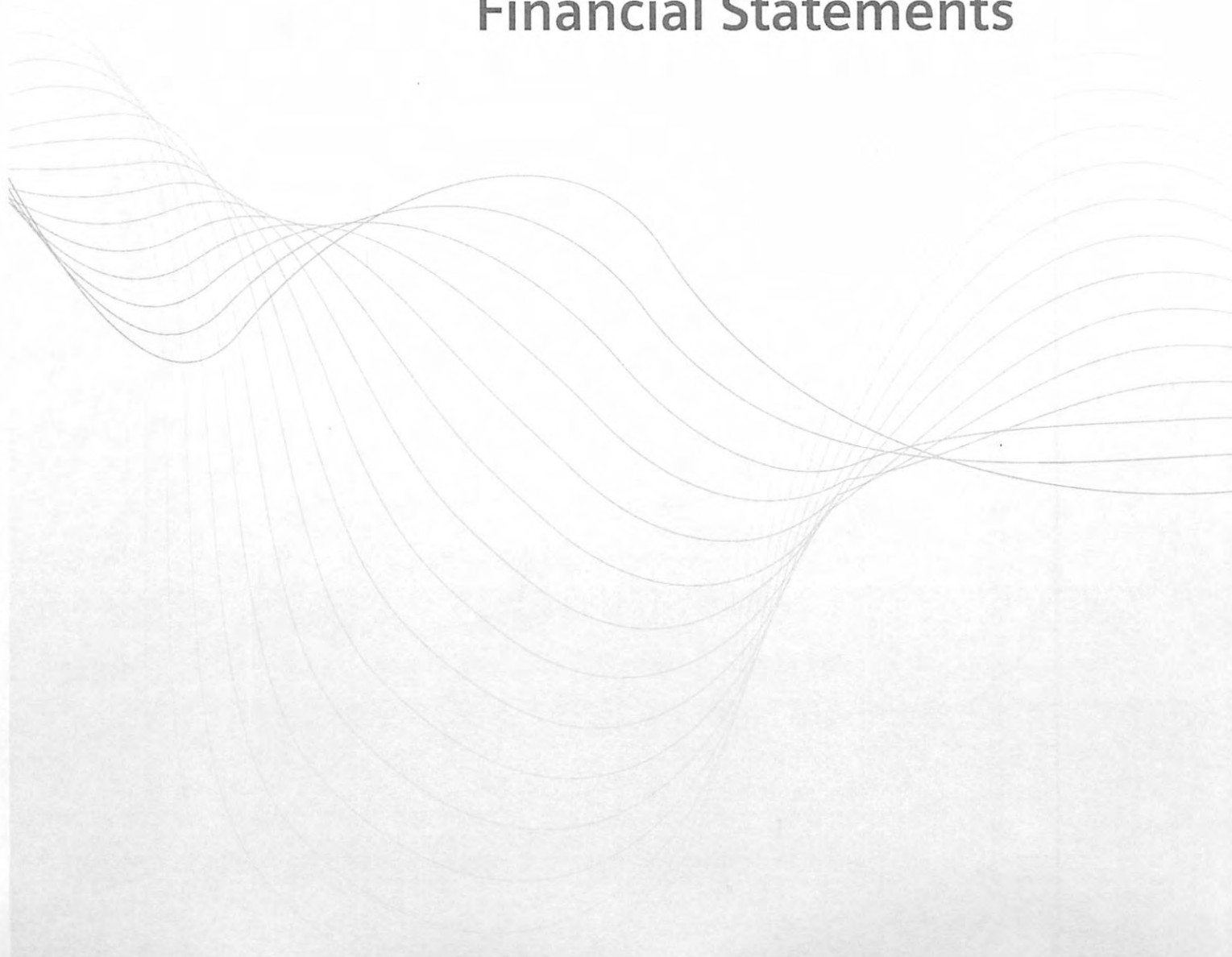
B.5 Consolidated Statements of Changes in Equity

(in millions of €)	Issued capital	Capital reserve	Retained earnings
Balance as of October 1, 2014	2,643	5,525	25,729
Net income	–	–	7,282
Other comprehensive income, net of income taxes	–	–	(367)
Dividends	–	–	(2,728)
Share-based payment	–	79	(43)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	23	–
Transactions with non-controlling interests	–	–	289
Other changes in equity	–	106	(10)
Balance as of September 30, 2015	2,643	5,733	30,152
Balance as of October 1, 2015	2,643	5,733	30,152
Net income	–	–	5,450
Other comprehensive income, net of income taxes	–	–	(2,637)
Dividends	–	–	(2,827)
Share-based payment	–	158	(67)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	(1)	–
Cancellation of treasury shares	(93)	–	(2,575)
Transactions with non-controlling interests	–	–	(42)
Other changes in equity	–	–	–
Balance as of September 30, 2016	2,550	5,890	27,454

	Currency trans- lation differences	Available-for-sale financial assets	Derivative financial instruments	Treasury shares at cost	Total equity attributable to shareholders of Siemens AG	Non controlling interests	Total equity
	745	373	(314)	(3,747)	30,954	560	31,514
	–	–	–	–	7,282	98	7,380
	1,049	354	(42)	–	993	35	1,029
	–	–	–	–	(2,728)	(145)	(2,873)
	–	–	–	–	36	–	36
	–	–	–	(2,703)	(2,703)	–	(2,703)
	–	–	–	233	256	–	256
	–	–	–	–	289	–	289
	–	–	–	–	96	33	129
	1,794	726	(357)	(6,218)	34,474	581	35,056
	1,794	726	(357)	(6,218)	34,474	581	35,056
	–	–	–	–	5,450	134	5,584
	(885)	434	208	–	(2,879)	–	(2,879)
	–	–	–	–	(2,827)	(239)	(3,066)
	–	–	–	–	91	–	91
	–	–	–	(446)	(446)	–	(446)
	–	–	–	391	390	–	390
	–	–	–	2,668	–	–	–
	–	–	–	–	(42)	92	51
	–	–	–	–	–	37	36
	909	1,160	(148)	(3,605)	34,211	605	34,816

B.

Consolidated Financial Statements



B.1 Consolidated Statements of Income

(in millions of €, per share amounts in €)	Note	Fiscal year	
		2017	2016
Revenue		83,049	79,644
Cost of sales		(58,021)	(55,826)
Gross profit		25,029	23,819
Research and development expenses		(5,164)	(4,732)
Selling and general administrative expenses		(12,225)	(11,669)
Other operating income	5	647	328
Other operating expenses	6	(595)	(427)
Income (loss) from investments accounted for using the equity method, net	4	43	134
Interest income		1,487	1,314
Interest expenses		(1,051)	(989)
Other financial income (expenses), net		135	(373)
Income from continuing operations before income taxes		8,306	7,404
Income tax expenses	7	(2,180)	(2,008)
Income from continuing operations		6,126	5,396
Income from discontinued operations, net of income taxes		53	188
Net income		6,179	5,584
Attributable to:			
Non-controlling interests		133	134
Shareholders of Siemens AG		6,046	5,450
Basic earnings per share	27		
Income from continuing operations		7.38	6.51
Income from discontinued operations		0.07	0.23
Net income		7.44	6.74
Diluted earnings per share	27		
Income from continuing operations		7.23	6.42
Income from discontinued operations		0.06	0.23
Net income		7.29	6.65

B.2 Consolidated Statements of Comprehensive Income

(in millions of €)	Note	Fiscal year	
		2017	2016
Net income		6,179	5,584
Remeasurements of defined benefit plans	16	2,734	(2,636)
<i>therein: Income tax effects</i>		(1,070)	1,065
Items that will not be reclassified to profit or loss		2,735	(2,636)
Currency translation differences		(1,118)	(796)
Available-for-sale financial assets	22	687	436
<i>therein: Income tax effects</i>		(7)	4
Derivative financial instruments	22, 23	136	256
<i>therein: Income tax effects</i>		(63)	(89)
Income (loss) from investments accounted for using the equity method, net		(30)	(141)
Items that may be reclassified subsequently to profit or loss		(326)	(244)
Other comprehensive income, net of income taxes		2,409	(2,879)
Total comprehensive income		8,588	2,705
Attributable to:			
Non-controlling interests		55	134
Shareholders of Siemens AG		8,533	2,571

B.3 Consolidated Statements of Financial Position

(in millions of €)	Note	September 30,	
		2017	2016
Assets			
Cash and cash equivalents		8,375	10,604
Available-for-sale financial assets		1,242	1,293
Trade and other receivables	8	17,160	16,287
Other current financial assets	9	7,664	6,800
Inventories	10	19,942	18,160
Current income tax assets		1,098	790
Other current assets		1,467	1,204
Assets classified as held for disposal	3, 22	1,482	190
Total current assets		58,429	55,329
Goodwill	11	27,906	24,159
Other intangible assets	12	10,926	7,742
Property, plant and equipment	12	10,977	10,157
Investments accounted for using the equity method	4	2,727	3,012
Other financial assets	13	19,044	20,610
Deferred tax assets	7	2,297	3,431
Other assets		1,498	1,279
Total non-current assets		75,375	70,388
Total assets		133,804	125,717
Liabilities and equity			
Short-term debt and current maturities of long-term debt	15	5,447	6,206
Trade payables		9,755	8,048
Other current financial liabilities		1,444	1,933
Current provisions	17	4,247	4,166
Current income tax liabilities		2,355	2,085
Other current liabilities	14	20,049	20,437
Liabilities associated with assets classified as held for disposal	3	97	40
Total current liabilities		43,394	42,916
Long-term debt	15	26,777	24,761
Provisions for pensions and similar obligations	16	9,582	13,695
Deferred tax liabilities	7	1,599	829
Provisions	17	4,579	5,087
Other financial liabilities		902	1,142
Other liabilities		2,445	2,471
Total non-current liabilities		45,884	47,986
Total liabilities		89,278	90,901
Equity	18		
Issued capital		2,550	2,550
Capital reserve		6,368	5,890
Retained earnings		35,696	27,454
Other components of equity		1,671	1,921
Treasury shares, at cost		(3,196)	(3,605)
Total equity attributable to shareholders of Siemens AG		43,089	34,211
Non-controlling interests		1,438	605
Total equity		44,527	34,816
Total liabilities and equity		133,804	125,717

B.4 Consolidated Statements of Cash Flows

(in millions of €)	Fiscal year	
	2017	2016
Cash flows from operating activities		
Net income	6,179	5,584
Adjustments to reconcile net income to cash flows from operating activities – continuing operations		
Income from discontinued operations, net of income taxes	(53)	(188)
Amortization, depreciation and impairments	3,211	2,764
Income tax expenses	2,180	2,008
Interest (income) expenses, net	(436)	(325)
(Income) loss related to investing activities	(329)	(373)
Other non-cash (income) expenses	552	400
Change in operating net working capital		
Inventories	(1,250)	(1,009)
Trade and other receivables	148	(579)
Trade payables	306	327
Billings in excess of costs and estimated earnings on uncompleted contracts and related advances	(799)	20
Additions to assets leased to others in operating leases	(482)	(484)
Change in other assets and liabilities	(1,719)	(281)
Income taxes paid	(2,039)	(1,718)
Dividends received	381	302
Interest received	1,375	1,219
Cash flows from operating activities – continuing operations	7,225	7,668
Cash flows from operating activities – discontinued operations	(50)	(57)
Cash flows from operating activities – continuing and discontinued operations	7,176	7,611
Cash flows from investing activities		
Additions to intangible assets and property, plant and equipment	(2,406)	(2,135)
Acquisitions of businesses, net of cash acquired	(4,385)	(922)
Purchase of investments	(500)	(271)
Purchase of current available-for-sale financial assets	(882)	(1,139)
Change in receivables from financing activities	(686)	(1,356)
Disposal of investments, intangibles and property, plant and equipment	542	377
Disposal of businesses, net of cash disposed	(69)	9
Disposal of current available-for-sale financial assets	931	1,031
Cash flows from investing activities – continuing operations	(7,456)	(4,406)
Cash flows from investing activities – discontinued operations	(1)	262
Cash flows from investing activities – continuing and discontinued operations	(7,457)	(4,144)
Cash flows from financing activities		
Purchase of treasury shares	(931)	(463)
Re-issuance of treasury shares and other transactions with owners	1,123	(13)
Issuance of long-term debt	6,958	5,300
Repayment of long-term debt (including current maturities of long-term debt)	(4,868)	(2,253)
Change in short-term debt and other financing activities	260	(1,408)
Interest paid	(1,000)	(809)
Dividends paid to shareholders of Siemens AG	(2,914)	(2,827)
Dividends attributable to non-controlling interests	(187)	(236)
Cash flows from financing activities – continuing operations	(1,560)	(2,710)
Cash flows from financing activities – discontinued operations	–	–
Cash flows from financing activities – continuing and discontinued operations	(1,560)	(2,710)
Effect of changes in exchange rates on cash and cash equivalents	(387)	(98)
Change in cash and cash equivalents	(2,228)	660
Cash and cash equivalents at beginning of period	10,618	9,958
Cash and cash equivalents at end of period	8,389	10,618
Less: Cash and cash equivalents of assets classified as held for disposal and discontinued operations at end of period	15	13
Cash and cash equivalents at end of period (Consolidated Statements of Financial Position)	8,375	10,604

B.5 Consolidated Statements of Changes in Equity

(in millions of €)	Issued capital	Capital reserve	Retained earnings
Balance as of October 1, 2015	2,643	5,733	30,152
Net income	–	–	5,450
Other comprehensive income, net of income taxes	–	–	(2,637)
Dividends	–	–	(2,827)
Share-based payment	–	158	(67)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	(1)	–
Cancellation of treasury shares	(93)	–	(2,575)
Transactions with non-controlling interests	–	–	(42)
Other changes in equity	–	–	–
Balance as of September 30, 2016	2,550	5,890	27,454
Balance as of October 1, 2016	2,550	5,890	27,454
Net income	–	–	6,046
Other comprehensive income, net of income taxes	–	–	2,737
Dividends	–	–	(2,914)
Share-based payment	–	279	(86)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	199	–
Changes in equity resulting from major portfolio transactions	–	–	2,473
Other transactions with non-controlling interests	–	–	(11)
Other changes in equity	–	–	(3)
Balance as of September 30, 2017	2,550	6,368	35,696

	Currency translation differences	Available-for-sale financial assets	Derivative financial instruments	Treasury shares at cost	Total equity attributable to shareholders of Siemens AG	Non controlling interests	Total equity
	1,794	726	(357)	(6,218)	34,474	581	35,056
	-	-	-	-	5,450	134	5,584
	(885)	434	208	-	(2,879)	-	(2,879)
	-	-	-	-	(2,827)	(239)	(3,066)
	-	-	-	-	91	-	91
	-	-	-	(446)	(446)	-	(446)
	-	-	-	391	390	-	390
	-	-	-	2,668	-	-	-
	-	-	-	-	(42)	92	51
	-	-	-	-	-	37	36
	909	1,160	(148)	(3,605)	34,211	605	34,816
	909	1,160	(148)	(3,605)	34,211	605	34,816
	-	-	-	-	6,046	133	6,179
	(1,084)	685	149	-	2,487	(78)	2,409
	-	-	-	-	(2,914)	(184)	(3,098)
	-	-	-	-	193	-	193
	-	-	-	(934)	(934)	-	(934)
	-	-	-	1,342	1,541	-	1,541
	-	-	-	-	2,473	919	3,393
	-	-	-	-	(11)	(8)	(20)
	-	-	-	-	(3)	51	48
	(175)	1,845	1	(3,196)	43,089	1,438	44,527



B.

Consolidated Financial Statements



B.1 Consolidated Statements of Income

(in millions of €, per share amounts in €)	Note	Fiscal year	
		2018	2017
Revenue	2	83,044	82,863
Cost of sales		(58,181)	(57,820)
Gross profit		24,863	25,043
Research and development expenses		(5,558)	(5,164)
Selling and general administrative expenses		(12,941)	(12,360)
Other operating income	5	500	647
Other operating expenses	6	(678)	(595)
Income (loss) from investments accounted for using the equity method, net	4	(3)	43
Interest income		1,481	1,490
Interest expenses		(1,089)	(1,051)
Other financial income (expenses), net		1,475	135
Income from continuing operations before income taxes		8,050	8,189
Income tax expenses	7	(2,054)	(2,148)
Income from continuing operations		5,996	6,041
Income from discontinued operations, net of income taxes		124	53
Net income		6,120	6,094
Attributable to:			
Non-controlling interests		313	133
Shareholders of Siemens AG		5,807	5,961
Basic earnings per share	28		
Income from continuing operations		6.97	7.27
Income from discontinued operations		0.15	0.07
Net income		7.12	7.34
Diluted earnings per share	28		
Income from continuing operations		6.86	7.13
Income from discontinued operations		0.15	0.06
Net income		7.01	7.19

B.2 Consolidated Statements of Comprehensive Income

(in millions of €)	Note	Fiscal year	
		2018	2017
Net income		6,120	6,094
Remeasurements of defined benefit plans	17	(360)	2,734
<i>therein: Income tax effects</i>		(305)	(1,070)
Items that will not be reclassified to profit or loss		(360)	2,735
Currency translation differences		(287)	(1,125)
Available-for-sale financial assets	23	(1,819)	687
<i>therein: Income tax effects</i>		24	(7)
Derivative financial instruments		(63)	136
<i>therein: Income tax effects</i>		24	(63)
Income (loss) from investments accounted for using the equity method, net		(2)	(30)
Items that may be reclassified subsequently to profit or loss		(2,170)	(332)
Other comprehensive income, net of income taxes		(2,530)	2,403
Total comprehensive income		3,590	8,497
Attributable to:			
Non-controlling interests		259	55
Shareholders of Siemens AG		3,330	8,442

B.3 Consolidated Statements of Financial Position

(in millions of €)	Note	Sep 30, 2018	Sep 30, 2017	Oct 1, 2016
Assets				
Cash and cash equivalents		11,066	8,375	10,604
Available-for-sale financial assets		1,286	1,242	1,293
Trade and other receivables	8	17,918	16,754	16,506
Other current financial assets	9	8,693	7,664	6,800
Contract assets	10	8,912	8,781	7,543
Inventories	11	13,885	13,885	12,615
Current income tax assets	7	1,010	1,098	790
Other current assets		1,707	1,466	1,206
Assets classified as held for disposal		94	1,484	190
Total current assets		64,570	60,750	57,548
Goodwill	12	28,344	27,906	24,159
Other intangible assets	13	10,131	10,926	7,742
Property, plant and equipment	13	11,381	10,977	10,157
Investments accounted for using the equity method	4	2,579	2,727	3,012
Other financial assets	14, 23	17,759	19,044	20,610
Deferred tax assets	7	2,341	2,283	3,419
Other assets		1,810	1,498	1,279
Total non-current assets		74,345	75,361	70,377
Total assets		138,915	136,111	127,924
Liabilities and equity				
Short-term debt and current maturities of long-term debt	16	5,057	5,447	6,206
Trade payables		10,716	9,756	8,052
Other current financial liabilities		1,485	1,444	1,933
Contract liabilities	10	14,464	14,228	14,501
Current provisions	18	3,931	4,077	3,914
Current income tax liabilities		3,102	2,355	2,085
Other current liabilities	15	9,118	8,671	8,596
Liabilities associated with assets classified as held for disposal		1	99	40
Total current liabilities		47,874	46,077	45,328
Long-term debt	16	27,120	26,777	24,761
Provisions for pensions and similar obligations	17	7,684	9,582	13,695
Deferred tax liabilities	7	1,092	1,635	902
Provisions	18	4,216	4,366	4,884
Other financial liabilities		685	902	1,142
Other liabilities		2,198	2,153	2,212
Total non-current liabilities		42,995	45,415	47,597
Total liabilities		90,869	91,492	92,925
Equity	19			
Issued capital		2,550	2,550	2,550
Capital reserve		6,184	6,368	5,890
Retained earnings		41,014	35,794	27,638
Other components of equity		(352)	1,665	1,921
Treasury shares, at cost		(3,922)	(3,196)	(3,605)
Total equity attributable to shareholders of Siemens AG		45,474	43,181	34,394
Non-controlling interests		2,573	1,438	605
Total equity		48,046	44,619	34,999
Total liabilities and equity		138,915	136,111	127,924

B.4 Consolidated Statements of Cash Flows

	Fiscal year	
(in millions of €)	2018	2017
Cash flows from operating activities		
Net income	6,120	6,094
Adjustments to reconcile net income to cash flows from operating activities – continuing operations		
Income from discontinued operations, net of income taxes	(124)	(53)
Amortization, depreciation and impairments	3,419	3,211
Income tax expenses	2,054	2,148
Interest (income) expenses, net	(392)	(439)
(Income) loss related to investing activities	(1,792)	(329)
Other non-cash (income) expenses	943	552
Change in operating net working capital from		
Contract assets	(171)	(907)
Inventories	(81)	(812)
Trade and other receivables	(1,356)	768
Trade payables	1,033	303
Contract liabilities	140	(838)
Additions to assets leased to others in operating leases	(599)	(482)
Change in other assets and liabilities	(386)	(1,707)
Income taxes paid	(2,061)	(2,039)
Dividends received	270	381
Interest received	1,396	1,375
Cash flows from operating activities – continuing operations	8,415	7,225
Cash flows from operating activities – discontinued operations	10	(50)
Cash flows from operating activities – continuing and discontinued operations	8,425	7,176
Cash flows from investing activities		
Additions to intangible assets and property, plant and equipment	(2,602)	(2,406)
Acquisitions of businesses, net of cash acquired	(525)	(4,385)
Purchase of investments	(1,031)	(500)
Purchase of current available-for-sale financial assets	(927)	(882)
Change in receivables from financing activities	(1,620)	(686)
Disposal of investments, intangibles and property, plant and equipment	1,725	542
Disposal of businesses, net of cash disposed	362	(69)
Disposal of current available-for-sale financial assets	875	931
Cash flows from investing activities – continuing operations	(3,741)	(7,456)
Cash flows from investing activities – discontinued operations	(33)	(1)
Cash flows from investing activities – continuing and discontinued operations	(3,774)	(7,457)
Cash flows from financing activities		
Purchase of treasury shares	(1,409)	(931)
Re-issuance of treasury shares and other transactions with owners	4,064	1,123
Issuance of long-term debt	2,734	6,958
Repayment of long-term debt (including current maturities of long-term debt)	(3,530)	(4,868)
Change in short-term debt and other financing activities	333	260
Interest paid	(1,002)	(1,000)
Dividends paid to shareholders of Siemens AG	(3,011)	(2,914)
Dividends attributable to non-controlling interests	(126)	(187)
Cash flows from financing activities – continuing operations	(1,946)	(1,560)
Cash flows from financing activities – discontinued operations	–	–
Cash flows from financing activities – continuing and discontinued operations	(1,946)	(1,560)
Effect of changes in exchange rates on cash and cash equivalents	(29)	(387)
Change in cash and cash equivalents	2,677	(2,228)
Cash and cash equivalents at beginning of period	8,389	10,618
Cash and cash equivalents at end of period	11,066	8,389
Less: Cash and cash equivalents of assets classified as held for disposal and discontinued operations at end of period	–	15
Cash and cash equivalents at end of period (Consolidated Statements of Financial Position)	11,066	8,375

B.5 Consolidated Statements of Changes in Equity

(in millions of €)	Issued capital	Capital reserve	Retained earnings
Balance as of October 1, 2016 (as previously reported)	2,550	5,890	27,454
Effect of retrospectively adopting IFRS 15	–	–	183
Balance as of October 1, 2016	2,550	5,890	27,638
Net income	–	–	5,961
Other comprehensive income, net of income taxes	–	–	2,737
Dividends	–	–	(2,914)
Share-based payment	–	279	(86)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	199	–
Changes in equity resulting from major portfolio transactions	–	–	2,473
Other transactions with non-controlling interests	–	–	(11)
Other changes in equity	–	–	(3)
Balance as of September 30, 2017	2,550	6,368	35,794
Balance as of October 1, 2017	2,550	6,368	35,794
Net income	–	–	5,807
Other comprehensive income, net of income taxes	–	–	(366)
Dividends	–	–	(3,011)
Share-based payment	–	(222)	(79)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	38	–
Changes in equity resulting from major portfolio transactions	–	–	2,884
Other transactions with non-controlling interests	–	–	(11)
Other changes in equity	–	–	(5)
Balance as of September 30, 2018	2,550	6,184	41,014

