The Town of Glastonbury will be accepting proposals from qualified individuals or firms to provide direct digital control services to perform retro commissioning (RCx) measures and also ongoing on call services for the Town of Glastonbury, 2155 Main St, Glastonbury, CT. Proposals shall provide technical data for components to be provided, pricing proposals, and other data necessary in order to determine the best value.

There will be a PRE-PROPOSAL MEETING held at Glastonbury Academy Building 2143 Main St, Glastonbury on May 16, 2013 at 1:00 p.m.

Proposals must be submitted to the Purchasing Agent no later than May 28, 2013 at 11:00 a.m.


Mary F. Visone
Purchasing Agent
# TABLE OF CONTENTS

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**Attachments**

- Attachment A – Selected Plan Pages 20
- Attachment B - Town of Glastonbury Response Page 21
- Attachment C – Statement of Non-Collusion 22
SECTION I – GENERAL INFORMATION

Background – The Town of Glastonbury in conjunction with SBS LLC and CLP/CNG have developed measures as part of a retro commissioning project. The work associated with these measures is varied and described in the attachments. Additionally rates will be established for on call direct digital control services for Town and Board of Education systems. The systems involved in this work are mostly Alerton Control Systems of varying ages. The Town buildings were last upgraded in 2010.

General Intent - It is the general intent to execute measures developed during the retro commissioning process by SBS LLC. The measures include upgrades to some of the equipment and optimization of control schemes. Work will include programming, installations, training, measurement and verification and project close out for the retro commissioning investigation work. Also included is general system repair, design and installation and improvements for Town and Board of Education control systems.

Existing Facility – Scope descriptions for retro commissioning schemes are included in Attachment A.

SECTION II – CONSIDERATIONS AND RESTRICTIONS

• The successful respondent shall ensure the system will comply with all applicable codes. The buildings will be available for work immediately however, work schedules and locations will need to be coordinated on a daily basis with the Facilities Department. Hours available for work will be from 7:00 AM to 3:30 PM, Monday through Friday, holidays excepted. Work on weekends and evenings may be scheduled, as necessary.

• The proposed work shall take into account schedule and follow through as described by the CLP Retro commissioning (RCx) process as well as cost and ability to service all systems of the Town and Board of Education.

• Vendors will propose on the work to satisfy the Town's requirement. If any alternate schemes are proposed, then the alternative proposed the following information shall be provided, at a minimum:
  o Price to perform the work.
  o Technical data for each of the components proposed for installation including layout, configuration, make, model, size, and quantities of components to be provided, enclosures if necessary and any other data necessary to evaluate the applicability of the system and associated performance.
  o Complete scope of work included in the proposal and any work not included in the proposal but required to make the system fully functional.
  o A schedule indicating major milestones for installation of the system if required, removal of existing components, operational testing, and operations and maintenance training of Town staff.
  o Warranties available for proposed system and availability of extended warranties
  o Any premium costs associated with system outside of original installation costs
  o Names and phone numbers of references for similar work performed on facilities in Connecticut
• All drawings, reports, data, and other documents prepared by the Vendor according to this Agreement shall be submitted to the Town for its review and approval. Resulting work products of the Vendor pursuant to this solicitation shall become property of the Town of Glastonbury.

• No such approval shall in any way be construed to relieve the Vendor of responsibility for technical adequacy or operate as a waiver of any of the Town’s rights under this Agreement. The Vendor shall remain liable to the Town according to applicable laws and practices for all damages to the Town caused by the Vendor’s negligent performance of any of the services furnished under this Agreement.

• If necessary, the Vendor shall conduct regular meetings with the Town, and other appropriate parties, at a location established by the Town to review progress. The Vendor will provide written notes of each meeting to all attending parties before the next meeting.

• Consideration will be given to the type of system proposed, the associated cost, the yearly maintenance costs and the time required to provide and install the units.

• System proposed shall also be able to be serviced by a third party vendor without any proprietary restrictions unless previously identified by proposer.

• The Town shall not be obligated to accept any proposal and the Town shall reserve the sole right to determine the appropriateness of any proposal for this work.

SECTION III - SUBMISSION OF PROPOSAL

MINIMUM REQUIREMENTS

• Vendor shall be licensed by the State of Connecticut to perform the work required and involved.

• Vendor shall have an assigned project manager to oversee this work and act as liaison to the Town.

• Vendor shall demonstrate sufficient staff resources to perform the work.

• Vendor shall have demonstrated experience designing and installing similar systems in facilities within the past five (5) years.

TERM OF SERVICE

The selected firm will be expected to commence services within 5 days of contract execution or on such other schedule as may be agreed to with the Town. The Town anticipates allocating up to 1 week of overall time for the project described herein including data collection, meetings, consultant preparation, etc. The Town of Glastonbury reserves the right to cancel this proposal process at any time should any of the following conditions exist:

• Funds are not appropriated to allow continuance of this contract.
• The Town, through changes in its requirements or method of operation, no longer has a need for this service.