	Currency trans- lation differences	Available-for-sale financial assets	Derivative financial instruments	Treasury shares at cost	Total equity attributable to shareholders of Siemens AG	Non controlling interests	Total equity
	909	1,160	(148)	(3,605)	34,211	605	34,816
	–	–	–	–	183	–	183
	909	1,160	(148)	(3,605)	34,394	605	34,999
	–	–	–	–	5,961	133	6,094
	(1,090)	685	149	–	2,481	(78)	2,403
	–	–	–	–	(2,914)	(184)	(3,098)
	–	–	–	–	193	–	193
	–	–	–	(934)	(934)	–	(934)
	–	–	–	1,342	1,541	–	1,541
	–	–	–	–	2,473	919	3,393
	–	–	–	–	(11)	(8)	(20)
	–	–	–	–	(3)	51	48
	(181)	1,845	1	(3,196)	43,181	1,438	44,619
	(181)	1,845	1	(3,196)	43,181	1,438	44,619
	–	–	–	–	5,807	313	6,120
	(262)	(1,821)	(27)	–	(2,476)	(53)	(2,530)
	–	–	–	–	(3,011)	(133)	(3,144)
	–	–	–	–	(300)	–	(300)
	–	–	–	(1,468)	(1,468)	–	(1,468)
	–	–	–	743	781	–	781
	92	–	–	–	2,977	1,005	3,981
	–	–	–	–	(11)	5	(6)
	–	–	–	–	(5)	(2)	(6)
	(350)	24	(26)	(3,922)	45,474	2,573	48,046

Consolidated Financial Statements

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B.1 Consolidated Statements of Income

(in millions of €, per share amounts in €)	Note	Fiscal year	
		2019	2018
Revenue	2, 30	86,849	83,044
Cost of sales		(60,922)	(58,181)
Gross profit		25,927	24,863
Research and development expenses		(5,670)	(5,558)
Selling and general administrative expenses		(13,345)	(12,941)
Other operating income	5	442	500
Other operating expenses	6	(466)	(678)
Income (loss) from investments accounted for using the equity method, net	4	199	(3)
Interest income		1,634	1,481
Interest expenses		(1,129)	(1,089)
Other financial income (expenses), net		(74)	1,475
Income from continuing operations before income taxes		7,518	8,050
Income tax expenses	7	(1,872)	(2,054)
Income from continuing operations		5,646	5,996
Income from discontinued operations, net of income taxes		3	124
Net income		5,648	6,120
Attributable to:			
Non-controlling interests		474	313
Shareholders of Siemens AG		5,174	5,807
Basic earnings per share	28		
Income from continuing operations		6.41	6.97
Income from discontinued operations		–	0.15
Net income		6.41	7.12
Diluted earnings per share	28		
Income from continuing operations		6.32	6.86
Income from discontinued operations		–	0.15
Net income		6.32	7.01

B.2 Consolidated Statements of Comprehensive Income

(in millions of €)	Note	Fiscal year	
		2019	2018
Net income		5,648	6,120
Remeasurements of defined benefit plans	17	(1,163)	(360)
<i>therein: Income tax effects</i>		624	(305)
Remeasurements of equity instruments		(15)	–
<i>therein: Income tax effects</i>		3	–
Income (loss) from investments accounted for using the equity method, net		(6)	–
Items that will not be reclassified to profit or loss		(1,184)	(360)
Currency translation differences		1,841	(287)
Available-for-sale financial assets		–	(1,819)
<i>therein: Income tax effects</i>		–	24
Derivative financial instruments		(177)	(63)
<i>therein: Income tax effects</i>		69	24
Income (loss) from investments accounted for using the equity method, net		(8)	(2)
Items that may be reclassified subsequently to profit or loss		1,656	(2,170)
Other comprehensive income, net of income taxes		472	(2,530)
Total comprehensive income		6,120	3,590
Attributable to:			
Non-controlling interests		540	259
Shareholders of Siemens AG		5,581	3,330

B.3 Consolidated Statements of Financial Position

		Sep 30,	
(in millions of €)	Note	2019	2018
Assets			
Cash and cash equivalents		12,391	11,066
Trade and other receivables	8	18,894	18,455
Other current financial assets	9	10,669	9,427
Contract assets	10	10,309	8,912
Inventories	11	14,806	13,885
Current income tax assets	7	1,103	1,010
Other current assets		1,960	1,707
Assets classified as held for disposal		238	94
Total current assets		70,370	64,556
Goodwill	12	30,160	28,344
Other intangible assets	13	9,800	10,131
Property, plant and equipment	13	12,183	11,381
Investments accounted for using the equity method	4	2,244	2,579
Other financial assets	14, 23	19,843	17,774
Deferred tax assets	7	3,174	2,341
Other assets		2,475	1,810
Total non-current assets		79,878	74,359
Total assets		150,248	138,915
Liabilities and equity			
Short-term debt and current maturities of long-term debt	16	6,034	5,057
Trade payables		11,409	10,716
Other current financial liabilities		1,743	1,485
Contract liabilities	10	16,452	14,464
Current provisions	18	3,682	3,931
Current income tax liabilities		2,378	3,102
Other current liabilities	15	9,023	9,118
Liabilities associated with assets classified as held for disposal		2	1
Total current liabilities		50,723	47,874
Long-term debt	16	30,414	27,120
Provisions for pensions and similar obligations	17	9,896	7,684
Deferred tax liabilities	7	1,305	1,092
Provisions	18	3,714	4,216
Other financial liabilities		986	685
Other liabilities		2,226	2,198
Total non-current liabilities		48,541	42,995
Total liabilities		99,265	90,869
Equity	19		
Issued capital		2,550	2,550
Capital reserve		6,287	6,184
Retained earnings		41,818	41,014
Other components of equity		1,134	(352)
Treasury shares, at cost		(3,663)	(3,922)
Total equity attributable to shareholders of Siemens AG		48,125	45,474
Non-controlling interests		2,858	2,573
Total equity		50,984	48,046
Total liabilities and equity		150,248	138,915

B.4 Consolidated Statements of Cash Flows

	Fiscal year	
(in millions of €)	2019	2018
Cash flows from operating activities		
Net income	5,648	6,120
Adjustments to reconcile net income to cash flows from operating activities – continuing operations		
Income from discontinued operations, net of income taxes	(3)	(124)
Amortization, depreciation and impairments	3,494	3,419
Income tax expenses	1,872	2,054
Interest (income) expenses, net	(505)	(392)
(Income) loss related to investing activities	(358)	(1,792)
Other non-cash (income) expenses	605	943
Change in operating net working capital from		
Contract assets	(984)	(171)
Inventories	(614)	(81)
Trade and other receivables	85	(1,432)
Trade payables	465	1,033
Contract liabilities	1,684	140
Additions to assets leased to others in operating leases	(671)	(599)
Change in other assets and liabilities	(1,486)	(309)
Income taxes paid	(2,589)	(2,061)
Dividends received	299	270
Interest received	1,540	1,396
Cash flows from operating activities – continuing operations	8,482	8,415
Cash flows from operating activities – discontinued operations	(27)	10
Cash flows from operating activities – continuing and discontinued operations	8,456	8,425
Cash flows from investing activities		
Additions to intangible assets and property, plant and equipment	(2,610)	(2,602)
Acquisitions of businesses, net of cash acquired	(958)	(525)
Purchase of investments and financial assets for investment purposes	(1,971)	(1,958)
Change in receivables from financing activities	(1,161)	(1,620)
Disposal of intangibles and property, plant and equipment	238	261
Disposal of businesses, net of cash disposed	(33)	362
Disposal of investments and financial assets for investment purposes	1,484	2,338
Cash flows from investing activities – continuing operations	(5,012)	(3,741)
Cash flows from investing activities – discontinued operations	1	(33)
Cash flows from investing activities – continuing and discontinued operations	(5,011)	(3,774)
Cash flows from financing activities		
Purchase of treasury shares	(1,407)	(1,409)
Re-issuance of treasury shares and other transactions with owners	1,044	4,064
Issuance of long-term debt	6,471	2,734
Repayment of long-term debt (including current maturities of long-term debt)	(3,205)	(3,530)
Change in short-term debt and other financing activities	(753)	333
Interest paid	(1,123)	(1,002)
Dividends paid to shareholders of Siemens AG	(3,060)	(3,011)
Dividends attributable to non-controlling interests	(246)	(126)
Cash flows from financing activities – continuing operations	(2,277)	(1,946)
Cash flows from financing activities – discontinued operations	–	–
Cash flows from financing activities – continuing and discontinued operations	(2,277)	(1,946)
Effect of changes in exchange rates on cash and cash equivalents	157	(29)
Change in cash and cash equivalents	1,325	2,677
Cash and cash equivalents at beginning of period	11,066	8,389
Cash and cash equivalents at end of period	12,391	11,066
Less: Cash and cash equivalents of assets classified as held for disposal and discontinued operations at end of period	–	–
Cash and cash equivalents at end of period (Consolidated Statements of Financial Position)	12,391	11,066

B.5 Consolidated Statements of Changes in Equity

(in millions of €)	Issued capital	Capital reserve	Retained earnings
Balance as of October 1, 2017	2,550	6,368	35,794
Net income	–	–	5,807
Other comprehensive income, net of income taxes	–	–	(366)
Dividends	–	–	(3,011)
Share-based payment	–	(222)	(79)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	38	–
Changes in equity resulting from major portfolio transactions	–	–	2,884
Other transactions with non-controlling interests	–	–	(11)
Other changes in equity	–	–	(5)
Balance as of September 30, 2018	2,550	6,184	41,014
Balance as of September 30, 2018 (as previously reported)	2,550	6,184	41,014
Effect of retrospectively adopting IFRS 9	–	–	(7)
Balance as of October 1, 2018	2,550	6,184	41,007
Net income	–	–	5,174
Other comprehensive income, net of income taxes	–	–	(1,138)
Dividends	–	–	(3,060)
Share-based payment	–	99	(114)
Purchase of treasury shares	–	–	–
Re-issuance of treasury shares	–	4	(30)
Disposal of equity instruments	–	–	(10)
Other transactions with non-controlling interests	–	–	(3)
Other changes in equity	–	–	(9)
Balance as of September 30, 2019	2,550	6,287	41,818

	Currency trans- lation differences	Equity instruments (prior year: available-for-sale financial assets)	Derivative financial instruments	Treasury shares at cost	Total equity attributable to shareholders of Siemens AG	Non controlling interests	Total equity
	(181)	1,845	1	(3,196)	43,181	1,438	44,619
	–	–	–	–	5,807	313	6,120
	(262)	(1,821)	(27)	–	(2,476)	(53)	(2,530)
	–	–	–	–	(3,011)	(133)	(3,144)
	–	–	–	–	(300)	–	(300)
	–	–	–	(1,468)	(1,468)	–	(1,468)
	–	–	–	743	781	–	781
	92	–	–	–	2,977	1,005	3,981
	–	–	–	–	(11)	5	(6)
	–	–	–	–	(5)	(2)	(6)
	(350)	24	(26)	(3,922)	45,474	2,573	48,046
	(350)	24	(26)	(3,922)	45,474	2,573	48,046
	–	(57)	–	–	(64)	(1)	(65)
	(351)	(33)	(26)	(3,922)	45,410	2,571	47,981
	–	–	–	–	5,174	474	5,648
	1,760	(16)	(200)	–	406	66	472
	–	–	–	–	(3,060)	(255)	(3,315)
	–	–	–	–	(16)	6	(10)
	–	–	–	(1,350)	(1,350)	–	(1,350)
	–	–	–	1,609	1,583	–	1,583
	–	–	–	–	(10)	–	(10)
	–	–	–	–	(3)	(19)	(22)
	–	–	–	–	(9)	15	7
	1,409	(49)	(226)	(3,663)	48,125	2,858	50,984

Subcontractor and Subconsultant Profiles

Siemens Industry, Inc.

Hazen's Qualifications

Hazen offers award-winning national expertise through local water-focused engineers who are experienced with the City of Miramar practices and understand the City's needs.

Organization, Size, and Experience

Hazen and Sawyer's (Hazen) exclusive focus is water and wastewater engineering and supporting disciplines, offering comprehensive capabilities from planning, permitting, finance, asset management, design, construction, startup, and operations.

Hazen's roots go back over 100 years to the accomplishments of Allen Hazen, one of the pioneers of modern water supply engineering and co-developer of the Hazen-Williams formula for fluid flow in pipes in 1903. Hazen, a New York corporation, was established by Hazen's son Richard and Alfred W. Sawyer in 1951. Together they created a company culture focused on the profession—not just the business—of engineering. Their legacy is a firm with a reputation for high-quality work and customer service. The firm is authorized to transact business in the State of Florida. A Board of Directors, consisting of registered professional engineers, provides executive-level management. The firm's principals are also actively involved in the supervision of projects, from the initial planning phase through completion.

Hazen has provided complete in-house engineering services in Florida since 1968. Our staff members have extensive expertise in water, wastewater, stormwater, and reclaimed water. **Our Florida staff has been involved in the implementation of more than \$2 billion in water-related projects in Florida over the past 10 years.** These Florida projects include planning, design, value engineering and facility optimization, permitting, construction management, and operation of water, wastewater, stormwater, and reclaimed water treatment; storage systems; and conveyance systems; and energy management and modeling, civil, structural, mechanical, and electrical and instrumentation and controls. Additionally, we are local and national leaders in the field of resiliency and adaptation to climate change.

Address

4000 Hollywood Boulevard,
Suite 750N
Hollywood, FL 33021
(954) 987-0066 (phone)
www.hazenandsawyer.com

69 years in
existence

52 years in
HOLLYWOOD

100%
of work devoted to
the water environment

Hazen and Sawyer's Areas of Service



Most of our team members are long-time Florida residents and offer considerable knowledge of Florida's current and historic issues with water use permitting, water demand, water supply, and the natural environment. The firm is owned entirely by its employees, many of whom have been with the firm for 20-25 years.

Our team is locally based, ready, and available **to respond to the City's needs.**

CRITERIA 1

Consultant's background, qualifications, credentials and in-house expertise, factoring in the proposed Project team's current workload and experience working together on similar projects.

We Have Been Involved in all Facets of the City's Systems

Hazen designed, permitted, and provided construction oversight for the original 2-mgd reclaimed water filters as well as the expansion from 2 mgd to 4 mgd. New facilities included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, an emergency generator, a ground storage tank, and high service pumps.



OUR TEAM has experience WORKING TOGETHER on a variety of projects

A table detailing our team's collaborative experience is located in Tab 6.

Hazen has significant resources available and is ready, if selected, to begin work immediately upon contract award. We will ensure that the individuals identified on the organizational chart will serve the City.

CRITERIA 4

Previous experience working with utility projects of this nature.

A Leader in the Planning and Implementation of Effluent Reuse Programs in Florida

Hazen remains at the forefront of state-wide planning and legislative workshops, **including promoting virtual reuse as an alternative for OOL compliance.** Our participation includes:

- FDEP Reclaimed Water Workgroup
- Water Advisory Board
- Broward Technical Committees

The breadth and depth of our recent similar experience includes:

- Miami-Dade 285-mgd SDWWTP HLD (Reclaimed Filters)
- Bear Cut Bridge Emergency Water Main Replacement, Miami-Dade County (HDD)
- Broward County 3C Storage Tank and Pump Station (Storage/PS)

See Tabs 5F and 5H for additional details.



CRITERIA 2

Experience and resumes of in-house personnel, including assigned project managers experience in planning, designing and preparing construction documents for governmental or private sector projects of similar scope, size, and complexity.

The Hazen Team Includes the Best Technical Experts in their Respective Disciplines

The Hazen team has designed significant reclaimed water facilities in the South Florida region, including for the Cities of Hollywood, Miramar, and Margate; Broward County's North Regional Wastewater Treatment Plant (WWTP); and the Miami-Dade South District High Level Disinfection System, among others.

PATRICK DAVIS, PE

- Over 20 years of direct knowledge of Miramar's utility system.



J. PHILIP COOKE, PE

- 27 years of experience as an engineer with Hazen
- Designed and managed both reclaimed water facilities and horizontal directional drill pipeline projects

See Tab 6 for additional details.

CRITERIA 3

Previous experience working with regulatory and other permitting agencies.

Hazen Performs Utility/Engineering-Related Permitting and Regulatory Compliance Services on Most of Our Contracts.

Hazen's fast-track procurement of the permits and agency approvals resulted in on-time project completion.

Miami-Dade County Public Works and Waste Management Department released a design-build request for proposals to complete the Bear Cut and West Bridges Emergency Rehabilitation and Water Main Replacement project.

- Hazen commenced work at risk via design-build contract
- \$31-million budget within 300-day construction schedule
- USACE, USCG, FDEP, SFWMD, and DERM approvals



Over the last 45 years, the Hazen team has worked closely with the water and wastewater regulatory and permitting agencies responsible for projects in Broward County.

See Tab 5H for additional details.

CRITERIA 5

Local business preference

Hazen's project office is less than 15 minutes from Miramar.



CRITERIA 6

CBE or SBE preference

Hazen's policy is to work with MBEs should the opportunity arise.



WE KNOW MIRAMAR

Our work with the city dates back to the 1990s.

- Original and Expanded Wastewater Reclamation Facility
- Original and Expanded Reclaimed Filters

THE Hazen TEAM'S INSTITUTIONAL KNOWLEDGE

will provide expedited delivery, allowing the City to bid the project quickly

(and ahead of an unprecedented \$7 billion in utility construction projects upcoming in Miami-Dade)

Hazen has addressed all of the City's evaluation criteria for this contract.



Project Approach

We understand the City's goal is to implement energy, water and wastewater efficiency projects that build upon the work of the City's C.A.R.E. program Energy Policy and Conservation Policy Committees. The Committee's mission is to create policies to enhance operating procedures that will produce long term savings and adopt smart practices. The vision is to reduce energy consumption, produce energy efficient buildings, implement energy conserving measures, reduce energy cost, and encourage green initiatives and recycling.

The City has selected a guaranteed savings performance contract approach to identifying and implementing energy saving measures. Hazen has local experience with the technical design of projects implemented under a performance contract. We have also been the owner's representative on several performance contracts nationally. Performance contract guarantees need to be based on realistic and practical measures which may involve changes to operations, setpoints or maintenance procedures. Our team's experience with the City's water, wastewater and reuse facilities allows us to precisely analyze any proposed Energy Conservation Measure (ECM) to ensure only realistic options which consider Miramar specific operational realities are carried forward. For surviving ECM's, we will design and implement energy saving measures that prioritize ease of operation and maintenance of the City's facilities. Our experience with performance contracts clearly indicates that consideration of the long-term needs of the City is of paramount importance.



Hazen's knowledge of Miramar's utility infrastructure lowers project soft costs, increasing the number of qualifying opportunities for the City.

Hazen's knowledge of City design standards and performance expectations ensures no surprises after entering into an implementation agreement.

Hazen's water quality experts can balance energy savings with process requirements to identify measures that will maintain or improve water quality.

Because we understand your utility, selection of the Siemens/Hazen team will eliminate the learning curve, thereby saving the City time and money. Our proposed Project Director, Patrick Davis, PE, has been directly in charge of all Hazen's projects with the City of Miramar since the initiation of our first agreement with the City 27 years ago. In this role, Mr. Davis worked hand-in-hand with City Administration and Public Works officials to develop and implement the Western Miramar Wastewater Program. Moreover, Mr. Davis has directed Hazen projects at the East and West water treatment plants and within the wastewater transmission system.

It is also important to note that the experience of our staff has been gained largely in South Florida. The vast majority of the careers of our key personnel have been spent locally in Broward County. This has enabled us to become extremely familiar with local rules, regulations, suppliers, and contractors. We do not propose to transfer any significant work to remote offices, ensuring that the City can review progress on any ongoing project in a timely and efficient manner.

Hazen and Sawyer and the City of Miramar WORKING TOGETHER



In addition to our past accomplishments in teaming with the City on a significant number of citywide infrastructure projects, we also believe that we offer the following benefits:



We have a long history of working with Miramar, having designed a majority of the current Wastewater Reclamation Facility (WWRF) capacity and all of the existing filter capacity.



We met all goals on past Miramar projects. The City of Miramar/Hazen team has successfully implemented over \$110 million in infrastructure improvements.



We have demonstrated relevant, local experience. Hazen has served as general consultant for many Florida municipalities and counties for multiple, consecutive terms, including the Cities of Miramar, Plantation, Fort Lauderdale, Cooper City, Hollywood, Plantation, Sunrise, Margate, Coral Gables, Hialeah, and North Miami; and Broward and Palm Beach Counties. Our team's project experience, primarily South Florida, provides us with in-depth knowledge of the processes and procedures of various municipalities, counties, and regulatory agencies.

Hazen, with an established regional design center in Broward County for over 50 years, is one of Florida's leading engineering consulting firms and one of the few consultants totally focused in the areas of water, wastewater, stormwater, and reclaimed water engineering services for local utilities. With Hazen, the City has the benefit of a local firm with dedicated personnel knowledgeable about the sensitivities of Florida, backed by a national company with the resources to solve a multitude of challenges.

The City of Miramar is a sophisticated utility with three of the most advanced water and wastewater treatment facilities in south Florida that include technologies to facilitate wastewater reuse and potable water membrane treatment similar to many other utilities of much greater size. For these reasons, assisting the City requires a wide range of advanced treatment and utility management experience.

We Have Been Involved in all Facets of the City's Systems

Hazen has assisted with all phases of the WWRF, from original design to latest reuse facilities expansion from 4 mgd to 7.5 mgd. Hazen completed the preliminary design of the East WTP advanced membrane softening upgrade and we are currently completing assessments of both WTPs, wells and distribution system as required by recent legislation.

Hazen has worked with the City of Miramar since 1993 on a variety of projects. A representative listing of projects Hazen has performed for the City appears on following pages.

The Hazen Team Includes the Best Technical Experts in Their Respective Disciplines

The local Hazen team has designed significant wastewater, advanced potable water membrane, and reclaimed water facilities in the South Florida region, including for the Cities of Hollywood, Miramar, and Margate; and Broward and Miami-Dade Counties. The Hazen QA/QC team has been involved with complex water infrastructure projects across the country.

The Hazen Team's institutional knowledge will provide expedited delivery, allowing the City to quickly benefit from the savings guaranteed in the performance contract.

Hazen offers the City of Miramar a combination of experience, resources and local expertise ideally suited to support the identification and implementation of saving measures.

Hazen's goal is to continue to be a partner with, and therefore an extension of, City of Miramar staff. To this end, we believe that our Project Team's ability to accomplish this goal is enhanced by the presence of approximately 60 professionals located within a 15-minute drive from the City. Our local staff covers all major engineering disciplines, including environmental, civil, structural, mechanical, stormwater, financial, instrumentation and control.



Hazen's project office is **less than 15 minutes from Miramar.**

Contracts Performed for the City

Hazen has worked with the City of Miramar since 1993 on a variety of challenging and exciting projects. A listing of all projects Hazen has performed for the City follows:

Wastewater Reclamation Facility Reclaimed Water System Expansion	Miramar Risk and Resiliency Assessment and Emergency Response Plan 2020
WWRF Expansion BODR and Improvements	Wastewater Reclamation Facility Mechanical Integrity Testing 2020
City of Miramar Wastewater Reclamation	Submersible Pump Evaluation
City of Miramar Upgrading Conceptual Plan	Wetland Permitting Assistance for WWRF Site
City of Miramar Emergency Power System	Bond Report Assistance - WTP Bonds
Miramar Clarifier Damage Assessment	Adjacent Tract 38 Surveying - WWRF
Miramar WWRF Capacity Analysis Report	Sewer System Rehabilitation - Miscellaneous Citywide
Wastewater Hydraulic Model Update	Land Use Map Preparation
Miramar WWRF Injection Well Operating	Miramar Hollywood SRWWTP Evaluation
Miramar WWRF Injection Well MIT	Tract 39 Surveying - WWRF
Planning For Reuse Expansion	Turnpike Crossing Repair
City of Miramar Engineer's Report	Rate Impact Analysis - Finance
City of Miramar Booster Station	UV Disinfection Evaluation - WWRF Alternatives
City of Miramar Consumptive Use Permit	Phase I Environmental Assessment
City of Miramar Fire Hydrant Improvement	East WTP Ammoniation Feed Study
City of Miramar Electrical Surge Protection	East WTP Ammoniation Feed System
Miramar Water & Wastewater System Atlas	Multi - Family ERC Evaluation
City of Miramar Red Road Booster Pump Station	West Transmission Main - CMS
City of Miramar Wastewater Hydraulic Model	Effluent Reuse Implementation
Miramar Water & Wastewater Bond Report	LS 2 & 11 Rehabilitation
Miramar Hydraulic Analysis	Master WW Pump Station Modifications - CMS
Miramar Updating Western Service Area Modifications	Areawide DRI Master Pumping Station
Miramar Updating Eastern Service Area	Specialty Surveying Services
Miramar CMS For LS 7,13 & C Rehabilitation	Telemetry System Startup Assistance
City of Miramar Lift Station B Rehabilitation	Fold & Form Liner & MH Repairs - Various Locations
City of Miramar Injection Well MIT	Point Repairs of Mains & Laterals - Various Locations
Miramar WWRF Operations License Application	East WTP - Ammoniation Facility Construction Services
Miramar Electrical Services	City Hall Wetland Determination Assistance

Representative Listing of Projects Hazen has performed for the City, continued.

Miramar Miscellaneous Projects For WWRF	Pavement Management System Implementation
Miramar East Transmission Main Hydraulic Analysis	Lift Station Standardization
Engineering Assistance For Miscellaneous Projects	LS 6 & 20 Rehabilitation Lift Station Standardization
Miramar Injection Well Operating Permit	Tropical Valley Drainage Study
Miramar Dual Distribution Developer Reimbursement	Fairway Estates WW Collection System Evaluation
Miramar New Fleet Maintenance Garage	LS 2 Pumping Station Evaluation
New WWRF Administration Building	Sun Land Park Survey
Miramar-East Transmission Main Improvement	Extended Startup Services for Miramar WWRF
Reclaimed Water System Expansion Report	Preliminary Forensic Evaluation at West WTP
Miramar Bid Pack 5: WWRP Improvements	Emergency Repairs to WW Collection System
Miramar 136 Avenue Reclaimed Water Main	Industrial Hygiene Services
City of Miramar MMIS Project	Monarch Lakes Reuse Evaluation
City of Miramar Stormwater Utility	Miramar Police Station Electrical Survey
Miramar LS 7, 13 & C Rehabilitation	Reclaimed Water Facility Permitting
City of Miramar LAN/WAN Implementation	Stormwater Pollution Prevention Plan
Miramar Central Transmission Main Cons	Reclaimed Water Test Case Program
Miramar Continued I/I Program	Bond Refinance Assistance
Miramar Area-wide DRI Reclaimed Water Main	Reclaimed Water Transmission Expansion Study
Miramar WW Reclamation Facility CMS	Injection Well Ops Permit - (Response 6/7/99 RFI)
Miramar WW Reclamation - Design	WWRF ERP Modification
Miramar West Transmission Main Design	Reuse System Expansion - Design
Miramar General Consulting Services	Injection Well Operations Permit
Lift Stations 3 and 5 Rehabilitation	Leveraging of Utility Facilities
Reuse System - Design, Bid and Award	WWRF Rerate Evaluation
Citywide WW Transmission System Development	WWRF Injection Well MIT 2015
WW Feasibility Study Tech Memo	East Water Treatment Plant Process Enhancements / Renovation Preliminary Design
Miramar WWRF Planning & Predesign	Engineering Services for the Historic Miramar Infrastructure Improvements - I&O Review
Historic Miramar Infrastructure Improvements - Phase III and the East Water Plant Renovation	Miramar - 2007 Bond Engineering Report
Telemetry Retrofit Bid Evaluation	

Energy Management Approach

As a pioneer in water and wastewater engineering since 1951, Hazen understands the important role energy management serves and how it benefits our clients. Our energy management experience, coupled with our extensive water and wastewater treatment background, enables us to develop innovative energy management solutions specifically tailored for water and wastewater utilities.

We maximize the benefit to our clients by taking a “holistic approach” to Energy Management that explores all aspects of energy management ranging from energy efficiency, resource recovery, energy procurement, and energy monitoring optimization. By incorporating these elements together, our team of experts are able to develop energy saving opportunities that return long term operational savings, many of which can be implemented at low or zero capital costs.

Experience

Jefferson County, AL

Village Creek WWTP Energy and Process Optimization Study. Identified \$2M/yr in operational savings opportunities for the 120 MGD Village Creek WWTP. \$400K/yr in savings at low or zero capital costs.

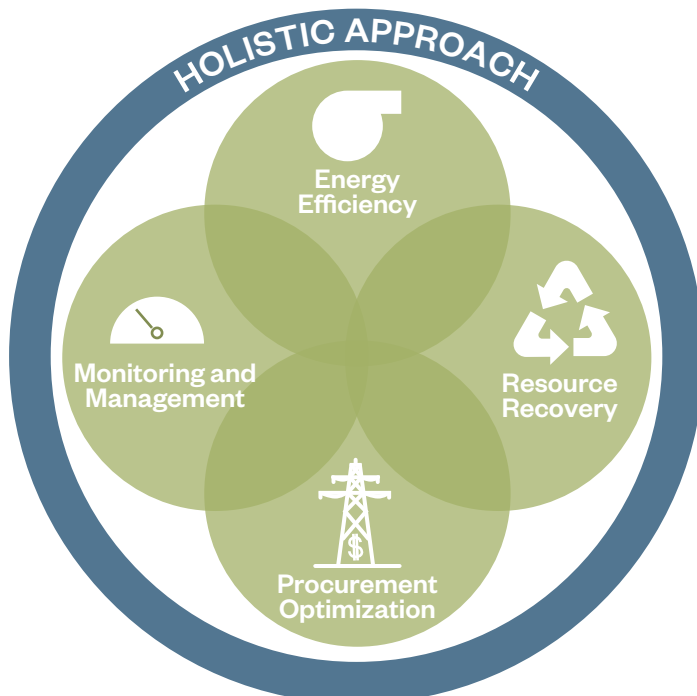
Sanitation District No. 1, KY

Energy Optimization Evaluations. Identified \$350K/yr in operations savings for 3 regional WWTPs.



Our Energy Management approach typically includes the following items:

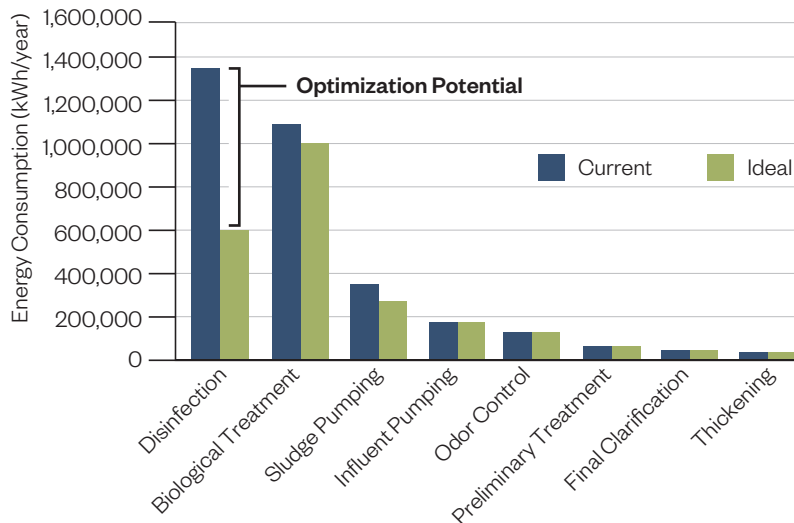
- Develop energy mass balance model of the plant to identify the existing energy performance of the overall plant and each individual process, to provide a base for the energy optimization study.
- Identify near and long-term energy management opportunities through process optimization. We use our tools and process expertise to perform a holistic evaluation, which will identify how energy optimization opportunities for one process impact the energy performance of the downstream processes.
- Evaluate the feasibility and develop implementation strategies for alternative and renewable energy sources, such as solar, hydraulic energy recovery, wind, thermal energy recovery, and compressed/liquefied natural gas (CNG/LNG), to offset the purchased energy sources.
- Evaluate current and future energy costs and billing structures to identify energy procurement strategies that will minimize long-term energy costs.
- Provide tools, data, training, and resources to create a formal energy management program that will enable the City to identify energy management opportunities, manage its energy usage and costs for the long-term and promote the program to stakeholders.
- Identify power monitoring and plant control upgrades to improve each plant's energy management capabilities.
- Identify and evaluate funding opportunities available to the City to fund energy management projects.
- Coordinate energy management projects with a sustainable asset management approach to extend the life of the City's asset and reduce risk
- Prioritize the energy management opportunities identified and develop energy project implementation strategies in coordination with the City's CIP plan.



Our team of experts will identify realistic and practical saving opportunities that can be implemented with no capital cost to the City under a guaranteed savings performance contract.

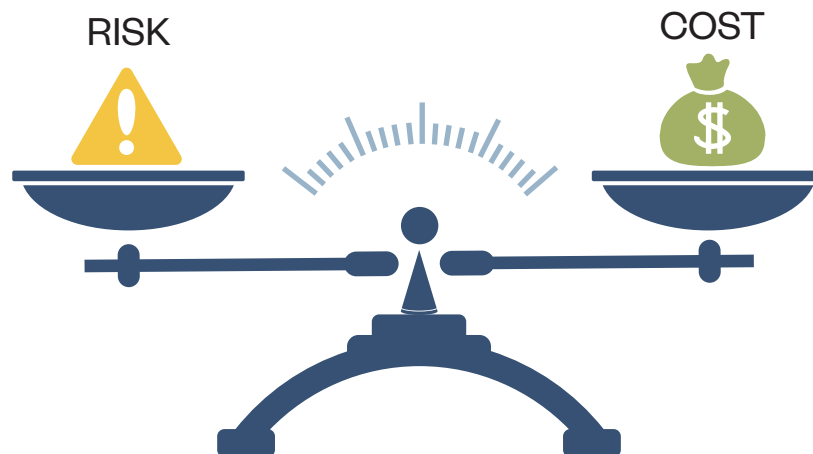
It has been our experience that plant staff participation plays a critical role in investment grade energy audits. We will work very closely with the City's staff and include their input for all phases of the audit. To maintain open lines of communication, we will conduct energy management workshops to develop the energy management program and incorporate ideas, comments and questions from the plant's staff.

In addition, one workshop will involve energy management brainstorming sessions on ways to manage energy for the WTPs and WWRF.



Example graphic for HEET modeling results. This chart shows how energy modeling allows us to quickly identify 'gaps' in process efficiency by comparing the actual and optimized energy consumption for each major process area.

Sustainable Asset Management



Benefits to the City

- ✓ Longer-lasting assets
- ✓ Reduced risk of failures
- ✓ Minimize life cycle costs
- ✓ Minimize risk of operational disruptions
- ✓ Achieve level-of-service requirements

Savings Measures for the City of Miramar

The 2019 Florida Statute 489.145 defines “energy, water, and wastewater efficiency and conservation measures” as any measure that:

- Reduces operating costs
- Provides long-term cost reductions
- Reduces utility consumption
- Reduces wastewater costs
- Enhances revenue
- Avoids capital costs
- Or achieves similar efficiency gains

That definition gives the City the opportunity to consider a wide range of projects. Hazen’s team of water, wastewater and energy management experts have identified 45 ideas for reducing energy costs, recovering energy, reducing the cost of consumables and raw materials, reducing maintenance and labor costs, deferring capital costs, and extending the life of the City’s assets.

Siemens and Hazen will conduct an investment grade energy audit to fully evaluate these ideas and identify additional savings measures, as well as estimate capital costs and payback. Paramount to these evaluations will be a thorough analysis of the impact of the savings measures on the ease of operations and maintenance of the City’s facilities. All savings measures will keep O&M in mind so that the implemented projects will reduce operations and maintenance hassles.

Hazen has worked with the City on all phases of the Miramar Wastewater Reclamation Facility – from inception to the latest reuse facilities expansion from 4 mgd to 7.5 mgd. Moreover, we have performed key analyses and designs at both the West and East Water Treatment Plants and the Citywide wastewater transmission system. That experience gives our team a unique ability to quickly identify savings measures.

We will prioritize projects that help the City of Miramar solve existing operations and maintenance challenges.

The following schematic, table and descriptions of key opportunities are a snapshot of the potential to save cost while improving O&M at the Wastewater Reclamation Facility.



City of Miramar General Water and Wastewater Services

Miramar, Florida

Since the 1990s, Hazen has worked with the City of Miramar's water, wastewater and reuse services on all phases of project implementation, to provide cost effective and innovative solutions to meet their growth and regulatory needs.

Background

Since initiating services for the City of Miramar in 1993, Hazen has assisted the City in the successful implementation of over \$110 million in infrastructure improvements to the City's water, wastewater, and reuse systems. These projects have encompassed all aspects of traditional utility-related engineering, including studies, facilities planning, design, cost estimation, permitting, construction administration, startup services, and regulatory assistance for both water and wastewater infrastructure, as well as assistance in the establishment of a stormwater utility, construction of new administration and fleet maintenance facilities, and a new citywide Local Area Network / Wide Area Network (LAN/WAN) communications system. In addition to these technical efforts, Hazen has also worked with the City on truly unique activities, such as grants procurement and "good neighbor" community involvement programs. Below are a few project highlights, illustrating Hazen's continued support and in-depth knowledge of the City's system.

Project Highlights

- 27 years of service
- Ongoing expansion of the WWRP reclaimed water system to 7.5-mgd
- Ongoing risk and resiliency assessment and emergency response plan for the water system

Client Reference

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Role on Project

Prime

Project Duration

1993–Present



City of Miramar Wastewater Reclamation Facility Project Highlights

Hazen has worked with the City on all phases of their Wastewater Reclamation Facility – from inception to the latest reuse facilities expansion from 4 mgd to 7.5 mgd:

- Wastewater System Master Planning
- Planning, design, and construction of the Miramar WWRF, including fine mechanical screens, forced vortex type grit removal, activated sludge treatment with fine bubble aeration, final clarification, effluent pump station and deep well injection, with an initial capacity of 7.4 mgd, as well as reuse facilities to produce 2 mgd of reclaimed water for irrigation.
- Planning, design and construction of the wastewater and reclaimed water transmission systems.
- Reuse demonstration project to Avalon and Renaissance Communities
- Expansion of emergency power generator system
- Miramar Reuse Feasibility Expansion Study
- Paper uprating of WWRF to 8.4 mgd
- Capacity Analysis Reports
- Injection Well Mechanical Integrity Testing and Operation Permit Renewals
- Plant Operations Assistance
- Basis of Design Report to support expansion of WWRF to 10.5 mgd
- Hazen developed a BioWin™ model of the facility to size selector zones for improved plant operations.
- Design Criteria Package for expansion to 10.5 mgd, including upgrades to the aeration system, secondary clarification system, RAS pumping system, injection well pump station, and PLC/SCADA system.
- Reclaimed Water Expansion: Detailed design, permitting, bid and construction management services to expand the 2-mgd reclaimed water and distribution system processes to 4 mgd, including public coordination program to assist the City with transitioning new irrigation users.
- Paper uprating of Reuse Facilities from 4 mgd to 5 mgd.
- Reclaimed Water Expansion (Phase I) – Ongoing: Detailed design, permitting, bid and construction management services to expand the 5-mgd reclaimed water and distribution system processes to 7.5 mgd. New facilities include filter feed pumps, sand filters, expansion of sodium hypochlorite system, ground storage tank and high service pumps.

Other wastewater projects have involved hydraulic modeling, transmission system expansion, sewer system rehabilitation, I/I program management, pump station design and rehabilitation, telemetry assistance, and rate studies.

City of Miramar West WTP Project Highlights

Hazen has assisted the City with their water system needs, performing studies/assessments, specialty plant evaluations, and construction management services at the West WTP. Some project highlights are summarized below:

- **Membrane Softening Expansion Construction Management Services:** Construction administration services to implement the plant's 3-mgd membrane softening expansion, involving constructability review, stringent construction sequencing constraints to maintain uninterrupted service, comprehensive inspections to ensure construction according to the contract documents, start-up services, compliance with regulatory agencies, and record drawing development.
- **Taste and Odor Investigation:** Treatment process evaluation involving investigation of taste and odor complaints and high turbidity following the addition of reverse osmosis treatment of Floridan aquifer supply water (designed by a different firm). The problem was traced to iron sulfide precipitation, pH shift, and deficient degasification facilities. Hazen recommended segregating NF and RO permeate, whereby the City modified the permeate piping with successful results.
- **Chemical Hazard / Forensic Engineering Evaluation:** As a result of accidental sulfuric acid leaks, the City enlisted Hazen's assistance. Hazen examined the chemical system hazards associated with the existing facility, including probable cause of spills, air sampling program evaluating potential risk from release, effects of spills on concrete containment, and recommended remedial actions.



City of Miramar East WTP Project Highlights

Within the last ten years, Hazen has assisted the City with converting the East WTP from lime softening to membrane softening, including upgrades to meet finished water quality goals and rehabilitation. Some project highlights are summarized below:

- **Ammoniation Feed System and Construction Services:** Evaluation to assess the feasibility of installing an ammonia feed system to mitigate production of disinfection byproducts while maintaining adequate disinfection in the distribution system. Hazen designed the ammonia feed system following the study and performed construction oversight.
- **East WTP Process Enhancements/Renovation Preliminary Design:** Plan and design plant conversion from lime softening to membrane treatment. Based on initial evaluation of the City's raw water supply data and infrastructure, Hazen determined that additional raw water capacity would be needed to implement membrane softening. At the request of the City, Hazen evaluated multiple raw water supply augmentation alternatives for 3 mgd (blended treatment) and 6 mgd (full conversion) membrane treatment. Based on comparison of the qualitative considerations and estimated \$/gpd for each alternative, the City decided to proceed with preliminary design of full plant conversion to 6 mgd membrane softening treatment, including the installation of new production wells and raw water transmission piping. Hazen developed the Preliminary Design Report and Drawings to implement 6 mgd of membrane softening treatment capacity at the EWTP while maximizing use



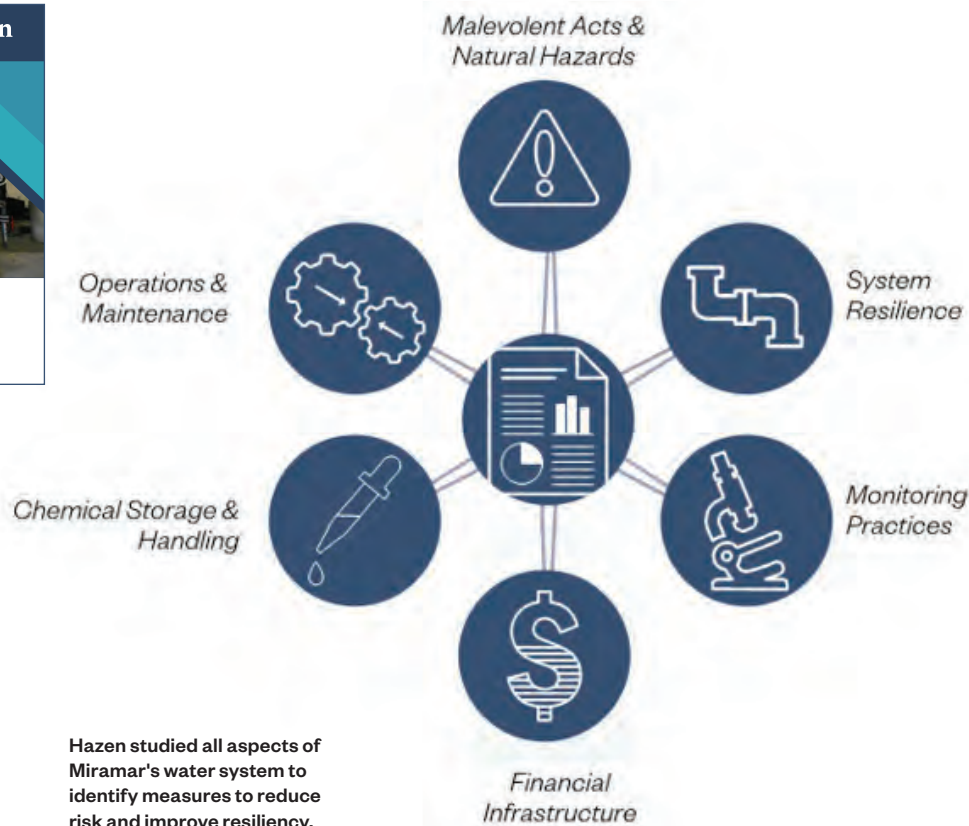
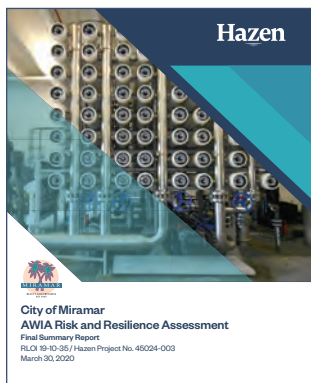
of existing facilities and re-purposing the Chemical Building to accommodate new processes. Treatment plant improvements included raw water wells and piping, sand separation and cartridge filters, membrane feed pumps, two 2-stage membrane units (3-mgd each) designed with the flexibility to reduce or expand treatment capacity, raw water blending flexibility, CIP system, concentrate and permeate pipelines, post-treatment, chemical feed and storage upgrades, electrical and I&C upgrades, miscellaneous building

modifications, and sitework. Hazen developed the project delivery schedule for design and construction of the proposed improvements. The City elected to proceed via Design-Build construction delivery.

- **Refurbishment of Lime Storage and Slaker Facilities:** Design services for refurbishment of the lime storage and slaker facilities in order extend the life of the equipment prior to plant conversion to membrane treatment.

City of Miramar Risk and Resiliency Assessment (RRA) and Emergency Response Plan (ERP)

In 2020, Hazen performed an RRA of the City's water system, including the East WTP, West WTP, raw water wells, storage tanks, pump stations and pipelines, to meet their regulatory requirement under America's Water Infrastructure Act (AWIA) of 2018. The RRA involved workshops with leaders from utility departments and emergency response agencies, field inspections of critical assets, identification of threats and vulnerabilities to the water system, risk calculations using a tool developed by Hazen, recommendations of mitigation measures to improve resilience, and development of a report that is "for official use only" and certified by the US EPA. The detailed RRA report provides an implementation plan for capital and operational needs for risk and resilience management of the City's water system. Hazen is currently developing an ERP for the City that includes response protocols for emergencies/events identified as threats during the RRA.



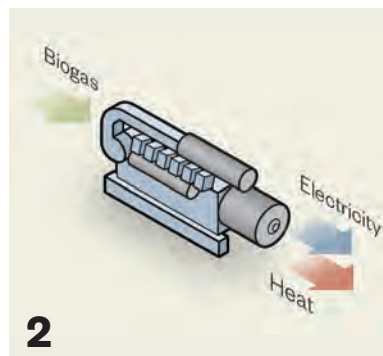
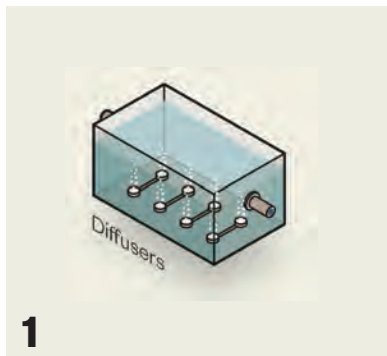
Waste to Green Energy Project - Final Investment Grade Energy Audit at North Regional WWTP

Broward County, Florida

Hazen used state-of-the-art wastewater process modeling to identify energy conservation measures as part of a Florida Statute 489.145 “Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Act” energy audit.

Hazen performed an investment grade energy audit as a subconsultant to OpTerra Energy Services (formerly Chevron Energy Solutions) through a performance contract with Broward County. Hazen developed a detailed analysis of the North Regional Wastewater Treatment Plant (NRWWTP) to determine process loadings, biogas production, and the potential for reduced plant energy consumption.

Hazen specifically performed two major process evaluations to ultimately develop the two greatest potential energy conservation measures (ECMs):



1) the effect of converting the surface aerators to fine bubble diffusion for two of the three remaining 20 mgd wastewater treatment modules still with this aeration technology (two 20 mgd modules were already provided with fine bubble diffusers under previous Hazen contracts; based on additional gained capacity with fine bubble diffusion, the remaining surface aerator module was intended to be used as backup under this ECM), and 2) the potential recovery of biogas/methane from the digesters for conversion to energy in an onsite generator.

Project Highlights

- Performed an investment grade energy audit
- Identified over 830 bhp of energy reduction through aeration improvements and process optimization
- Confirmed the payback of implementing a waste to green energy project that has reduced purchased electricity costs by \$1.5 million annually

Client Reference

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Role on Project

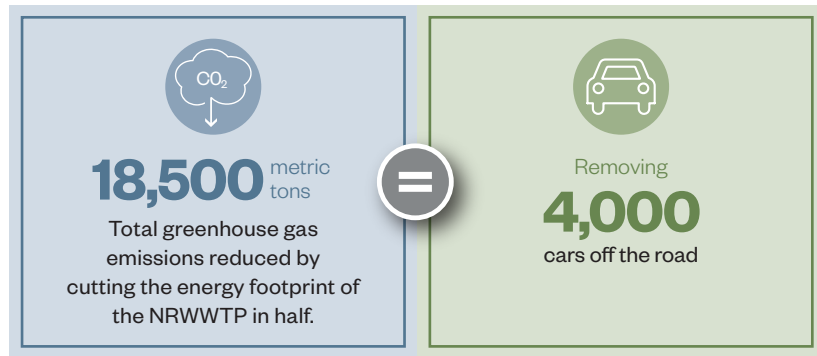
Subconsultant

Project Duration

2009 - 2015

Hazen used BioWin™ modeling to identify a way to optimize the activated sludge process *without adding additional tank volume.*

Broward County implemented select energy conservation measures Hazen identified in the investment grade energy audit under a *guaranteed performance savings contract.*



For the conversion to fine bubble ECM, Hazen calculated a savings of 415 brake horsepower (bhp) per module compared to the existing surface aeration. For modules A and B, this resulted in a savings of over 830 bhp. With the assistance of state-of-the-art tools such as BioWin™ and CFD clarifier models, Hazen determined the ability of the existing modules to operate in partial nutrient removal mode in order to comply with the Ocean Outfall rule. The implementation of selector zones and ammonia-based aeration control allows the existing tanks to be modified for nitrogen removal without the need for additional volume. Broward County elected to complete this aeration project under a separate capital construction project.

For the recovery of methane gas and onsite conversion to energy ECM, Hazen calculated the potential production based on historical volatile solids but also considered the addition of fats, oils, and grease (FOG) from septage haulers to increase the production. Hazen analyzed historical FOG records to determine the quantity of material received as well as the days and times at which these transactions occur. Hazen further utilized the historical FOG data to project future FOG, calculate FOG receiving tank volumes, determine FOG pump sizes, estimate digester dosing rates, and calculate associated energy requirements.

To validate the process benefits of adding the FOG directly to the digesters, and to evaluate digester performance and estimate future biogas quantities; the Hazen team developed a BioWin™ model to incorporate FOG and volatile solids data and predicted the performance for a variety of process configurations and operational conditions. Hazen's BioWin™ analysis showed that the FOG positively increased biogas quantities such that the investment in the construction of this ECM would be a worthwhile investment.

The FOG receiving station, biogas collection, and energy generation system was constructed for \$18 million in 2015 through a guaranteed performance savings contract and continues to operate today, saving Broward County over \$1.5 million annually in electric costs.



Energy Conservation Projects at Utility Facilities: Combined Heat and Power Design/Build Project

Broward County, Florida

Hazen, in association with OpTerra Energy Services (formerly Chevron Energy Solutions), provided Design-Build Services for the implementation of Energy Conservation Methods (ECM) at the Broward County North Regional Wastewater Treatment Plant (NRWWTP). Services provided on this project included design, permitting, construction and startup.

Hazen, in collaboration with OpTerra Energy Services (formerly Chevron Energy Solutions), implemented a biogas-to-energy project using the digester gas waste product from the existing anaerobic digestion process at the Broward County 95-mgd NRWWTP. The project was aimed at reducing the NRWWTP's energy footprint and carbon emissions by using previously flared biogas as a renewable fuel to generate approximately 1.6 MW of electricity on site.

Two major components of this project included installation of a new 2.1-megawatt engine-generator for conversion of biogas to electricity and

Project Highlights

- Design and construction of a new 2.1-Megawatt Engine Generator fueled by the anaerobic digester biogas
- Design and construction of a Fats, Oils, and Grease (FOG) receiving station and sludge mixing system for enhanced biogas production through co-digestion of the FOG stream
- The project reduced the carbon footprint of the NRWWTP by 17% and reduced purchased electricity by 30%

Client Reference

Mark Darmanin
Operations Director
Broward County
Water and Wastewater Services
2555 West Copans Road
Pompano Beach, FL 33069
(954) 831-0960
mdarmanin@broward.org

Role on Project

Subconsultant

Project Duration

August 2012 - December 2015

construction of a fats, oil, and grease (FOG) receiving station. Biogas captured from the digestion process is conditioned and used as fuel for the engine generator to create electric power. The power generated by the CHP Facilities is used to offset approximately 30% of purchased electricity, allowing these savings to be applied to fund the project. Hot water from the cogeneration system is beneficially reused to heat the digesters to maintain the necessary mesophilic conditions. This reduces the frequency with which the boilers need to operate, thereby further reducing the NRWTP's electrical demand.

FOG Receiving and Dosing Station

The FOG receiving station was constructed to collect and introduce the additional feedstock to the digesters to enhance biogas production. This FOG material was formerly directed to the plant influent, resulting in increased aeration energy demands for the liquid stream and adverse O&M impacts, including accumulation of FOG within underground pipelines. Redirecting this waste to the anaerobic digesters for resource recovery reduces other energy demands at the plant by an additional 250 kW and enhances the electrical

energy produced. The significant energy content of the FOG stream is estimated to increase biogas production by approximately 30%, resulting in even greater power production.

The FOG Receiving Facility is designed for an average daily flow of up to 60,000 gallons. The facilities include two truck unloading stations; a 165,000 gallon stainless steel FOG receiving tank; FOG transfer pumping to an 18,500 gallon blend tank; and dosing pumps. At this facility, FOG from the receiving tank is mixed with digested sludge and sequentially dosed from the blend tank into each digester's feed line. Hazen developed a protocol for the start-up of the system and provided operational assistance until the FOG dosing system reached full capacity and stable operation.

2015 Greenhouse Gas Reduction Goal

It is estimated that this project alone, implemented under the Florida Statute 489.145 "Guaranteed Energy, Water, and Wastewater Performance Savings Contracting Act", meets 26% of the County's 2015 Greenhouse Gas (GHG) reduction goal and reduces the carbon footprint of the NRWTP by 8,800 tonnes per year.



Above: North Regional WWTP Installed FOG Receiving and Dosing System. The biogas collection and treatment, CHP facilities and the FOG receiving station started operation at the end of 2015 and continues to operate today, saving Broward County over \$1.5 million annually in electricity costs.



Village Creek Wastewater Treatment Plant Energy and Process Optimization Study

Jefferson County, Alabama

Hazen completed investment grade energy audits at two WWTPs. Our experts used historical data and process modeling to balance energy savings with operational requirements to identify projects that improve water quality and biosolids management.

Jefferson County Environmental Services Division (JCESD) in Birmingham, Alabama, operates the Village Creek Wastewater Treatment Plant consisting of two treatment plants (Plant 001 and Plant 002), which provide advanced secondary treatment to a common influent wastewater prior to discharge. The combined design treatment capacity of the two plants is 120 mgd on an average daily flow basis, and the facilities currently receive between 30 and 50 mgd flow on an average yearly basis. The facility routinely experiences peak flows in excess of 250 mgd.

Hazen performed an Energy Management and Process Optimization Project at the Village Creek WWTP to assist the County in lowering operational costs. The study evaluated and recommended options to lower operational costs through improvements in digester performance; gas

Project Highlights

- Study identified \$2 million in annual energy and operational cost savings
- Focused on improving digester performance, process optimization and energy recovery
- Savings measures implemented at low or zero capital costs

Client Reference

Daniel White, PE
Deputy Director
Jefferson County
Department of Environmental Services
716 Richard Arrington, Jr., Blvd. N.
Suite A-300
(205) 214-8610
whited@jccal.org

Role on Project

Prime

Project Duration

May 2010 - March 2011

production; energy recycle and recovery systems; operational and process optimization changes; demand management; and improvements to automation. To achieve the County's goals, Hazen performed the following:

- Historical data analysis and calibration and verification of a BioWin™ whole plant process simulator.
- Evaluation of operational or process changes in the liquid and solid treatment trains.
- Optimization of primary clarification, aeration systems, UV disinfection, and major pumping systems.
- Assessment of wet-weather event historical data and development of wet-weather operational strategies.
- Assessment of the digester infrastructure and solids handling systems.
- Evaluation of alternatives to increase gas production including the introduction of Fats, Oils and Grease (FOG) feed stream directly into the anaerobic digesters.

- Effective utilization of digester gas as a fuel source within the existing power generation system.
- Evaluation of current rate power structure, energy usage, and demand management opportunities.
- Improvements to plant control system hardware, software, and field instruments for increased reliability, automation, and reduced manpower requirements.
- Opinion of cost and payback period for all major capital improvements recommended.
- Evaluation of load response and capacity credit programs with the electric utility.

Hazen performed business-case evaluations based on anticipated construction costs, corresponding energy and operations savings to be realized from the improvements, and the estimated payback (self-funding period). The study identified approximately \$11M in optimization-related improvements which when implemented should result in over \$2M in annual operational cost savings. Many of the cost savings opportunities are being implemented by Jefferson County for minimal or in some cases zero capital dollars invested.



HRRSA Owner's Engineer for ESCO Projects

Harrisonburg, Virginia

Hazen served as a technical advisor to a wastewater utility implementing projects under a guaranteed savings performance contract. Hazen's knowledge of the utility's operations and design standards reduced the risk and O&M impact of the projects.

Hazen provided engineering services to support Harrisonburg-Rockingham Regional Sewer Authority (HRRSA) in the solicitation and selection of an Energy Service Company (ESCO) to deliver energy optimization projects under a performance contract. After the ESCO selection process, Hazen served as the Owner's Engineer to provide technical evaluations of the proposed energy optimization projects to ensure the projects had technical merit and were in the Authority's best interest. A summary of services provided by Hazen included:

- Assisted HRRSA with the development of the ESCO Request for Proposals (RFP).
- Assisted HRRSA in reviewing ESCO proposals and provided technical support for the selection committee.

Project Highlights

- Represented the interests of the client during a guaranteed savings performance contract
- Technical review of the proposed energy project savings, costs and impacts to O&M
- Projects included aeration optimization, blower replacement, co-digestion, CHP, biosolids drying, and power monitoring

Client Reference

Sharon G. Foley, PE
Executive Director
Harrisonburg-Rockingham
Regional Sewer Authority
Post Office Box 8
856 North River Road
Mount Crawford, VA 22841
(540) 434-1053 ext 223
sfoley@hrrsa.org

Role on Project

Prime

Project Duration

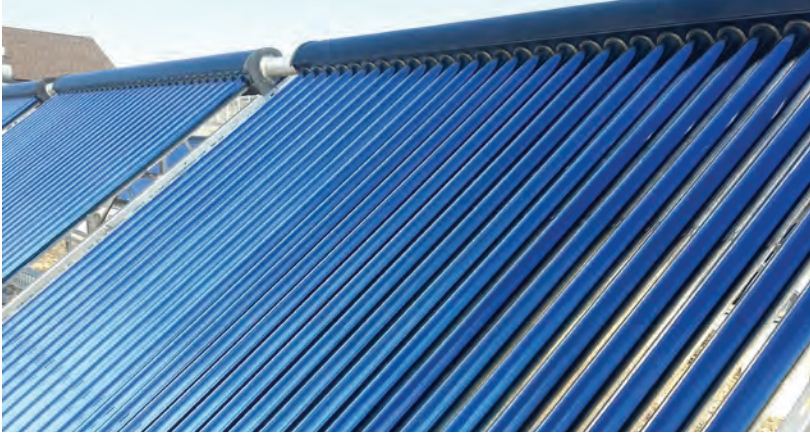
September 2012 -
November 2013

- Performed preliminary energy evaluations to optimize the energy potential for the North River WWTP: This data was used as the basis for the ESCO selection criteria.
- Developed minimum design requirements and technical specifications for the ESCO's use in developing the project scope and cost.
- Evaluated the ESCO's proposed project design and proposed cost for technical merit and accurate and fair cost estimating.
- Provided technical support to the Authority by evaluating project payback risks, operations impacts, and negotiating final project scope.

Hazen also evaluated the proposed benefit monitoring and verification strategies to ensure that the ESCO's proposed strategies would bring "real world" benefit to the Authority. Specific energy optimization oppor-

tunities evaluated by Hazen and Sawyer and the ESCO included:

- Co-digestion of high strength waste for digester biogas production optimization.
- Energy production from biogas fueled Combined Heat and Power systems (CHP).
- Biosolids drying using biogas and natural gas.
- Bench scale high strength waste digestibility and biomethane potential tests.
- Blower replacement and DO control optimization.
- On-site power generation and "coincident peak" utility billing.
- BNR mixing optimization.
- Deferring process loads to manage peak demand.
- Power monitoring and SCADA improvements.



Kent County WWTP Owner's Engineer for ESCO Project Evaluations

Kent County

Kent County hired Hazen to help them move their WWTP towards energy neutrality. Hazen's experts analyzed the process, operational and economic risks of implementing energy optimization projects under a guaranteed savings performance contract.

Hazen provided Owner's engineering services to support Kent County in the evaluation of Energy Optimization projects proposed by an Energy Service Company (ESCO) to move the Kent County WWTP to energy neutrality. Hazen's primary services included technical evaluations of the proposed energy optimization projects to ensure the projects had technical merit and were in the County's best interest. A summary of services provided by Hazen included:

- Technical evaluations of the current plant and energy performance conditions (benchmarks) developed by the ESCO to confirm the ESCO's economic baseline for the financial benefit evaluations were accurate.
- Utility billing evaluations and coordination to ensure the energy costs and benefits used in the ESCO's evaluations were accurate and represented the real world benefit from energy saving opportunities.

Project Highlights

- Technical review of projects proposed by a guaranteed savings performance contractor
- Developed a framework for evaluating proposed projects versus the County's alternative
- Projects included new digesters, co-digestion, CHP and new aeration blowers

Client Reference

Diana Golt PE
Asst. Public Works Director
-Engineering Division
Kent County Public Works
Department
555 Bay Road, Dover, DE 19901
302.744.2430
Diana.Golt@CO.KENT.DE.US

Role on Project

Prime

Project Duration

August 2014 - January 2016

- Provided economic and financial evaluations to ensure the energy project cost savings and pay-back period were accurate and not overstated.
- Provided risk assessments so that the County could fully understand the process, operational and economic risks for the projects proposed by the ESCO.
- Developed a multi-criteria evaluation framework to provide the County with an objective and defensible decision making tool to compare projects proposed by the ESCO to other alternatives the County was exploring outside the ESCO contract.
- Technical evaluations of the proposed process improvements and energy recovery projects to confirm the project cost estimates were accurate and that the project could be built without posing significant risks to the treatment process during construction.
- Support evaluating the energy impacts and long term use of the County's existing photo voltaic and thermal solar arrays.

- Performed oxygen transfer efficiency testing of the County's existing Biolac™ aeration system to evaluate the economic benefit of installing fine bubble diffusers.

The energy optimization technical evaluations provided by Hazen included the following plant modifications and energy projects:

- Construction of new Digesters and Thermal Hydrolysis Process to replace the existing sludge drying and alkaline stabilization system
- Biogas fueled combined heat and power generation system
- Co-digestion of high strength waste to enhance energy projection
- Construction of new aeration basins and implementation of BNR secondary process with high speed turbo blowers and fine bubble diffusers

The study phase of the project was completed in 2016.



Beckley Sanitary Board Piney Creek WWTP Owner's Engineer for ESCO Project Evaluations

Beckley, West Virginia

Hazen evaluated the wastewater process impacts of energy projects proposed for a WWTP by a guaranteed savings performance contractor. Hazen's team audited the contractor's proforma estimates and assisted with construction contract negotiations.

Hazen provided Owner's engineering services to support the Beckley Sanitation Board (BSB) in the evaluation of Energy Optimization projects proposed by an Energy Service Company (ESCO) to provide capital improvements and energy optimization for the Piney Creek WWTP under a performance contract. Hazen was a subconsultant to another consultant for this project. Hazen's primary services included technical evaluations of the proposed energy optimization projects to ensure the projects had technical merit and were in the Boards best interest. A summary of services provided by Hazen includes:

Project Highlights

- Evaluated the O&M impact of projects proposed by a guaranteed savings performance contractor
- Technical review of proposed energy optimization projects saving, cost and payback
- Projects included biosolids stabilization, co-digestion, CHP, UV and aeration optimization

Client Reference

Jeremiah Johnson
General Manager
Beckley Sanitation Board
301 S Heber St
Beckley, WV 25801
(304) 256-1760
jjohnson@beckleysanitaryboard.org

Role on Project

Subconsultant

Project Duration

July 2015 - July 2016

- Evaluations of the ESCO's preliminary energy evaluations and preliminary engineering reports for technical accuracy.
- Provided economic and financial evaluations to ensure the energy project cost savings and pay-back period were accurate and not over stated.
- Provided cost estimating services to confirm the ESCO's proposed project costs were in line with the project's scope.
- Provided general guidance on contract development for the project construction phase.
- The energy optimization technical evaluations

provided by Hazen included the following plant modifications and energy projects.

- Rehabilitation of the existing solids stabilization system.
- Biogas fueled combined heat and power generation system.
- Co-digestion of high strength waste to enhance energy projection.
- UV system optimization.
- Secondary process improvements including fine bubble aeration and DO control.

The study phase of the project was completed in 2016.



Patrick Davis, PE

Vice President

Mr. Davis a Vice President with Hazen, has served as Project Director on over \$900 million of public works construction and has been involved in an engineering capacity on over \$1.6 billion of constructed local public works projects.

Education

BSCE, University of Massachusetts, Dartmouth, 1980

Certification/License

Professional Engineer: FL, NY, MA, VA, NC

Areas of Expertise

- Planning, Permitting, Design, Procurement, and Construction Management of Wastewater, Water and Stormwater Facilities
- Water Resource Planning
- Project Management
- Conventional and Alternative Delivery Systems Procurement, International Procurements

Experience

- 40 total years
- 38 years with Hazen

Professional Activities

American Society of Civil Engineers

American Water Works Association

ASHRAE, NSPE, TAPPI

National AWWA Dual Distribution Committee

Water Environment Federation

With 36 years of Florida-specific experience, Mr. Davis has assumed a leading role in assisting public utilities and providing regulatory advice on water supply and treatment issues, as well as all facets of wastewater regulations. A current focus of his consulting practice is the development of alternative water supply projects to ensure adequate supply to meet the growing potable water demand across the nation.

Patrick A. Davis has over 40 years of experience and has directed or participated in the master planning, permitting, design and program and construction management of water resources facilities in Florida, the Northeast, Central / South America, the Middle East and Asia. In Florida, Mr. Davis has served as project director on over \$900 million of public works construction and has been involved in an engineering capacity on well over \$1.5 billion of constructed local public works projects.

Mr. Davis has earned a reputation as an effective designer of all aspects of wastewater collection, treatment, disposal and reuse, particularly in S. Florida.

Mr. Davis served as project director for numerous wastewater treatment facilities in Florida. He directed the Miramar \$70 million wastewater treatment program in 1991-97; the BCOES \$65 million wastewater treatment program in 1986-91; the 2010 upgrade to 100 mgd (\$40M) and the current 2020 fine bubble conversions. He directed Broward's \$27 million regional wastewater transmission system project in 1991-96. He served as officer-in-charge of Hollywood's \$80 million WWTP program in 1988-1991. He recently directed the Miami-Dade \$600M HLD SRWWTP project.

Mr. Davis was the primary author of Broward County's Energy Conservation Master Plan. Mr. Davis was also the project director of engineering for a resultant energy savings project delivered through an ESCO contracting vehicle. That award winning project utilized FOG to augment digester bio-gas production generation used to power a cogen facility. Mr. Davis has led Hazen and Sawyer efforts on behalf of SE Florida's

open ocean outfall utilities for over a decade (SEFLOE I, II and F.A.C.E.). Mr. Davis directed the effluent Master Plan for Broward County necessitated by ocean outfall legislation. He was a charter member of the AWWA national dual distribution committee and was Chairman of the FSAWWA Water Reuse Committee. He has directed the largest effluent reuse projects in South Florida. The Loxahatchee River District IQ (irrigation quality effluent reuse) system developed by Mr. Davis is the model which the State of Florida uses for other communities to follow. This system produces treated effluent to irrigate golf courses in a 70 square mile service area in Jupiter.

For the City of Hollywood Mr. Davis conducted effluent reuse filter full scale test studies. He directed the City of Hollywood reclaimed water system implementation. The first phase of the reuse system (8 mgd) was placed on-line in 1995. Mr. Davis also di-

rected a hydrodynamic salinity barrier study for the City to recycle 4 to 20 mgd of reclaimed water. Mr. Davis was in charge of the toxicity removal study for the City of Hollywood relating to reuse (organo-phosphate removal).

Mr. Davis has also served as project director on several Class I deep injection well projects over the past two decades, including Fort Lauderdale (4 wells); Loxahatchee River District; BCOES (6 wells in multiple projects); Miramar (2 wells); Hollywood (2 wells); RCA Corp. (industrial well); and Plantation (tubing & packer repair). This experience has afforded Mr. Davis the opportunity to interface with many key decision makers affecting UIC decisions (Class I and Class V). Since 1996, Mr. Davis has represented several South Florida utilities in crafting strategies to ensure continued use of Class I wells, even in the case of suspected migration from the injection horizon.



Glenn Cunningham, PE

Senior Associate

Education

ME, City College of New York,
1984, Civil Engineering

BS, Cranfield Institute of
Technology, 1977, Agricultural
Engineering

Certification/License

Professional Engineer: FL

Areas of Expertise

- Project Management
- Construction Administration
- Pump Station and Pipeline Design
- Water/Wastewater/Solid Waste Facility Design
- Air Pollution and Odor Control Systems
- Quality Assurance/Quality Control

Experience

- 40 total years
- 34 years with Hazen

Professional Activities

National Society of Professional
Engineers

Water Environment Federation

American Society of Civil
Engineers

Florida Engineering Society

Mr. Cunningham has administered large scale construction contracts for the City of Miramar's Water Reclamation Facility contracts as well as at other large, local water and wastewater treatment plants, including North Regional WWTP for Broward County, and Southern Regional WWTP in the City of Hollywood, and Southern Region WWTP in Palm Beach County.

Specifically, Mr. Cunningham administered the energy services contract at Broward County's NRWWTP to construct a fats, oils, and grease (FOG) facility to enhance biogas production and convert to energy through a cogeneration facility. Mr. Cunningham's implementation management of the FOG and the cogeneration (cogen) facility enabled the County to successfully start cogen operations and realize energy savings immediately.

Miranar Wastewater Reclamation Facility Reuse Expansion, Miramar, FL

Mr. Cunningham served as the Construction Manager/Resident Project Representative (RPR) for the first expansion project. The reuse facilities were expanded from 2 mgd to 4 mgd. The project included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, an emergency generator, a ground storage tank, and high service pumps. Mr. Cunningham also served as the RPR for the Wastewater Booster Pump Station, Effluent Reuse Distribution Pump Station and the Inline Sludge Pump Station for the City of Miramar.

North Regional Wastewater Treatment Plant, Broward County, FL

Mr. Cunningham served as the construction project manager/resident project representative for multiple projects at NRWWTP, including the Updating project which expanded NRWWTP from 80 to 100 mgd, upgraded solids dewatering facilities, updated existing facilities and converted surface aeration to fine bubble diffusion; the Capacity Improvements project to increase disposal capacity through the addition of two deep injections wells and six individual well booster pumps; of the facility; the Digester 3 Cover project; the Generator 4 project, the Chlorination project; and the Headworks Gates Replacement project. As a subconsultant to a major energy company, Mr. Cunningham also administered the

construction phase of the energy services contract to construct the FOG facility and associated cogeneration facility.

Regional Wastewater Transmission System Expansion, Broward County, FL

Mr. Cunningham was the Construction Project Manager for the design, construction and start-up phases of this \$35M project which included construction of over 70,000 LF of large diameter pipelines routed and installed through urban areas in North Broward. Thirteen master pump stations with capacities ranging from 10–20 mgd were constructed. These included the following in-line booster pump stations: Lauderdale East Pump Station No. 452 Rehabilitation to In-line Booster; Master Pump Station 462 Coral Springs East Conversion to Booster; Deerfield Beach Pump Station 440 Conversion to Booster; Sunrise Booster Pump Station 410 (pictured below); North Lauderdale Booster Pump Station 458; Palmdale Booster Pump Station 51; Master Pump Station Tam-arac East Conversion to Booster.

Rehabilitation work for the Regional Transmission System included construction of large diameter force main and in-line booster pumping station conversions. Services included planning, permitting, design and construction management. The system provides service to large users in the Northern Broward County region. It consists of approximately fifty miles of force main and a combination of twenty master pumping stations.

City of Hollywood, FL

Mr. Cunningham served as Construction Manager for the construction of the 15th Avenue DIP force main and modification of two Master Pump Stations including pump replacement, piping, controls and wet well rehabilitation. Construction of the Injection Well Pumping System, included a new pump station, electrical service, instrumentation and control, appur-

tenances and new 54-inch influent and effluent pipelines to the deep injection wells.

Mr. Cunningham also served as Construction Manager for the City's Moffet Street/ 14th Avenue Stormwater Pump Station and Collection System project. This project included a 50-mgd pump station and over 2,000 LF large diameter force main.

System 9 North & South Regional In-line Booster Pump Stations, Palm Beach County, FL

The System 9 North Regional Pump Station has a 20-mgd (30-mgd peak flow) design capacity, in-line booster type pump station with four 200 hp, non-clog centrifugal horizontal pumps and variable frequency drives. It includes 1,360 kW engine generator. The station phased out the Palm Beach County System 9 North Wastewater Treatment Plant and transfers flows to the expanded Southern Region Wastewater Treatment Plant.

Cooper City Pine Island Pump Station, Cooper City, FL

Hazen and Sawyer was retained by the Cooper City in 2009 to design and permit a pump station to convey the water from the tank to the distribution system. The design included the following key features:

- Three horizontal split case pumps, one at 50 horsepower and two at 100 horsepower with an estimated capacity of 2,800 gallons per minute at 160 feet total dynamic head. The pumps will be equipped with variable frequency drives.
- 250 kilowatt standby power engine generator with fire rated sub-base fuel storage tank within a hurricane resistant enclosure along with automatic controls.
- Remote telemetry and control system for monitoring and controlling the pump station from the water treatment plant.



J. Philip Cooke, PE

Associate Vice President

Mr. Cooke has more than 31 years of experience and has directed the planning, design, and permitting of pipeline and marine outfall projects.

Education

ME, University of Florida, 1990,
Environmental Engineering

BS, University of Florida, 1989,
Environmental Engineering

Certification/License

Professional Engineer: FL, NY

Areas of Expertise

- Design, Permitting, and Construction of Pipeline Projects
- Environmental Resource Permitting
- Water and Wastewater Treatment
- Hydraulic Modeling
- NPDES Permitting

Experience

- 30 total years
- 29 years with Hazen

Professional Activities

American Society of Civil Engineers

Water Environment Federation

American Water Works Association

Construction Management Association of America

His typical assignments range from conceptual layout, design, and construction management to environmental and analytical monitoring and permitting of pipeline projects in public right-of-way. He has participated in water and wastewater assignments for both municipal and industrial clients. He has extensive experience obtaining construction and operating permits with local, State of Florida, and federal regulatory agencies.

Wastewater Reclamation Facility Reuse Expansion to 7.5 mgd, City of Miramar, FL

Mr. Cooke served as Project Manager for the Miramar Wastewater Reclamation Facility Reuse Expansion. The facility capacity expansion was to be from 4 mgd to 6 mgd, however based on a validation study performed by Hazen prior to design, a paper uprating from 4 mgd to 5 mgd of was obtained for the existing facilities. As such, on the expansion is completed in late 2020, the facility will have a permitted capacity of 7.5 mgd. New facilities included two filter feed pumps, sand filters, expansion to the existing sodium hypochlorite system, a ground storage tank, and high service pumps.

Wastewater Master Plan, Hollywood, FL

Mr. Cooke served as Project Manager and Lead Engineer for the City of Hollywood's most recent utilities master plan. Completed in 2007, the Wastewater Master Plan identified capital improvements to meet the needs of the City of Hollywood service area through the year 2025. Improvements were analyzed and recommended for the four primary operational components of the City's wastewater utility: collection/transmission, treatment, effluent disposal, and residuals management. The Master Plan considered a range of factors including population growth, re-development, aging of existing infrastructure, septic to sewer conversion, and new regulations. When the state of Florida passed critical legislation pertaining to the continued use of the open ocean outfall in June 2008, the Master Plan was then amended in October 2008 to evaluate impacts and recommend a compliance approach.

SRWWTP Effluent Reuse Upgrade (Contract 4), Various Utilities, FL

Upon completion and acceptance of the Reuse Filter Pilot Study, in 1991, Mr. Cooke served as design engineer on the 8-mgd reclaimed water sys-

tem for the SRWWTP. Due to the salinity of various contributing municipalities, the project included continuous backwash filters, filter feed pumping, chlorine contact tankage, reuse water storage, and filtered effluent pumping for both saline and low saline effluents.

SRWWTP Reuse Water System Expansion Phase 2, City of Hollywood, FL

Hazen provided detailed design, permitting, hydraulic modeling, bidding, and limited construction management services for the Phase 2 Reuse Water System Expansion at the Southern Regional WWTP. Detailed design included the replacement of three existing horizontal split case pumps with new 150 horsepower pumps, variable frequency drives, and a new air conditioning system for the electrical room.

SRWWTP Upgrades, City of Hollywood, FL

Mr. Cooke provided project management and process mechanical engineering support to the City of Hollywood's Southern Regional WWTP improvement project that included modifications to a number of systems. This high purity oxygen activated sludge system (HPOAS) facility was expanded from 48.75 mgd to 55.5 mgd. The \$20 million upgrade included the addition of a fifth HPOAS biological treatment train addition of two secondary clarifiers, replacement of oxygen train aerators, and rehabilitation of secondary clarifiers 1-4.

SRWWTP Improvements, City of Hollywood, FL

Mr. Cooke provided project management and process mechanical engineering support to the City of Hollywood's Southern Regional WWTP improvement project that included modifications to many systems. This HPOAS facility was expanded from 48.75 mgd to 55.5 mgd. The upgrade included the addition of a fifth HPOAS biological treatment train and expansion of the cryogenic system, which consisted of replacement of dual 1,250 hp main air compressors and cooling tower, main reversing heat exchanger, vaporizers, updated instrumentation and controls, and rehabilitation of the existing LOX storage tanks. Detailed design has been completed, and pre-construction efforts are under way for rehabilitation of the plant

headworks and odor controls. Mr. Cooke also directed the development of the City of Hollywood's Wastewater Master Plan which evaluated biological nutrient removal and water reuse alternatives utilizing the existing HPOAS system.

SRWWTP Headworks Rehabilitation and Replacement, City of Hollywood, FL

Project Manager and Design Engineer for the SRWWTP Headworks project. This project involved rehabilitation of headworks facility, replacement of bar screens, grit pumps, and slide gates, 72-inch diameter plant pipe lining, grit pipe replacement, bypass pumping, specialty coatings, structural/architectural modification, and lighting upgrades.

SRWWTP Efficiency Improvements, City of Hollywood, FL

In an effort to more efficiently utilize low saline effluent entering the SRWWTP, this project analyzed fluctuations in source water and customer demand to determine effective system deficit and surplus volumes on a daily basis. Upon completion of the storage analysis, the hydraulic and structural integrity of abandoned sludge storage tanks on the plant site was established. Next, a design and construction project was implemented to add necessary piping and rehabilitate the structures, which yielded approximately 800,000 gallons of filter feed water equalization capacity at a cost of \$715,610.

City of Hollywood Clarifier Nos. 1-8 Rehabilitation, City of Hollywood, FL

Mr. Cooke has managed several design and construction projects at the SRWWTP for the rehabilitation of all eight clarifiers at the SRWWTP and the replacement their mechanisms including the center assembly, drives, sludge boxes, seals, rake arm and blades, suction scrapers, and other miscellaneous metal repairs. Due to the age of Clarifier Nos. 2 and 3, severe leaks of the ageing construction joints required lengthy repairs necessitating that the clarifiers be kept in service during the work. Careful construction requirements were incorporated into the project during design to eliminate process impacts to the plant.



Monique Durand, PE

Associate

Ms. Durand has over 16 years of experience in planning, design, permitting, and construction management of water and wastewater treatment facilities.

Education

MS, Virginia Polytechnic Institute and State University, 2005, Environmental Engineering

BS, Midwestern State University, 2003, Environmental Science

Certification/License

Professional Engineer: FL

Areas of Expertise

- Water and Wastewater Treatment Plant Design
- Wastewater Collection System Design
- Construction Management
- Permitting
- Pipeline Design
- Water Supply Planning

Experience

- 16 total years
- 13 years with Hazen

Professional Activities

American Water Works Association

Water Environment Federation

City of Miramar Risk and Resilience Assessment and Emergency Response Plan, FL

Ms. Durand is currently serving as the Project Manager for the City of Miramar America's Water Infrastructure Act, 2018 Risk and Resilience Assessment and Emergency Response Planning. Phase 1 of the projected scope included a risk and resilience assessment (RRA) of the City's water systems, including treatment facilities, storage tanks, pump stations and pipelines. The RRA also included comprehensive series of workshops with leaders from utility departments, field inspections of critical assets, and development of a report that is "for official use only" and certified by the Environmental Protection Agency. The detailed RRA report provides an implementation plan for capital and operational needs for risk and resilience management of the system. The second phase, development of the Emergency Response Plan (ERP) for the City, is currently ongoing. The ERP will include response protocols for emergencies/events identified as a threat during the RRA.

Construction Management Services for City of Miramar Wastewater Reclamation Facility Expansion Program Basis of Design Report and Improvements, City of Miramar, FL

Ms. Durand participated as Field Engineer in field testing activities to obtain information to support subsequent design efforts such as BioWin™ wastewater process modeling. Tasks included process sampling, sample preparation including onsite filtering and flocculating of samples, and performing nutrient analysis of samples.

Hollywood Water Treatment Plant Improvements Conceptual Design Report, Seminole Tribe of Florida, FL

Ms. Durand participated as Project Engineer for the development of the conceptual design report for the improvements to the STOF water treatment facility. The project scope included an assessment of overall WTP safety, reliability and redundancy, recommendations for improving chemical storage and feed facilities, recommendations for a new raw water supply well, assessment of membrane treatment facilities, and evaluation of finished water quality goals.

Water and Wastewater Services Basis of Design Report for Master Pump Station (MPS) Upgrades, Broward County, FL

This project involved development of design criteria for upgrades to MPS 440, 450 and 456. MPS 450 and 456 involved the conversion from a wet well type to an inline booster pump station. Ms. Durand performed hydraulic evaluations, pump selection, pipe sizing, conceptual design of the pump station improvements, determined construction sequencing and permitting requirements, and developed preliminary cost estimates.

Water and Wastewater Services Master Pump Station 440 Upgrades, Broward County, FL

Ms. Durand served as Project Engineer for the design of improvements/upgrades to the in-line booster Master Pump Station 440 facility, including primary and jockey pumping system, seal water system, bypass pumping system, on-site lift station, HVAC system and diesel engine generator. Project responsibilities included mechanical design of pump station improvements, preparation of detailed design drawings and technical specifications, and preparation of permitting submittals. Ms. Durand also assisted with the overall project management and multidisciplinary design coordination.

Broward County Water and Wastewater Service Fine Bubble Modules A, B, and D, Broward County, FL

Ms. Durand served as Project Manager and Lead Project Engineer for the design, bid/award and permitting of improvements to the aeration system for the Broward County North Regional Wastewater Treatment Plant. Project responsibilities included detailed design of associated improvements to convert from mechanical aeration to fine bubble aeration and upgrades to existing blower system, preparation of final detailed design/bid drawings and technical specifications, and assistance with multidisciplinary design coordination. Ms. Durand was responsible for the preparation of permitting submittals to several regulatory agencies including Broward County Environmental Protection and Growth Management Division, Florida Department of Environmental Protection, and City of Pompano Building Department.

City of Plantation, City of Naples, City of Margate, and City of Hallandale Groundwater Rule Compliance

Ms. Durand served as Lead Project Engineer for the evaluation of groundwater rule compliance at conventional lime softening and membrane treatment facilities throughout Florida. Project responsibilities included review of regulatory requirements, evaluation of viable alternatives for achieving four-log virus treatment using chloramines or free chlorine disinfectant, development of plant process improvements, preparation of permitting submittals, and coordination with Broward County Health Department and clients.

Winson Water Treatment Plant Bid Package 1: Filter Rehabilitation, North Miami, FL

Ms. Durand serves as Project Manager for the construction administration for the rehabilitation of the Filters at the Winson WTP. The project includes replacement of filter media, surface wash agitator system, underdrains, and filter pipe gallery for four existing filter basins. Ms. Durand's project responsibilities include general project management, shop drawing and other submittal review, contract interpretation and clarification, evaluation of change orders, periodic field visits, project progress meeting coordination, startup and testing coordination, and project closeout.

Water Master Plan, Plantation, FL

Ms. Durand serves as Project Manager and Lead Project Engineer for the preparation of the Water Master Plan for the City of Plantation service area. The Water Master Plan provides a comprehensive evaluation of the water supply, treatment, storage, and distribution systems. Project responsibilities include development and use of a distribution system hydraulic model, review of historical water quality data, and identification of capital improvement needs relative to maintaining the reliability of the water system components through the year 2040.



Elizabeth Keddy, PE, LEED AP

Associate

Education

ME, Environmental Engineering,
University of Florida, 2010

BS, Environmental Engineering,
University of Florida, 2007

Certification/License

Professional Engineer: FL, MA

Leadership in Energy and
Environmental Design Accredited
Professional (LEED AP)

Areas of Expertise

- Energy management
- Asset management
- Process energy audits
- Sustainability
- Renewable energy
- Energy recovery

Experience

- 13 total years
- <1 year with Hazen

Professional Activities

American Water Works
Association, Florida Section

Florida Water Environment
Association

Ms. Keddy has over 13 years of experience leading the planning, design, permitting, construction, operation and maintenance of water, wastewater, stormwater, water reuse, sustainability and energy projects. She has a proven track record of reducing energy costs while increasing the efficiency and reliability of water utility operations.

She identifies energy saving projects through investment grade energy audits, pump and blower efficiency testing, and real-time power monitoring with cloud-based data analytics. She has let over 60 energy audits of water and wastewater facilities, including 350 pump and blower efficiency tests. Mrs. Keddy has designed 2 MW of renewable energy systems, including solar, hydro, biogas and geothermal. She has secured \$190M in funding and financing for energy efficiency, renewable energy, water conservation and water quality projects.

Energy Management Program, SUEZ North America

As Energy Manager for SUEZ North America, Mrs. Keddy reduced energy costs by \$20M for over 90 water and wastewater utilities by optimizing pump and process operations, repairing and replacing inefficient equipment, and redesigning systems to be more sustainable. She established a mid-term energy management program, including setting strategic goals and key performance indicators (KPIs) to track progress towards those goals. She identified and prioritized energy conservation measures (ECMs) based on payback, client needs and ease of implementation. She mobilized a group of 40 Energy Champions across North America to share best practices and she was one of the founding members of a global SUEZ Energy Management Committee. Mrs. Keddy wrote standards and guidelines for efficient design, replacement, operation and maintenance of pumps, aeration systems, lighting, HVAC and power monitoring that became international standards for SUEZ.

Wastewater Treatment Plant Energy Audit and Aeration Control, Springfield Massachusetts

Ms. Keddy led the implementation of an investment grade energy audit, including 43 pump, blower and fan efficiency tests. The audit identified \$825,000 of annual electricity savings with an average payback of less than 3 years. Based on the results of the audit, she completed the prelim-

inary design of an advanced ammonia-based aeration control system for nitrification, denitrification, sludge retention time and most open valves. The design also included an innovative automatic control system to modulate the blowers based on time of day electric costs. The \$215K project is estimated to save \$200K of annual electric costs.

Investment Grade Energy Audit, Bristol, CT

Ms. Keddy conducted an investment grade energy audit of the City of Bristol Water Pollution Control Facility and Water Treatment Plant and Distribution System. The energy audit identified many energy conservation and retrofit measures, including process optimization, aeration controls, high efficient mixers, time of day pumping, backwashing optimization, hydroturbines, advanced pump station controls, plant water heat pumps, premium efficient motors, variable frequency drives, energy efficient lighting, and HVAC retro-commissioning and upgrades.

Blower Efficiency and Aeration Optimization Dashboard, El Paso Water, Texas

Mrs. Keddy developed an interactive data analytics platform for monitoring the performance of wastewater aeration blowers and activated sludge process parameters. The PowerBI dashboard facilitates staff driven optimization, preventative maintenance, and capital planning. Utility managers can compare their facilities with industry benchmarks and track process towards their strategic goals.

Combined Heat and Power Preliminary Design, Goleta Sanitary District, California

Mrs. Keddy conducted the preliminary design of a 450 KW combined heat and power (CHP) system that maximizes the use of the current biogas production while accommodating additional biogas generated from high strength waste (HSW) and population growth. The facility will achieve their goal of energy neutrality by operating the CHP system with HSW. Mrs. Keddy worked with a multidisciplinary team to coordinate pumping, piping and existing secondary tanks.

Innovative Data Analytics Platform for Pumps, SUEZ North America

Mrs. Keddy led the development of a first-of-its-kind energy dashboard for tracking the performance of pumps. She developed the technical specifications of the dashboard in Tableau and led an internal and external team of data visualization experts and data scientists to prototype and finalize the real-time cloud-based platform. She also led the installation of power metering on 280 pumps ranging from 20-1250 HP. She implemented both SCADA-based power metering and wireless internet of things (IOT) power metering. The project resulted in 8% energy savings.

Water Distribution Automatic Control System, SUEZ Water Idaho

Ms. Keddy led the feasibility study, detailed design and implementation of a state-of-the-art automatic control system of a water distribution network serving 200,000 customers. The SCADA-connected platform uses an advanced algorithm to optimize pumping in real-time based on pump efficiencies and time of use electric tariffs. Ms. Keddy managed the Idaho and New Zealand based teams to finalize the instrumentation, SCADA and configuration of the \$1 million project. She secured a \$400,000 incentive from the local electric utility and the project resulted in \$100,000 of annual savings.

Easterly Wastewater Treatment Plant Preliminary and Final Design, Marlborough Massachusetts

As a project engineer, Ms. Keddy completed the preliminary and final design of a \$60 million upgrade of a 5 MGD WWTP. The upgrade substantially improved the energy efficiency and nutrient removal of the facility. As part of preliminary design, she conducted an energy audit and renewable energy assessment, including evaluating of solar, wind, hydro, biofuel, rain gardens and green roofs. As part of final design, Elizabeth designed a new phosphorus removal system and upgrades to the pumping, piping and existing secondary tanks. She also coordinated with the electric utility to secure incentives for installing energy efficient equipment.



Public Relations • Project Management • Strategic Planning • Economic Development
"Sustaining Communities"

COMPANY PROFILE

HIGHLIGHTS

*Community and Business
Development Expert*

Public Engagement Specialist

Collaborative Change Agent

*Longtime Broward County
Business Owner*

CERTIFICATIONS

*Charrette Planner,
National Charrette Institute*

*Public Meeting Facilitator,
National Charrette Institute*

AFFILIATIONS

*International Economic
Development Council*

*Greater Fort Lauderdale
Chamber of Commerce*

APTA

COMTO

AMAC

EDUCATION

BSSW, Ohio State University

RECOGNITION

*Boys & Girls Clubs of Broward
County/ 100 Outstanding Women
of Broward County, 2010*

*Sistrunk Community Festival Small
Business Award, 2007*

*Success South Florida Magazine
One of South Florida's 25 Most
Prominent & Influential Black
Women, 2006*

*Greater Fort Lauderdale Chamber
of Commerce/Salute to
Business Award. 2002*

Dickey Consulting Services (DCS) is an economic development, government relations, project management and communications consulting firm. The organization and its associates provide services to public and private enterprises, coordinating, implementing and promoting projects related to economic and community development, government relations, business development, housing, public relations, public involvement, and other marketing initiatives.

Sheryl A. Dickey, founder and owner, is a community and economic development professional with more than 30 years of experience and a track record of success in these areas. She and the DCS staff bring a high level of energy and the ability to participate in a leadership or team member role to ensure successful completion of a project.

DCS provides staffing for invoicing, accounting, document controls, small disadvantage business enterprise coordination, contract administration civil-CAD, construction inspections, and communications assistance. The firm also provides administrative support for budgeting, planning, management, and purchasing.

DCS corporate office is in the Midtown Commerce Center, a newly constructed Silver LEED certified building in Fort Lauderdale. Ms. Dickey is the developer and owner of the building and she incorporates all aspects of green building initiatives in its operations.

Government Relations

DCS provides guidance on development of effective partnerships and achieving collective objectives, working closely with administrators and elected officials to create, implement and promote community/economic development programs, and initiate public involvement, public relations and marketing programs.

DCS is a liaison on behalf of government officials, negotiating partnerships with legislators, coordinating agenda items and presenting proposed client initiatives.



Public Involvement

DCS coordinates funding for economic and social policy issues, facilitates involvement and participation in programs to ensure maximum business opportunities for minority and female-owned businesses. The firm coordinates public involvement and public relations programming with various community/civic groups and public officials.

Focus Group Facilitator

DCS assists in the development and implementation of a strategic planning process of data parameters pertaining to particular groups for analysis. DCS identifies and organizes information targeting specific groups of individuals for analysis. DCS will conduct and facilitate focus groups or personal interviews to obtain input from these specialty groups. DCS collects, analyzes and provides compiled information into a final report.

Economic Development & Community Revitalization

DCS provides business retention, expansion and recruitment assistance to agencies and the community. The organization implements economic development plans and marketing strategies for domestic and international businesses, including small and minority entrepreneurs.

DCS assists small, medium, and large-sized businesses looking to expand or relocate into the region. This includes financial packaging assistance and other developmental tools available from federal, state, and local economic development agencies.

DCS plans, develops and implements activities such as infrastructure improvements, housing construction and rehabilitation, commercial, and industrial development.

International Trade and Development

DCS coordinates and participates in business trade missions to the Caribbean Islands, West Africa, China, and other countries for small and minority entrepreneurs. The organization recruits businesses to participate and arranges assistance through international trade offices and agencies to develop agendas and research potential products and services for export by businesses. Additionally, the firm can be a liaison to various consulates and embassies in the United States and in the respective countries.

Housing

DCS plans, coordinates, and implements the construction of single-family homes for purchase by low to moderate income persons. The organization provides assistance in implementing housing rehabilitation projects by obtaining funding from federal, state and local government agencies. The firm negotiates financing for new construction and rehabilitation of existing homes, as well as low interest mortgage loans for prospective buyers with local lending institutions.



SHERYL A. DICKEY PROFILE

Sheryl A. Dickey is the President and Chief Executive Officer of Dickey Consulting Services, Inc. with more than 30 years experience in the social, economic and political revitalization of neighborhoods, cities and communities. She enjoys success in international trade and business development, establishing community development corporations, marketing, public involvement, public relations programs, coordinating and implementing employment and training programs.

Over the past 30 years, Ms. Dickey has developed her knowledge and skills as an economic development and government relations professional. She provides financial, technical, marketing, and human relations assistance to private and public concerns. She develops programs for private and public sector organizations to assist small business.

Ms. Dickey's professional experiences include Director of Economic and Community Development for Blockbuster Entertainment Corporation and Director of Economic Development for the City of Fort Lauderdale, in Fort Lauderdale, Florida. She was formerly the Deputy Director of Economic Development for the Toledo/Lucas County Port Authority in Toledo, Ohio, the Director of Small and Developing Businesses for the State of Ohio Department of Development, in Columbus, Ohio, and a former member of the Portsmouth City Council in Portsmouth, Ohio. Ms. Dickey's prior experiences include a variety of positions supporting small business development and community revitalization.

Ms Dickey completed her undergraduate education in social work at The Ohio State University in Columbus, Ohio.

Ms Dickey is active in many community and business organizations including the Urban Core Committee of Broward Workshop, Greater Fort Lauderdale Chamber of Commerce, Leadership Broward, Riverwalk Trust, PRSA, International Council for Urban and Economic Development, and Delta Sigma Theta Sorority. She is the former Chair of the Broward Public Library Foundation.



Sheryl A. Dickey

President/CEO

HIGHLIGHTS

*Community and Business
Development Expert*

Public Engagement Specialist

Collaborative Change Agent

CERTIFICATIONS

*Charrette Planner
National Charrette Institute*

*Public Meeting Facilitator,
National Charrette Institute*

AFFILIATIONS

*International Economic
Development Council*

*Greater Fort Lauderdale
Chamber of Commerce*

COMTO

AMAC

EDUCATION

B.S.S.W. The Ohio State University

RECOGNITION

*Boys & Girls Clubs of Broward
County/ 100 Outstanding Women
of Broward County, 2010*

*Sistrunk Community Festival Small
Business Award, 2007*

*Success South Florida Magazine
One of South Florida's 25 Most
Prominent & Influential Black
Women, 2006*

*Greater Fort Lauderdale Chamber
of Commerce/Salute to
Business Award. 2002*

Sheryl A. Dickey, founder and owner of Dickey Consulting Services (DCS) is a community and economic development professional with more than 30 years of experience and a track record of success in these areas. She and her staff bring a high level of energy and the ability to participate in a leadership or team member role to ensure successful completion of a project.

DCS is an economic development, government relations, project management and communications consulting firm. DCS provides services to public and private enterprises. DCS provides staffing for invoicing, accounting, documents control, contract administration, civil-CAD, construction inspections, and communications assistance. The firm also provides administrative support for budgeting, planning, management, and purchasing.

Dickey has worked with numerous clients including the Florida Department of Transportation, Broward County, City of Fort Lauderdale, City of Deerfield Beach, and Boca Raton Airport Authority. She currently serves as the Project Director for FDOT Central Broward East-West Transit Study, Broward County Neighborhoods Improvement Program, SR 9/1-95 PD&E Study, and Airport Noise Abatement Committee Assistance for Fort Lauderdale-Hollywood International Airport. She is the DBE Program Administrator for Boca Raton Airport Authority and Fort Lauderdale Executive Airport. Dickey has successfully completed the City of Deerfield Beach SR A1A PD&E Study, Tri-Rail EASY Card Implementation Program, Broward County B-cycle Bike Sharing System Launch, and Broadview Park Neighborhood Improvement projects.

Dickey is a longtime Broward County resident and business owner. Her company's headquarters are in the Midtown Commerce Center, a newly constructed Silver LEED certified building in Fort Lauderdale. Dickey is the developer and owner of the building.

Dickey's professional experiences include Director of Economic and Community Development for Blockbuster Entertainment Corporation and Director of Economic Development for the City of Fort Lauderdale, in Fort Lauderdale, Florida. She was formerly the Deputy Director of Economic Development for the Toledo/Lucas County Port Authority in Toledo, Ohio, the Director of Small and Developing Businesses for the State of Ohio Department of Development, in Columbus, Ohio, and a former member of the Portsmouth City Council in Portsmouth, Ohio. Ms. Dickey's prior experiences include a variety of positions supporting small business development and community revitalization.

Dickey completed her undergraduate education in social work at The Ohio State University in Columbus, Ohio.

Dickey is active in many community and business organizations including the Urban Core Committee of Broward Workshop, Greater Fort Lauderdale Chamber of Commerce, Leadership Broward, Riverwalk Trust, Association for Women in Communication, and International Council for Urban and Economic Development. She is the former Chair of the Broward Public Library Foundation.



Sheryl Dickey

Community Relations Support

Sheryl A. Dickey is a community and economic development professional with more than 30 years of experience and a track record of success in these areas. She brings a high level of energy and the ability to participate in a leadership or team member role to ensure successful completion of a wide range of projects.

Owned and operated by Sheryl A. Dickey, DCS is an economic development, project management, public relations consulting firm. The company and its associates provide services to public and private enterprises, coordinating, implementing and promoting projects related to economic and community development, project management, international trade/business development, housing, public relations, public involvement, and other marketing initiatives. DCS has been in business for twenty years.

Education

BSSW, Ohio State University

Certification/License

Charrette Planner, National Charrette Institute

Public Meeting Facilitator, National Charrette Institute

Areas of Expertise

- Community and Business Development Expert
- Public Engagement Specialist
- Collaborative Change Agent
- Longtime Broward County
- Business Owner

Experience

- 30 total years

Professional Activities

International Economic Development Council

Greater Fort Lauderdale Chamber of Commerce

APTA COMTO AMAC

Water & Wastewater Services Neighborhood Improvement Program

Dickey Consulting Services, Inc. provided support in the planning and implementation of Public Communication and Public Outreach activities for the Program Management Team. Accomplishments included the development and maintenance of stakeholder and community database for diverse elements of the City of Fort Lauderdale community. Developed and implemented media communication plans for positive public perception and support for the program to promote a positive image of the programs Management team. Developed communication and outreach activity plans. Provided translation services for Haitian and Hispanic residents in the community.

North Central County Neighborhood Improvement Project

Public Outreach efforts included composition of a database of homeowners and businesses. Prepared project collateral brochures, flyers, fact sheets, notification letters, news articles and public notices. Adhered to sensitive timelines to execute news releases, distributions, and event reminders. Coordinated and attended public meetings with established neighborhood associations, community groups, PTAs and business owners. The overall objective of the project was to provide support to the planning and implementation of program development, public communication, awareness and outreach.

Chen & Associates Broadview Park Neighborhood Improvement Project

Dickey Consulting staff attended and participated in community meetings scheduled by the residents' HOA project team, County staff and Commissioners. Staff also assisted with the coordination of meetings with the purpose of educating affected residents of the community. A media involvement plan was implemented and all public inquiries was documented and tracked accordingly. Outreach efforts required the development and implementation of surveys, fact sheets, news bulletins and various communication materials. We utilized partner graphic and printing firms to aid in printing of the materials used in conjunction with all media and public distribution.

Sistrunk Streetscape

Project tasks required the coordination of pre-construction public meetings for the community. Our experienced staff provided face to face site visits to monitor the various phases of project and ensured that deadlines were met. We prepared updated and distributed public service announcements that addressed project concerns throughout the life of the project. Our firm also performed document control services: scanning, validating and distributing documents to project team, and other pertinent parties.



CERTIFICATIONS:

- MINORITY BUSINESS ENTERPRISE (MBE), STATE OF FLORIDA
- COUNTY BUSINESS ENTERPRISE (CBE)
- LEED CERTIFIED



HAMMOND & ASSOCIATES INC., CONSULTING ENGINEERS was founded in 1988 and has been providing Mechanical and Electrical engineering design services for the past thirty-one years.

Our firm specializes in the designs of HVAC, Electrical, Fire Alarm, Plumbing and Fire Protection systems, as well as cost Estimating, Permitting Assistance and Construction Administration.

Our facility experience includes providing design solutions to new construction, renovations and modernizations.

RELEVANT PROJECT EXPERIENCE:

- ▶ Alex Orr Waste Water Treatment Plant, Miami, FL
- ▶ Davie Field Station, South Florida Water Management District
- ▶ Homsted Field Station, South Florida Water Magement District
- ▶ Broward College Chiller Plant, Ft. Luaderdale, FL
- ▶ Office of Environmental Services (OES), Pompano, FL

HAMMOND & ASSOCIATES understands the importance of adhering to the contracts allotted schedules and budgets. As such, we have successfully delivered each project within the limitations imposed by their respective contracts.

Our team of professionals collectively have over a 100 years of combined design experience. They are involved from the onset of each project, through construction and final installation.

While every project is unique, there is no substitute for experience. Our commitment to performance and our reliability has allowed **HAMMOND & ASSOCIATES** to be regarded as a reputable firm by our clients and the engineering industry.



Our Firm is a member of the USGBC and have successfully completed LEED projects including LEED Gold and LEED Silver Certification.



ERIC HAMMOND, PE
PRINCIPAL-IN-CHARGE &
MECHANICAL ENGINEER

EDUCATION:

- Bachelor of Science,
Mechanical Engineering,
University of the West Indies,
1973
- Diploma, Electrical Engineering,
University of Technology, 1967

REGISTRATION/LICENSES:

Georgia Professional Engineer
#042812

AFFILIATION:

- Georgia Institute of Consulting,
Engineers
- National Fire Protection
Association

YEARS WITH THE FIRM:

45

Eric Hammond has over 45 years of experience in Mechanical, Plumbing and Fire Protection design and Construction, Management. He oversees all technical and administrative policies and management of the firm. He has facilitated many new and existing municipal projects, to include public safety and transportation, judicial buildings, fire stations, parking garages, emergency operations, community centers, senior centers, recreational centers, parks, and renovation and remodeling of building facilities. He makes ethical and cost efficient decisions that result in exceptional client satisfaction. He attends meetings during the design phase and remains active in all projects throughout completion. He performs necessary code research within his discipline and collaborates with the Architect and project Owner.

Relevant Project Experience

City of Miramar Police Headquarters, Miramar; Project Dates: 2015 to 2017 – FL his facility is a three story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes.

City of Miramar Cultural Art | Park; Project Date: 2005 to 2006 – Hammond & Associates, Inc. were the engineer of record who provided Plumbing & Fire Protection design for this new "state of the art" venue for cultural events. The configuration was an amphitheater surrounded by three sides, by the facades of the New Performing Arts Center and City Hall. The Cultural Center has a combined space of 50,000 square feet with a 800 seat performing arts theatre along with an elegant banquet hall with lakeside seating. There is an on-site art gallery with lush botanical garden with public art pieces. This is another signature project for the City of Miramar.

South Florida Regional Transit Authority (SFRTA), Pompano Beach, FL; Project Dates 2016 to 2018 – SFRTA Operations Center is a 75,000 sq. ft facility. The new site includes a 4-level parking garage with 400 parking spaces, supporting both the Operations Center and parking for Tri-Rail passengers. Scope of work for the project included an air-cooled chilled water system which provided air for the Operation Center and a 1500 KW generator.

Homestead Field Station, South Florida Water Management District; 2018 to Ongoing – The project consisted of demolishing 3 existing buildings and constructing new replacement buildings. The 3 existing buildings required replacement with a building that met present code requirements and facility needs. The project included an office center, and storage and maintenance facility. The new building was approximately 15,340 square feet.

Alexander Orr Waste Water Treatment Plant, Miami, FL; Project Dates: 2000 to 2001 – Project consisted of The project required the renovation of the treatment facility. Provided HVAC designs for the installation of an air conditioning system for the waste water treatment plant within the specified space. Attended site meetings, responded to Requests for Information, reviewed shop drawings, and prepared construction reports. Role: Principal-in-Charge.

Building 7 Lift Station & Holding Tank, Miami International Airport, FL; Project Dates: 2001 to 2002 – Provided engineering designs for construction documents for the installation of a small split system and ventilation for the space. Provided complete construction administration through final project completion.

Industrial Waste Upgrade Buildings 25 & 48, Miami International Airport, FL; Project Dates 2002 to 2003 – Provided Electrical engineering design services. Conducted preliminary site visits, gathered information and coordinated with Florida Power & Light for service verification in preparation for the construction document drawings. Based on findings from the preliminary site investigations, Electrical drawings were done to provide power to the motors, valves, etc.



DONALD DIXON, PE

ELECTRICAL ENGINEER

EDUCATION:

B.S. Electrical Engineering, 1966
University of the West Indies, St.
Augustine, Trinidad

State Certified Electrical
Contractor, EC130006036

REGISTRATION/LICENSES:

Professional Engineer PE# 51151
(Florida) 1987

AFFILIATION:

- National Society of Fire
Protection (NFPA)

YEARS WITH THE FIRM:

35

Donald Dixon has over 35 years of Electrical design and installation experience in building facilities and construction. He has been the project Engineer on many of our municipal and county projects. He has the knowledge and expertise to design power distribution systems. He has experience in the design of lift stations, pumps, and water treatment plants. He conducts cost engineering and value engineering exercises to meet all budgeting requirements.

Relevant Project Experience

City of Miramar Police Headquarters, Miramar; Project Dates: 2015 to 2017 – FL his facility is a three story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes.

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Homestead Field Station, South Florida Water Management District; 2018 to Ongoing – The project consisted of demolishing 3 existing buildings and constructing new replacement buildings. The 3 existing buildings required replacement with a building that met present code requirements and facility needs. The project included an office center, and storage and maintenance facility. The new building was approximately 15,340 square feet.

Alexander Orr Waste Water Treatment Plant, Miami, FL; Project Dates: 2000 to 2001 – Project consisted of The project required the renovation of the treatment facility. Provided HVAC designs for the installation of an air conditioning system for the waste water treatment plant within the specified space. Attended site meetings, responded to Requests for Information, reviewed shop drawings, and prepared construction reports. Role: Principal-in-Charge.

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Industrial Waste Upgrade Buildings 25 & 48, Miami International Airport, FL; Project Dates 2002 to 2003 – Provided Electrical engineering design services. Conducted preliminary site visits, gathered information and coordinated with Florida Power & Light for service verification in preparation for the construction document drawings. Based on findings from the preliminary site investigations, Electrical drawings were done to provide power to the motors, valves, etc.



CITY OF
MIRAMAR POLICE
DEPARTMENT,
CITY OF MIRAMAR, FL

REFERENCES:

Juan Justiniano
Cartaya Architects, Inc.
954.776-2724

OWNER:

City of Miramar, FL

SCOPE OF WORK:

- Plumbing
- Fire Protection
- Construction Administration

COMPANY ROLE:

Sub-Consultant

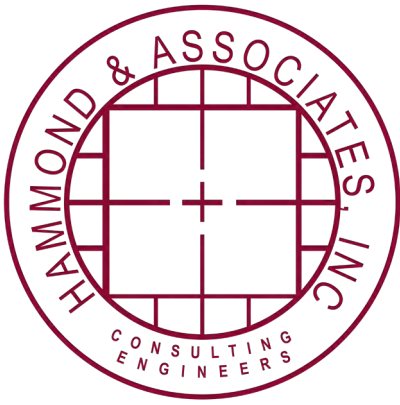
PROJECT DATES:

2015 to 2017

Completed According to Contract

This facility is a three story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes.





CITY OF MIRAMAR
CULTURAL | ART
PARK,
CITY OF MIRAMAR, FL

REFERENCES:

Mario Cartaya, AIA
Cartaya Architects, Inc.
(954) 776-4280

OWNER:

City of Miramar, FL

SCOPE OF WORK:

- Plumbing
- Fire Protection Design

COMPANY ROLE:

Sub-Consultant

PROJECT DATES:

2005 to 2006

Completed According to Contract

Hammond & Associates, Inc. were the engineer of record who provided Plumbing & Fire Protection design for this new “state of the art” venue for cultural events. The configuration was an amphitheater surrounded by three sides, by the facades of the New Performing Arts Center and City Hall. The Cultural Center has a combined space of 50,000 square feet with a 800 seat performing arts theatre along with an elegant banquet hall with lakeside seating. There is an on-site art gallery with lush botanical garden with public art pieces. This is another signature project for the City of Miramar.





ALEXANDER ORR
WASTE WATER
TREATMENT PLANT,
MIAMI, FL

REFERENCES:

Doug Snyder, AIA, Project Architect
Yates Architects
(954) 764-6575

OWNER:

South Florida Water Management
District

SCOPE OF WORK:

- Mechanical
- Electrical
- Plumbing

COMPANY ROLE:

Sub-Consultant

PROJECT DATES:

2000 to 2001
Completed According to Contract

The project required the renovation of the treatment facility. Provided HVAC designs for the installation of an air conditioning system for the waste water treatment plant within the specified space. Attended site meetings, responded to Requests for Information, reviewed shop drawings, and prepared construction reports.





BROWARD COLLEGE CHILLER PLANT, FORT LAUDERDALE, FL

REFERENCES:

Yohannes Asgedom
Broward College
954.444.0631

OWNER:

Broward College

SCOPE OF WORK:

- Mechanical
- Electrical

COMPANY ROLE:

Prime

PROJECT DATES:

2013 to 2015
Completed According to Contract

The scope of services were to provide cooling for the Broward College Chiller Plant. Fan Coil Units were used from the existing chilled water system. We located the new A/C unit within the ceiling area of the chiller plants. Our scope of service included providing the new A/C units, power for the A/C units, and condensate piping and drainage.





OFFICE OF
ENVIRONMENTAL
SERVICE,
POMPANO, FL

REFERENCES:

Doug Snyder, AIA, Project Architect
Yates Architects
(954) 764-6575

OWNER:

South Florida Water Management
District

SCOPE OF WORK:

- Mechanical
- Electrical
- Plumbing

COMPANY ROLE:

Sub-Consultant

PROJECT DATES:

1999 to 2001
Completed According to Contract

This new full service environmental facility testing laboratories offers organic and radio Chemistry capabilities where they specialize in the analysis of trace level contaminants in air, water, waste water, soil, biota, and waste. Provided HVAC, Plumbing, and Fire Protection for the facility as well as Construction Administration Services.





CERTIFICATIONS:

- MINORITY BUSINESS ENTERPRISE (MBE), STATE OF FLORIDA
- COUNTY BUSINESS ENTERPRISE (CBE)
- LEED CERTIFIED



LITIGATION STATEMENT

To Whom It May Concern,

Hammond & Associates, Inc. Consulting Engineers do hereby acknowledge and attest that we have not been subject to any claims or litigations whether civil or criminal involving a governmental agency within the last five years.

Sincerely,

Eric J. Hammond, PE
President | Principal-in-Charge



CERTIFICATIONS:

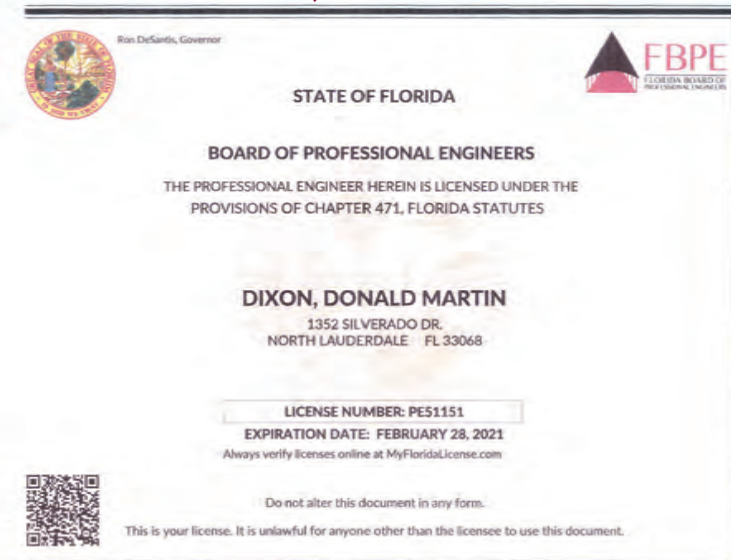
- MINORITY BUSINESS ENTERPRISE (MBE), STATE OF FLORIDA
- COUNTY BUSINESS ENTERPRISE (CBE)
- LEED CERTIFIED



ERIC HAMMOND, PE



DONALD DIXON, PE



HAMMOND & ASSOCIATES, INC.





CERTIFICATIONS:

- MINORITY BUSINESS ENTERPRISE (MBE), STATE OF FLORIDA
- COUNTY BUSINESS ENTERPRISE (CBE)
- LEED CERTIFIED



BROWARD COUNTY CBE



OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

Governmental Center Annex

115 S. Andrews Avenue, Room A680 • Fort Lauderdale, Florida 33301 • 954-357-6400 • FAX 954-357-5674

October 16, 2019

Mr. Eric Hammond
HAMMOND & ASSOCIATES, INC.
150 NW 70th Avenue, Suite 10
Plantation, Florida 33317

Dear Mr. Hammond:

The Broward County Office of Economic and Small Business Development (OESBD) is pleased to announce that your firm's **County Business Enterprise (CBE)** certification has been renewed.

Your firm's certification is continuing from your anniversary date but is contingent upon the firm verifying its eligibility annually through this office. You will be notified in advance of your obligation to continue eligibility in a timely fashion. However, the responsibility to ensure continued certification is yours. Failure to document your firm's continued eligibility for the CBE program within **thirty (30) days** from your anniversary may result in the expiration of your firm's certification. Should you continue to be interested in certification after it has expired, you will need to submit a new application, and all required supporting documentation for review.

To review current Broward County Government bid opportunities, visit: www.broward.org/Purchasing and click on "Current Solicitations and Results." Also, from this website, you can log into your firm's profile in BidSync to ensure you have added all appropriate classification codes. Bid opportunities over \$3,500 will be advertised to vendors via e-mail and according to classification codes, so please ensure that both the Purchasing Division and OESBD are apprised of your current e-mail address.

Your primary certification group is: **Architecture & Engineering Services**. This is also how your listing in our directory will read. You may access your firm's listing by visiting the Office of Economic and Small Business Development Directory, located on the Internet at: www.broward.org/EconDev and click on "Certified Firm Directories."

Your firm may compete for, and perform work on Broward County projects in the following area:

NAICS CODE: 541330

We look forward to working with you to achieve greater opportunities for your business through county procurement.

Sincerely,

Sandy-Michael McDonald, Director
Office of Economic and Small Business Development

Cert Agency: BC-CBE
ANNIVERSARY DATE: NOVEMBER 15th

Broward County Board of County Commissioners
Mark D. Boger • Lamar P. Fisher • Deann Egan • Steve Geller • Dale V.C. Holmes • Neil H. Rich • Tim Ryan • Barbara Shoroff • Michael Utine
www.broward.org/econdev

BROWARD COUNTY DBE



OFFICE OF ECONOMIC AND SMALL BUSINESS DEVELOPMENT

Governmental Center Annex

115 S. Andrews Avenue, Room A680 • Fort Lauderdale, Florida 33301
954-357-6400 • FAX 954-357-5674 • TTY 954-357-5664

August 26, 2019

Mr. Eric Hammond
HAMMOND & ASSOCIATES, INC.
150 NW 70th Avenue, Suite 10
Plantation, FL 33317

ANNIVERSARY DATE – Annually, on September 1st

Dear Mr. Hammond:

Broward County is pleased to announce **Hammond & Associates, Inc.** has renewed its certification as a **Disadvantaged Business Enterprise (DBE)** in Florida, under a **Unified Certification Program (UCP)** in accordance with 49 CFR, PART 26.

DBE certification continues from your anniversary date, but is contingent upon Hammond & Associates, Inc. renewing its eligibility annually through this office, Office of Economic and Small Business Development (OESBD). OESBD will notify you in advance of your obligation to provide continuing eligibility documents; however, ensuring continued certification is your responsibility. Failure to continue your eligibility will result in immediate action to decertify Hammond & Associates, Inc. as a DBE.

As long as Hammond & Associates, Inc. is listed in the DBE Directory, it is considered DBE Certified by all Florida UCP Members.

DBE Certification is subject to actions by governmental agencies impacting the disadvantaged status of Hammond & Associates, Inc.

Hammond & Associates, Inc. will be listed in Florida's **UCP DBE Directory** which can be accessed via the internet, at

<https://fdotwp02.dot.state.fl.us/EqualOpportunityOfficeBusinessDirectory/CustomSearch>

DBE certification is **NOT** a guarantee of work, but enables Hammond & Associates, Inc. to compete for, and perform, contract work on all USDOT Federal Aid (FAA, FTA and FHWA) projects in Florida as a DBE contractor, sub-contractor, consultant, and sub-consultant or material supplier.

Broward County Board of County Commissioners
Mark D. Boger • Lamar P. Fisher • Deann Egan • Steve Geller • Dale V.C. Holmes • Neil H. Rich • Tim Ryan • Barbara Shoroff • Michael Utine
www.broward.org/econdev



CERTIFICATE OF AUTHORIZATION

CERTIFICATIONS:

- MINORITY BUSINESS ENTERPRISE (MBE), STATE OF FLORIDA
- COUNTY BUSINESS ENTERPRISE (CBE)
- LEED CERTIFIED



**State of Florida
Department of State**

I certify from the records of this office that HAMMOND & ASSOCIATES, INC. is a corporation organized under the laws of the State of Florida, filed on October 5, 1988.

The document number of this corporation is K36503.

I further certify that said corporation has paid all fees due this office through December 31, 2019, that its most recent annual report/uniform business report was filed on January 16, 2019, and that its status is active.

I further certify that said corporation has not filed Articles of Dissolution.

*Given under my hand and the
Great Seal of the State of Florida
at Tallahassee, the Capital, this
the Sixteenth day of January, 2019*

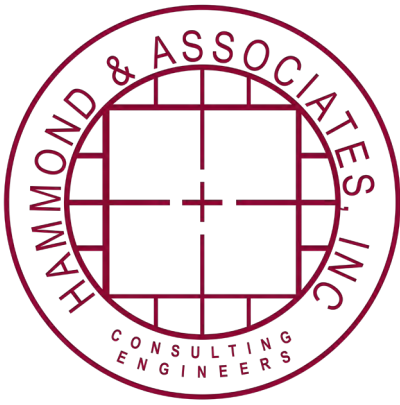


Ken Diefen
Secretary of State

Tracking Number: 7b260357834.C

To authenticate this certificate, visit the following site, enter this number, and then follow the instructions displayed.

<https://services.sunbiz.org/Filings/CertificateOfStatus/CertificateAuthentication>



ERIC HAMMOND, PE
PRINCIPAL-IN-CHARGE &
MECHANICAL ENGINEER

EDUCATION:

- Bachelor of Science,
Mechanical Engineering,
University of the West Indies,
1973
- Diploma, Electrical Engineering,
University of Technology, 1967

REGISTRATION/LICENSES:

Georgia Professional Engineer
#042812

AFFILIATION:

- Georgia Institute of Consulting,
Engineers
- National Fire Protection
Association

YEARS WITH THE FIRM:

45

Eric Hammond has over 45 years of experience in Mechanical, Plumbing and Fire Protection design and Construction, Management. He oversees all technical and administrative policies and management of the firm. He has facilitated many new and existing municipal projects, to include public safety and transportation, judicial buildings, fire stations, parking garages, emergency operations, community centers, senior centers, recreational centers, parks, and renovation and remodeling of building facilities. He makes ethical and cost efficient decisions that result in exceptional client satisfaction. He attends meetings during the design phase and remains active in all projects throughout completion. He performs necessary code research within his discipline and collaborates with the Architect and project Owner.

Relevant Project Experience

City of Miramar Police Headquarters, Miramar; Project Dates: 2015 to 2017 – FL his facility is a three story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes.

City of Miramar Cultural Art | Park; Project Date: 2005 to 2006 – Hammond & Associates, Inc. were the engineer of record who provided Plumbing & Fire Protection design for this new "state of the art" venue for cultural events. The configuration was an amphitheater surrounded by three sides, by the facades of the New Performing Arts Center and City Hall. The Cultural Center has a combined space of 50,000 square feet with a 800 seat performing arts theatre along with an elegant banquet hall with lakeside seating. There is an on-site art gallery with lush botanical garden with public art pieces. This is another signature project for the City of Miramar.

South Florida Regional Transit Authority (SFRTA), Pompano Beach, FL; Project Dates 2016 to 2018 – SFRTA Operations Center is a 75,000 sq. ft facility. The new site includes a 4-level parking garage with 400 parking spaces, supporting both the Operations Center and parking for Tri-Rail passengers. Scope of work for the project included an air-cooled chilled water system which provided air for the Operation Center and a 1500 KW generator.

Homestead Field Station, South Florida Water Management District; 2018 to Ongoing – The project consisted of demolishing 3 existing buildings and constructing new replacement buildings. The 3 existing buildings required replacement with a building that met present code requirements and facility needs. The project included an office center, and storage and maintenance facility. The new building was approximately 15,340 square feet.

Alexander Orr Waste Water Treatment Plant, Miami, FL; Project Dates: 2000 to 2001 – Project consisted of The project required the renovation of the treatment facility. Provided HVAC designs for the installation of an air conditioning system for the waste water treatment plant within the specified space. Attended site meetings, responded to Requests for Information, reviewed shop drawings, and prepared construction reports. Role: Principal-in-Charge.

Building 7 Lift Station & Holding Tank, Miami International Airport, FL; Project Dates: 2001 to 2002 – Provided engineering designs for construction documents for the installation of a small split system and ventilation for the space. Provided complete construction administration through final project completion.

Industrial Waste Upgrade Buildings 25 & 48, Miami International Airport, FL; Project Dates 2002 to 2003 – Provided Electrical engineering design services. Conducted preliminary site visits, gathered information and coordinated with Florida Power & Light for service verification in preparation for the construction document drawings. Based on findings from the preliminary site investigations, Electrical drawings were done to provide power to the motors, valves, etc.

STEPHEN FARQUHARSON, LEED, AP

ENGINEERING MANAGER | ELECTRICAL ENGINEER



EDUCATION:

BS Electrical Engineering
Florida International University
(FIU) 2006

REGISTRATION:

LEED AP

AFFILIATIONS:

National Fire Protection
Association (NFPA)

YEARS OF EXPERIENCE

13



Stephen Farquharson is an Electrical Engineer with over 13 years of Electrical Engineering Design and Construction Administration experience. He has served as lead Electrical engineer on many of Hammond & Associates renovation projects. His expertise includes design of UPS, fire alarm, lightning protection, lighting and power systems. He is very knowledgeable in the requirements and specifications of back-up generators. He has the expertise in managing complex projects requiring LEED design including several LEED Silver projects. He works in close collaboration with project owners and architects to create a lighting design that meets the needs of both the Owner and the User.

RELEVANT PROJECT EXPERIENCE

SOUTH FLORIDA REGIONAL TRANSIT AUTHORITY. Pompano Beach, Florida
SFRTA Operations Center is a 75,000 sq. ft. facility that consists of a 3-story office building, including a 150 seat boardroom, a customer service and dispatch operations center, and loading and receiving areas. The site includes a 4-level parking garage which houses approximately 400 parking spaces and supports both the Operations Center and parking for Tri-Rail passengers. Scope included an air-cooled chilled water system which provided conditioned air for the Operation Center and a 1500 KW generator, which provided emergency power for the entire facility and parking garage. The Operation Center is designed with a Fire Alarm and Fire Protection system, providing full coverage for the entire facility. The garage is designed with a Fire Alarm system, which provides full coverage for the entire garage and a manually wet standpipe system. Sustainable design practices used in the facility are photovoltaic panels on the garage roof which provided power for the station and the Operations Center. LED lighting is utilized throughout the entire facility and water efficient plumbing fixtures. The project is designed to the LEED Gold standard. Role: Electrical Engineer

BROWARD COUNTY COURTHOUSE, Broward County, FL– Hammond Engineering, Inc. provided Mechanical, Electrical, Plumbing Engineering services for the new courthouse complex including a county office building, the county jail, three courthouse buildings, an energy center, and a parking garage. The 740,000-square foot court building, which will occupy a 1.55-acre portion of the campus, is 20-stories high and features 74 courtrooms and hearing rooms, as well as office space for several government agencies. The courthouse will feature state-of-the-art technology, including extensive audio-visual and evidence presentation systems for the courtrooms and office spaces. Security will be enhanced using CCTV, card access, duress devices (push buttons) and entry screening security systems. **Achieving a LEED Gold certification**, the courthouse includes energy reductions up to 22 percent and water-use savings up to 30 percent. Role: Electrical Engineer.

City of Miramar Police Department, City of Miramar, FL This facility is a three-story wrap around structure surrounding the Town Center Parking Garage. The first level of this 80,000 SF building consists of a pedestrian friendly retail area with an arch covered exterior sidewalk facing City Hall Promenade and the pedestrian/automobile entrance to the building. The second and third floor houses the City's Police Department including a sally port entry, holding areas, offices, conference rooms and investigative facilities. This secure building is designed to be bullet-proof inside and outside and withstand Category 5 hurricanes. Role: Electrical Engineer.

BROWARD COUNTY JAIL, FT. LAUDERDALE, FL ; Reference: Fernando Navarette, PhD, PE, AECOM 561.994.6500,fernando.navarette@aecom.com; Project Dates; 2014 to 2016 – Provided engineering designs for the replacement of 4 chilled water air handlers. Each unit was approximately 180 tons with a total of 34, 650 CFM supply air and 16,000 CFM outside air. These were the original units to the buildings and were located in 2 separate mechanical rooms on the 4th floor of the facility. The inlet vanes were removed and the units were retrofitted with Variable Frequency Drives (VFD's). Role: Role: Electrical Engineer.

INTRODUCTION

Every second, our sun produces enough energy to sustain Earth's needs for 500,000 years. How will you harness it?



Advanced Roofing, Inc. and Advanced Green Technologies are pleased to submit the following information for your consideration regarding the contractor selection on your solar photovoltaic project.

As one of the largest commercial solar energy Engineering, Procurement, and Construction (EPC) Firms and Roofing Contractors in the United States, the opportunity to work with your organizations on this project is incredibly exciting for everyone on our team.

We have completed more than 300 successful DESIGN-BUILD solar installations throughout the globe totaling over 200 megawatts of clean energy. Finished projects include Florida's largest privately owned, non-utility and non-governmental solar array for the Lockheed Martin Corporation, along with installations in the Northeast United States for organizations such as Toys R Us and Konica Minolta.

Our world-class team consists of diverse backgrounds in General Construction, Electrical and Structural Engineering, Metal Fabrication, and Commercial Roofing to ensure we exceed the highest design, installation, and safety standards on your project.

We look forward to discussing this project with you in more detail. Should you require any further information or clarification, please do not hesitate to contact me directly, at 954-522-6868 EXT 1060.

Sincerely,

Clinton A. Sockman
Vice President

KEY COMPANY INFORMATION



Company Legal Name

Advanced Green Technologies
2100 NW 21st Ave
Fort Lauderdale, FL 33311
www.agt.com

Corporation

Fed ID Number – 59-2360591
Type of business: Private S-Corporation
State of incorporation: Florida
Date of incorporation: October, 1983

Safety – Interstate EMR

2019: 0.58

Professional Licenses

Solar Contractor- License #CVC-56792

NABCEP #PV-101913-002781

General Contractor- License #CGC-1521128

Bank

BB&T
110 E Broward Blvd 21st floor
Fort Lauderdale, Florida 33301

Surety

The Guarantee Company of North America, USA
Surety Agent: Caroline Lamarre
25800 Northwestern Highway, Suite 720
Capacity: 150MM Rooftop; 1BB Ground-mount

Insurance Agent

Frank H Furman, Inc.
1314 East Atlantic Blvd
Pompano Beach, FL 33060
Gen Lib: \$2MM aggregate

Your Experience Matters Most!

In maintaining our "Commitment to Quality," Advanced Green Technologies would like to remind customers that your experience is what matters most to us. Your experience with our company at every touch point is very important - from initial contact to project close-out. For us, it's not just about completing your project on time and on budget. It's about making the entire process from bidding to completion headache and hassle-free for you, the customer. We think you should be informed, involved and in control from the start, and with more than 350 employees, multiple offices locations, and state of the art equipment- we've got you protected.

Toys "R" Us



COMPANY PHILOSOPHY

On Time, On Budget! We Are Advanced!

The Advanced Family of Companies was founded in 1983 and built from the ground up on our guiding principle of "Committed to Quality" and by doing what we say we are going to do every time, with no exceptions.

Today we are a diversified specialty construction company with annual revenues between \$80 and \$100 million dollars and primarily engaged in the Commercial/Governmental/Industrial Solar, Roofing, and HVAC businesses.

Headquartered in Fort Lauderdale, we have offices throughout the State of Florida and Northeast United States that enable us to provide our services nation-wide at a competitive cost structure.

Discover What Makes Us Advanced!

In-House Divisions

Our company has a strong belief that the best way to control the construction schedule and cost overruns is to self-perform the scope of work and own the required equipment as much as possible. As a result, we have the following in-house divisions to help us streamline your project: roll-off dumpsters, tower crane, strike and rigging, sheet metal fabrication, mechanical, fleet of telescoping and scissor lifts. We are fully prepared to mobilize all of our equipment to hold the construction schedule as required or to make up for lost time due to unexpected weather delays.

Advanced Technology

Our team uses cutting-edge project management software including Microsoft CRM, Spitfire, Microsoft Dynamics, and our proprietary solar asset management software, Advanced Access. All of our platforms are cloud-based, giving our clients project and construction management staff worldwide access to all project data at a moment's notice through traditional and mobile devices.

Project Financing

We work with many large and boutique finance firms to bring the best solution for your solar energy project including Power Purchase Agreements (PPA), leasing options, PACE Financing, and SREC brokerage. Our project management team has many years of experience in grant/incentive research, application submissions, as well as, assistance with all essential paperwork for your solar array installation. These value added services are provided at no expense to our customers.

Why Choose Us?



Experienced Team

250+ Megawatts Installed
Award Winning
NABCEP Certified
NRCA RISE Solar
Professional



Protection Guaranteed

Low Safety EMR = .58
\$150 Million Bonding
\$26 Million GL Insurance
\$2 Million Captive Insurance



Advanced Technology

Advanced Access
Spitfire Project Management
Microsoft CRM
AGT Data Monitoring

Cresskill High School



MEET OUR TEAM

JM Family Enterprises



Robert Kornahrens
Founder, CEO

Robert "Rob" is the founder and CEO of Advanced Green Technologies and Advanced Roofing Inc.

A leader in the construction industry for four decades, Rob has grown his company to over 350 employees with seven offices in the state of Florida; and annual revenues between \$80-\$100 million.

Education:

Undergraduate studies in Business Administration at the University of Arizona.



Michael Kornahrens
Executive Vice President

Michael is the Co- Founder and Executive Vice President of Advanced Green Technologies.

Born into the Construction Industry, Michael has successfully completed over 200+ solar installations throughout North America, as well, as earning the top commercial solar contractor ranking in the state of Florida 2011-16.

Education:

Undergraduate studies in Management at Florida Atlantic University.



Clint Sockman
Vice President

Clint oversees all sales and operations at Advanced Green Technologies.

He has more than a two decades of experience in Field Operations and Construction Management of Commercial, Industrial, and Institutional roofing and solar energy projects. Additionally, Mr. Sockman has successfully lead teams to completion on over 200 Megawatts of Solar Installations.

Education:

Undergraduate studies in Information Systems with a minor in International Business at the University of Cincinnati. NABCEP Certified.

"In the solar construction industry, it's not only how the job's performed, it's who the people are, doing it. Their skills, their involvement, and their professional demeanor." - Rob Kornahrens, CEO, Advanced Green Technologies



Robert Boyden
Construction Manager

Robert (RJ) Boyden oversees the construction of all solar energy projects at Advanced Green Technologies.

Mr. Boyden has more than twelve years of experience providing design-build, estimating and construction management solutions for commercial, industrial and government renewable energy projects. In 2010, his "Time and Motion" Studies were utilized exclusively by the Estimating Software company: Accu-Bid to complete the 11MW FPL Space Coast Next Generation Solar Center project under budget and ahead of schedule.

Education

Grand Canyon University, AZ – Master of Psychology



David White, MBA
Operations Manager

David White is the Operations Manager at Advanced Green Technologies and oversees the production and quality control on all renewable energy projects. David has more than 16 years of operations management experience in the military, construction, and environmental industries.

Education

United States Army, BSBA - Business Management from the University of Phoenix, and MBA - Master of Business Management from University of Phoenix.



Bryan Cardona
Safety Director

Bryan oversees the Safety Division at Advanced Green Technologies.

He has a decade of experienced in the areas of Occupational Safety and Health Management. Bryan's goal for Advanced Green Technologies is to continue being an industry leader in safety while promoting a safety culture and growing OSHA partnerships.

Education

OSHA Authorized Construction Trainer, which allows Bryan to implement the OSHA 10 and 30-hour training courses for our field staff.

SOLAR ENERGY SERVICES

Partner with an award-winning, full-service commercial solar energy contractor with more than 200 MW installed around the world.



Young Street, CAN

1 Pre-Construction

- Feasibility Study
- Financial Analysis
- Design & Engineering
- Permitting & Application

2 Construction

- Project Management
- Product Procurement
- Installation
- Commissioning

3 Post-Construction

- Preventive Maintenance
- Upgrading Technology
- Data Monitoring
- Emergency Response Team

Market Segments Served

- Developers
- Education
- Government / Municipality
- Independent Power Producers
- Not-for-Profit
- Private/Business
- Utilities

ROOFTOP SOLUTIONS

JM Family Enterprises



JM Family Enterprises

Project Size: 150 kW
Location: Deerfield Beach, Florida
Completion: 2014
Role: Engineering, Procurement & Construction

University of Miami



University of Miami

Project Size: 71 kW
Location: Coral Gables, Florida
Completion: 2015
Role: Engineering, Procurement & Construction

Raymour & Flanigan



Raymour & Flanigan

Project Size: 1.1 MW
Location: Gibbstown, New Jersey
Completion: 2012
Role: Engineering, Procurement & Construction

Toys "R" Us



Toys "R" Us Inc.

Project Size: 5.3 MW
Location: Flanders, New Jersey
Completion: 2011
Role: Engineering, Procurement & Construction

View a complete list of our solar projects at www.agt.com

CARPORT SOLUTIONS

Florida International University

Project Size: 1.4 MW
Location: Miami, Florida
Completion: 2016
Role: Engineering, Procurement & Construction

Lockheed Martin

Project Size: 2.25 MW
Location: Oldsmar, Florida
Completion: 2015
Role: Engineering, Procurement & Construction

Konica Minolta

Project Size: 839 kW
Location: Ramsey, New Jersey
Completion: 2014
Role: Engineering, Procurement & Construction

Resolve Marine

Project Size: 61 kW
Location: Fort Lauderdale, Florida
Completion: 2015
Role: Engineering, Procurement & Construction

View a complete list of our solar projects at www.agt.com

Florida International University

Lockheed Martin

Konica Minolta

Resolve Marine

GROUND-MOUNT SOLUTIONS



Sudbury Solar Farm

Sudbury Solar Farm

Project Size: 10 MW

Location: Ontario, Canada

Completion: 2014

Role: Engineering, Procurement & Construction



John U. Lloyd Park Solar Farm

John U. Lloyd Park Solar Farm

Project Size: 53 kW

Location: Dania Beach, Florida

Completion: 2012

Role: Engineering, Procurement & Construction



Osceola Solar Facility

Osceola Solar Facility

Project Size: 4.7 MW

Location: Kenansville, Florida

Completion: 2016

Role: Engineering, Procurement & Construction



Marsh Hill Solar Farm

Marsh Hill Solar Farm

Project Size: 10 MW

Location: Ontario, Canada

Completion: 2015

Role: Engineering, Procurement & Construction

View a complete list of our solar projects at www.agt.com



MAINTENANCE & WARRANTY

Preventative maintenance on your solar array is something that should be taken into careful consideration. At Advanced Green Technologies (AGT), we make sure your solar energy system is in tip-top shape year-round. To ensure your system is functioning properly, it is important to perform daily monitoring, semi-annual inspections and cleaning. These measures of preventative maintenance help to fix problems before further damage incurs, stop problems before they start, and guarantee that your solar energy system has a longer service life.

Don't wait... be proactive

- Some advantages of Advanced Roofing's Preventative / Proactive Maintenance Program are:
- Proactive maintenance that ensures your warranty remains intact
- Restoration options for qualifying roofs as opposed to replacement
- All types of roofs qualify – built-up, modified bitumen, single-ply, metal, and tile

A Warranty is only as strong as the financial strength of the company that issues it

In addition to the **reputation** and **strength** of our company, your warranty is covered by not just our promise, but by our own captive insurance company, ARI Insurance, Inc.

With assets of over **\$2,600,000**, you will have insurance on your warranty to **cover and pay for any warranty repairs** in the unlikely event they are needed.

OUR CLIENTS

***At Advanced Green Technologies,
your experience matters most!***

Advanced Green Technologies has extensive experience working with developers, utilities, businesses and educational entities throughout North America to design, build, and install world-class solar energy solutions.

Learn about the customers we serve below and discover why they choose to partner with us.

OUR CLIENTS

Below are a few of our many satisfied customers.

- ➔ Publix Super Markets
- ➔ Lockheed Martin
- ➔ Toys "R" Us Inc.
- ➔ JM Family Enterprises
- ➔ Konica Minolta
- ➔ Nautilus Solar Developer
- ➔ University of Miami
- ➔ Siemens Corporation

James M. Rice
CEO
Nautilus Solar

"I am pleased to recommend Advanced Green Technologies as an honest, reliable, and problem-solving solar Engineering Procurement and Construction company."

As of this writing, the Advanced Team has completed a total of eight commercial rooftop solar energy projects totaling of 4.7 MW in Ontario, Canada and the United States."

Kathleen Watson, LEED AP
Facilities Project Manager
JM Family Enterprises

"Advanced Green Technologies understands the high standards that define JM Family and are very efficient in delivering on time and on budget solar energy solutions. As part of the solar projects, AGT was able to overcome several challenges including facilitating utility rebates and interconnections, designing the solar arrays to meet FM Global Insurance 200MPH high-wind speeds, creating custom mounting solutions, all while maintaining our pre-existing roof warranties."

Antoinette Kelly
Business Administrator / Board Secretary
Cresskill Board of Education

"The Cresskill Board of Education strongly recommends the work of Advanced Green Technologies who was hired to design and construct a 513 kilowatt solar array on the roof of our Middle and High School buildings."

The Advanced Team completed the project on time and on budget, with no safety incidents. The installed solar system is operating as planned, and producing clean energy for our schools."

Kyle Bartz
Director of Energy Management
Toys "R" Us Inc.

"First and foremost I would like to personally thank Advanced Green Technologies for what I have declared a flawless installation of 37,414 solar panels which signifies the completion of North America's largest operational solar rooftop installation to date at 5.38MW."



Award Winning Solar Contractor

We are uncompromising in our pursuit of excellence. Perhaps the greatest testament to our commitment to quality and philanthropy is the recognition we have received from our peers and community.

Below are just a few awards we have earned throughout the years, as well as, associations we are committed to supporting.

For a complete list of our awards, associations, and community service projects visit www.agt.com

AWARDS & RECOGNITION



1st Place Sustainability
2014
JM Family Enterprises



1st Place Sustainability
2015
University of Miami



1st Place Sustainability
2016
Lockheed Martin

ASSOCIATIONS & COMMUNITY SERVICE





CONTACT US



2100 NW 22nd Street
Fort Lauderdale, Florida 33311

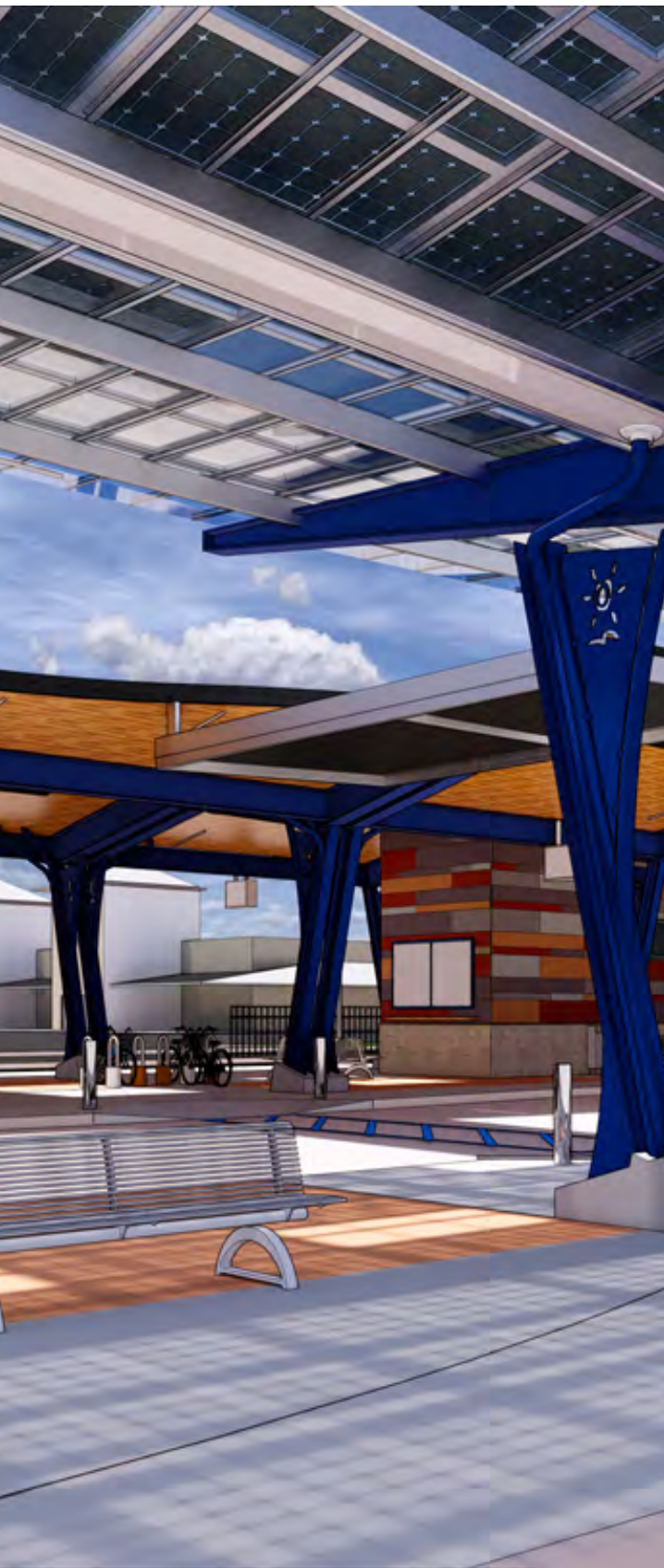


+ 800-638-6869



www.agt.com

LIC# CVC56792



RFQ # 20-02-15

CITY OF MIRAMAR

**Guaranteed Energy, Water and Wastewater
Performance Savings Contracting Services**

June 17, 2020

PREPARED FOR:

**SIEMENS INDUSTRY, INC.
SMART INFRASTRUCTURE**

BY:

Charles A. Michelson, AIA, ACHA, LEED AP
President

SALTZ MICHELSON ARCHITECTS, INC.

3501 Griffin Road

Fort Lauderdale, FL 33312

T: 954.266.2700

E: SMA@SaltzMichelson.com

SALTZ MICHELSON
A R C H I T E C T S

Firm Overview



Saltz Michelson Architects, Inc. is **an award-winning, architectural firm providing a full range of architectural and planning services.** Our commitment to professionalism and strong project management has allowed us to play a key role in the development of public and private projects throughout Florida. The services we offer are tailored to the unique needs of our clients and the specific requirements of the projects for which we are responsible.

With offices in Fort Lauderdale and Doral, Florida, the firm was founded in 1976 by Mark L. Saltz, an architect and general contractor. Charles A. Michelson, now president of the firm, joined SMA in 1980 and became a principal in 1990. **Today, of the twenty-seven professionals employed by the firm, seven are registered architects, four of which are LEED Accredited Professionals.** The combined knowledge and expertise of the entire Saltz Michelson Architects team ensures a consistent standard of design and quality for every project.

Firm History

Date Established:	April 8, 1976 (44 Years in Business)																
Firm Ownership:	Mark L. Saltz, AIA, LEED AP, Chairman Charles A. Michelson, AIA, ACHA, LEED AP, President Moe Azar, Senior Project Manager Shareholder Mary Farlander, Senior Project Manager Shareholder Sheff Devier, Senior Project Manager Shareholder																
Corporate Office:	Broward County 3501 Griffin Road Fort Lauderdale, FL 33312 T: (954) 266-2700	Branch Office:	Miami-Dade County 8400 NW 36th Street, #450 Doral, FL 33166 T: (305) 764-3138														
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CHARLES A. MICHELSON AIA, ACHA, LEED AP, President

Role: Principal-in-Charge

As the Principal, Mr. Michelson maintains an active role in the planning, design, and production of architectural projects for the firm. With his background in Urban Planning, he participates in programming, feasibility studies, site planning and other research projects. As Principal-in-Charge of the firm's public projects, Mr. Michelson has been responsible for overseeing the new construction, renovation and additions to numerous public buildings and has provided design services for numerous governmental facilities.

Years of Experience

40

Years of Experience with Firm

40

Education

University of Miami Master of Urban &
Regional Planning, 1981
B. Architecture, 1979

Registrations

Registered Architect:
Florida #9976
Georgia#00874

National Council of Architectural Registration
Boards (NCARB) #31861

American College of Healthcare Architects
(ACHA) Certified #0624

ASHA Healthcare Construction Certificate,
2004

Affiliations

South Florida Hospital &
Healthcare Association (SFHHA)
Board of Directors

Florida Healthcare Engineering
Association (FHEA)

American Institute of Architects (AIA)

AIA Fort Lauderdale President, 2015
Board of Directors, 2014
Treasurer, 2017

AIA Florida
Citizen Architect

Representative Projects

Lauderhill Mall Transit Center, Lauderhill, FL: Development of a new, 3,000 SF transit center within the Lauderhill Mall to serve over 8,000 daily transit passengers. The new building will include 10+ bus bays, drivers' lounge, breakroom with dedicated restrooms and locker areas, customer service area with multiple "point-of-sales" deal window drawers, separate public restrooms, security booth, and related mechanical and electrical equipment. **This project will be the first totally net-zero facility in Broward County.**

Ravenswood Transit Facility Enhancement & Retrofit, Dania Beach, FL: Renovations and modernization to the facility's infrastructure including replacement of automatic gates, building structural repair, parking garage grading/drainage, and exterior renovation to protect underground fuel storage tanks.

Downtown Bus Terminal Lighting Condition, Fort Lauderdale, FL: Coordination and study with Broward County for complete lighting upgrade to the bus terminal. Report included light studies photometrics, cost estimating and fixture specifications.

FAU Chiller Expansion, Boca Raton, FL: As a subconsultant to SGM Engineering, research of stair options and preparation of construction documents for the stair to the roof, details, and patching and repairing miscellaneous infrastructure work.

Broward College Chiller Building, Pembroke Pines, FL: A new chiller plant and modular classrooms at the South Campus of Broward College. The Chiller Plant includes the design of a dual chiller chilled water plant of approximately 3,500 square feet. The initial machine design capacity is 650 tons each, with a deductive alternate to make one (1) chiller 450 tons. The plant was designed for future expansion to include initial header pipe sizes, cooling tower water make-up, and electrical service to accommodate a future build-out of 4,300 tons.

Broward College Building 33 Expansion for Chiller Plant, Fort Lauderdale, FL: As a subconsultant to SGM Engineering, preparation of construction documents for the expansion and modification to the building in order to provide a new chiller and cooling tower.

911 Dispatch Center Investigative Reports, Five Locations in Broward County, FL: An Investigative Facilities Report for five Broward County 911 Dispatch Centers to observe the locations and provide a status of the physical plant, personnel inventory, and expansion capability. The reports were based on field observations, as-built drawings, and information provided by Broward County and the 911 Dispatch Centers' personnel.



SHEFF L. DEVIER AIA, Senior Project Manager | Shareholder

Role: Senior Project Manager / Quality Control

Sheff Devier is a registered architect with over 45 years of experience with Institutional, Governmental, Medical, Educational and Recreational facilities. He has been responsible for client contact, design, contract documents, writing specifications, and contract administration. Sheff holds an important role in the firm's management and he reviews staffing schedules on a weekly basis. He is responsible for mentoring young architects and for managing all of the large projects in the firm.

Years of Experience

45

Years of Experience with Firm

19

Education

Virginia Polytechnic Institute & State University,
Bachelor of Architecture, 1975

Registrations

Registered Architect:
Florida #007699

Affiliations

American Institute of Architects (AIA)

Relevant Experience

Lauderhill Mall Transit Center, Lauderhill, FL: Development of a new, 3,000 SF transit center within the Lauderhill Mall to serve over 8,000 daily transit passengers. The new building will include 10+ bus bays, drivers' lounge, breakroom with dedicated restrooms and locker areas, customer service area with multiple "point-of-sales" deal window drawers, separate public restrooms, security booth, and related mechanical and electrical equipment. **This project will be the first totally net-zero facility in Broward County.**

Broward County Continuing Contract, Broward County, FL: Under the firm's continuing contract with Broward County (over 27 years), SMA has been involved with bus charging infrastructure, multiple projects with varying scopes, sizes, and costs. Some of these projects included numerous office renovations, a learning lab, parking lot expansions, a transit support building, reports and studies, convention center design criteria, fourth floor renovation at Government Center West, first floor renovation at Government Center East, judicial complex, judges bench, among many others.

Palm Beach County Four Points Emergency Operations Support Facility, West Palm Beach, FL: Extensive renovation of a two-story, 57,000 SF building containing various County departments and functioning as a support facility for the adjacent Emergency Operations Center during critical events. The building envelope was hardened to withstand 180 MPH wind loads and functions as a 24 hour facility, including sleeping quarters. It also has an emergency generator system to provide 100% energy back-up.

City of Weston Emergency Operations Center, Weston, FL: A 25,000 SF, three-story Emergency Operations Center building with offices for building code, zoning code, fire code, code enforcement and records storage on the 1st floor; emergency operations center, kitchen facilities, IT offices, and multipurpose space on the second floor; and emergency staff sleeping quarters and support space on the third floor.

BARC - Broward Addiction Recovery Center (LEED GOLD), Fort Lauderdale, FL: SMA provided full architectural services that included schematics, site entitlements, program verifications, construction administration and warranty for this new 51,419 SF, two-story addiction recovery center which contains a 50- bed detoxification unit and spaces for outpatient counseling services, medical exams and related operational and business functions. **This project achieved LEED Gold Certification.**



SCOTT B. WILLIS RA, LEED AP, Senior Project Manager

Role: Project Manager

Mr. Willis has more than 38 years of diverse architectural experience, which includes the management of both large and small scale projects and encompasses estimating, contract and subcontract negotiations as well as coordinating multiple sub-contractors field staff and supplies. Projects include new multimillion dollar commercial, institutional, and residential facilities as well as renovation projects. He has extensive experience with complex hospital renovations, where the facility must stay operational throughout the construction process.

Years of Experience

38

Years of Experience with Firm

21

Education

University of Miami, Miami, FL
B. Arch/ Minor in Urban Planning, 1982

University of Illinois, Urbana, IL
M. Science Architecture, 1977

Registrations

Registered Architect:
Florida #0012040

Accreditations

Leadership in Energy and
Environmental Design LEED AP

Relevant Experience

911 Dispatch Center Investigative Reports, Five Locations in Broward County, FL: An Investigative Facilities Report for five Broward County 911 Dispatch Centers to observe the locations and provide a status of the physical plant, personnel inventory, and expansion capability. The reports were based on field observations, as-built drawings, and information provided by Broward County and the 911 Dispatch Centers' personnel.

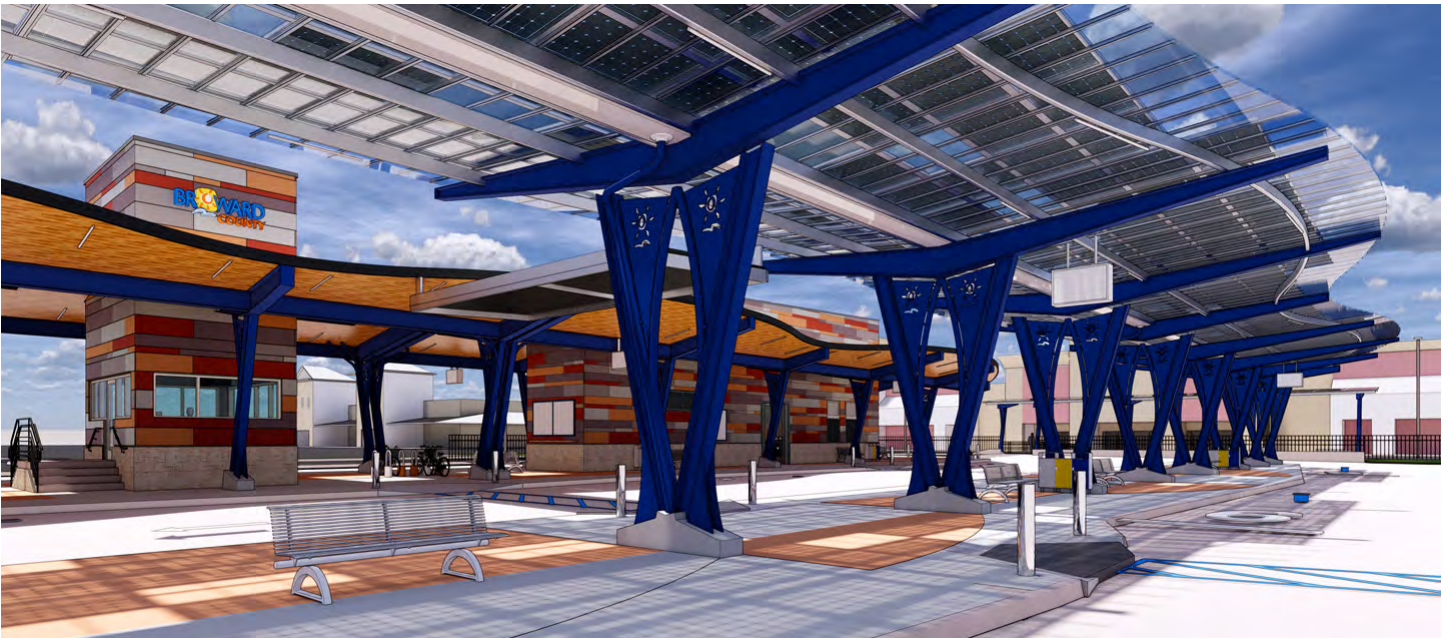
Broward County North Mass Transit Bus Lift, Pompano Beach, FL: Design and construction/installation of a Rotary Lift EFX90 for articulated buses. This lift has 3 in ground posts (1 stationary post & 2 track movable posts). Work also includes removal of existing concrete slab, relocation of overhead exhaust pipes and construction of new reassessed pit.

Broward County Main Library Plaza Restoration, Fort Lauderdale, FL: Repair and restoration of the north exterior plaza of the Main Library including fountain redesign & replacement, repair of exterior fountain at waterfall, repair or remove & replace pavers, concrete and precast pavers in North plaza area, concrete curbing steps in North plaza, existing concrete benches and damaged exiting bollards, new landscaping and irrigation system, repair/upgrade of plaza electrical service, and repair/replace existing plaza lighting.

UTC Aerospace Systems Building Addition, Miramar, FL: A 1,627 SF building addition to house test equipment for testing airplane parts. The exterior of the addition will match the existing warehouse building's colors, reveal profiles, and design and a landscape hedge will be installed to screen the existing pad mounted transformer.

Good Samaritan Medical Center & Garage - Selective ADA Barrier Removal, West Palm Beach, FL: ADA barrier removal project, including 62 renovated patient and public restrooms for ADA compliance, as well as modifications to parking areas and public spaces for ADA compliance. This project is in response to pending and/or incomplete ADA related work that was selected to bring the public and patient areas of the Hospital up to ADA compliance, pursuant to Title III of the Americans with Disabilities Act.

Quantum Marine Headquarters (LEED Certified), Hollywood, FL: A new three-story, 30,000 SF LEED certified building that consolidates the entire company under one roof. The site has over 80 parking spaces strategically located within a 2.5 acre tree preserve area. Site design included truck access for parts, equipment, and merchandise shipping.



Client:

Broward County

Date Completed:

Ongoing

Lauderhill Mall Transit Center | Lauderhill, Florida

Development of a new, 3,000 square foot transit center within the Lauderhill Mall to serve over 8,000 daily transit passengers. The new building will include 10+ bus bays, drivers' lounge, breakroom with dedicated restrooms and locker areas, customer service area with multiple "point-of-sales" deal window drawers, separate public restrooms, security booth, and related mechanical and electrical equipment.

This project will be the first totally net-zero facility in Broward County.



Client:

Broward County

Date Completed:

Ongoing

Broward County Ravenswood Road Facility Electric Bus Charging Infrastructure Design | Fort Lauderdale, Florida

Engineering and Architectural Services for new electric bus charging infrastructure within the existing Transit Ravenswood Road Maintenance Facilities. The infrastructure includes new parking spaces to accommodate 40' and 45' electric buses, a new canopy system, a new electrical equipment room/building, charging and associated electrical equipment



Client:

Broward College

Date Completed:

2015

Broward College South Campus Chiller Plant

Pembroke Pines, Florida

A new chiller plant and modular classrooms at the South Campus of Broward College. The Chiller Plant includes the design of a dual chiller chilled water plant of approximately 3,500 square feet. The initial machine design capacity is 650 tons each, with a deductive alternate to make one (1) chiller 450 tons. The plant was designed for future expansion to include initial header pipe sizes, cooling tower water make-up, and electrical service to accommodate a future build-out of 4,300 tons.



Client:

Broward College

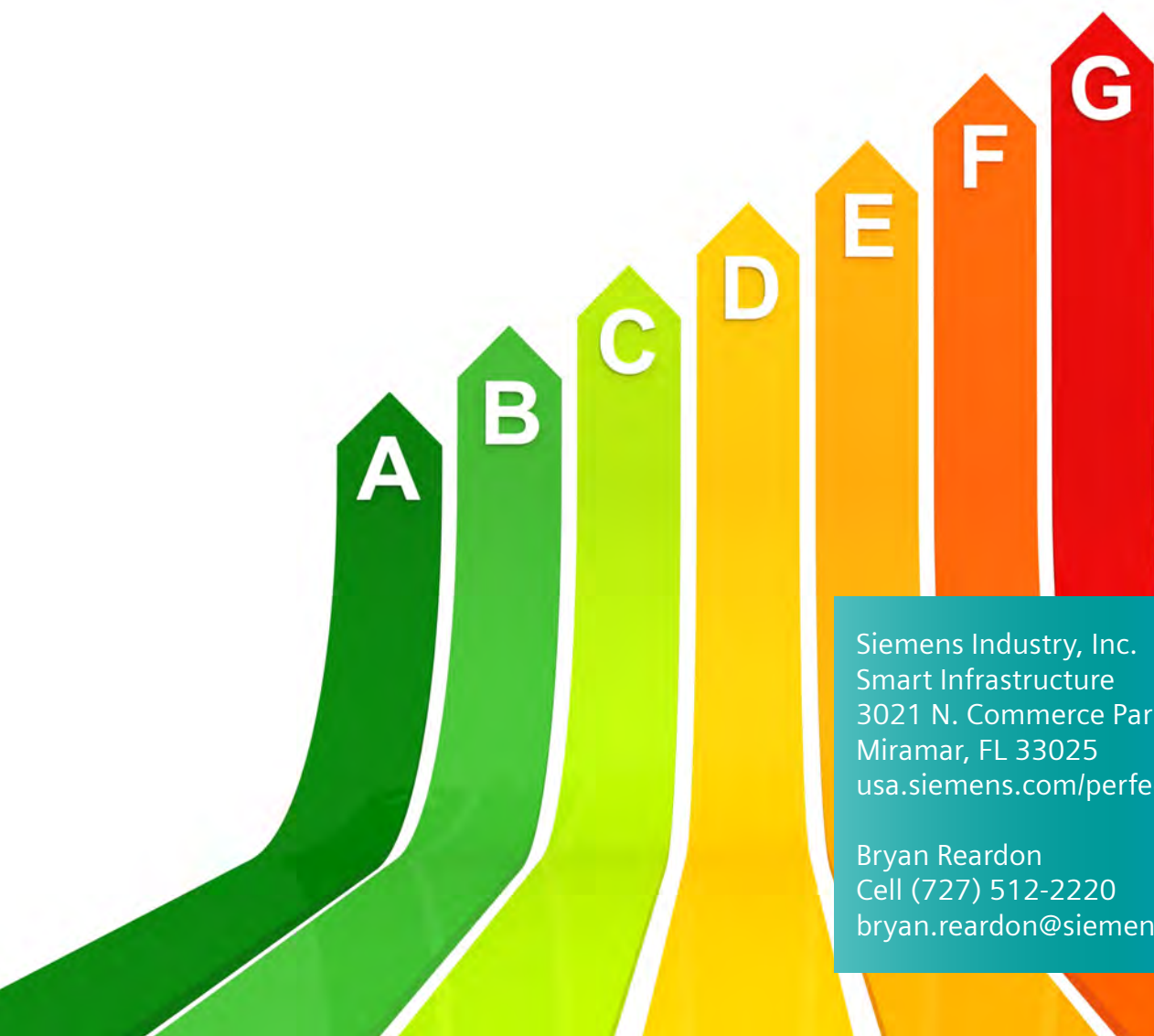
Date Completed:

2018

Broward College Chiller Plant

Fort Lauderdale, Florida

As a subconsultant to SGM Engineering, preparation of construction documents for the expansion and modification to the building in order to provide a new chiller and cooling tower



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