• The Town is not satisfied with the level of services provided under the contract or the contractor fails to comply with any of the terms and conditions outlined in the contract.

SITE INSPECTION

A site inspection is scheduled for May 16th at 1:00 pm at 2143 Main St, Glastonbury, CT 06033.

PROPOSAL INSTRUCTIONS

• By submitting a proposal, you represent that you have thoroughly examined and become familiar with the Scope of Services outlined in this RFP and you are capable of performing the work to achieve the Town’s objectives.

• All firms are required to submit a clearly marked original and seven (7) copies of their proposal to Mary F. Visone, Purchasing Agent, 2155 Main Street, Glastonbury, CT by the date and time listed in the proposal response page. All proposals will be opened publicly and recorded as received. Respondents may be present at the opening; however, there will be no public reading of Proposals. Proposals received later than the time and date specified will not be considered. The proposal must be submitted in a sealed envelope or package and the outside shall be clearly marked as follows:

SEALED REQUEST FOR PROPOSAL
PROCUREMENT NOTICE
DIRECT DIGITAL CONTROL SERVICES
RPGL-2013-36
May 28, 2013
11:00 AM

• All respondents are required to submit the information detailed below. Responses shall be organized and presented in the order listed below to assist the Town in reviewing and rating proposals. Responses should be presented in appropriate detail to thoroughly respond to the requirements and expected services described herein.

1. Table of Contents, to include clear identification of the material provided by section and number.

2. A letter of transmittal indicating the firm’s interest in providing the service and any other information that would assist the Town in making a selection. This letter must be signed by a person legally authorized to bind the firm to a contract.

3. Name and telephone number of person(s) to be contacted for further information or clarification.
4. Copy of State of Connecticut license to perform the work if required.

5. Name and qualifications of assigned project manager and a list of staff members who would be involved with the project, including their assigned roles and a description of their background and experience.

6. A background statement including a description of relevant experience of the firm/individual submitting the proposal.

7. For each alternative proposed the following information:
   a. Price to perform the work.
   b. Technical data for each of the system(s) and components proposed for installation including layout, configuration, make, model, network requirements, size, and quantities of components to be provided, and any other data necessary to evaluate the applicability of the system.
   c. Complete scope of work included in the proposal and any work not included in the proposal but required to make the units fully functional.
   d. A schedule indicating major milestones for installation of new system, removal of existing components, operational testing, and operations and maintenance training of Town staff.
   e. Warranties provided.
   f. Any premium costs associated with work outside of normal work hours that is not included in the basic price proposal.
   g. Names and phone numbers of references for similar work performed.

8. Respondent shall provide a list of 3-5 references and examples of previous similar projects successfully completed within the last five years with the contact name, address and telephone number of the owners' representative in each project.

9. A concluding statement as to why the respondent is best qualified to meet the needs of the Town.


11. Description of any exceptions taken to this RFP. If any proposal involves any exception from the stated requirements and specifications, they must be clearly noted as exceptions and attached to the proposal.

12. Respondent is required to review the Town of Glastonbury Code of Ethics adopted July 8, 2003 and effective August 1, 2003. Respondent shall acknowledge that they have reviewed the document in the area provided on the attached Ethics Acknowledgement form included on ATTACHMENT B. The selected respondent will also be required to complete and sign a Consultant Acknowledgement Form prior to award. The Code of Ethics and the Consultant Acknowledgement Form can be accessed at the Town of Glastonbury website at www.glastonbury-ct.gov. Upon entering the website click on "Business," then "Doing Business with the Town," then "Bids and Quotes" which will bring you to the links for the Code of Ethics and the Consultant Acknowledgement Form. If the respondent does not have access to the internet, a copy of these documents can be obtained through the Purchasing Department at the address listed within this proposal.
13. Statement of Non-Collusion (ATTACHMENT C).

14. Non Resident Contractors (IF APPLICABLE)

The Town is required to report names of nonresident (out of state) Contractors to the State of Connecticut, Department of Revenue Services (DRS) to ensure that Employment Taxes and other applicable taxes are being paid by Contractors. Upon award, all nonresident contractors must furnish a five percent (5%) sales tax guarantee bond (state form AU-766), or a cash bond for 5% of the total contract price (state form AU-72) to DRS even though this project is exempt from most sales and use taxes.

See State Notice to Nonresident Contractors SN 2005(12). If the above bond is not provided the Town is required to withhold 5% from Contractor's payments and forward it to the State DRS.

Contractor must promptly furnish to the Town a copy of the Certificate of Compliance issued by the State DRS.

15. Any technical questions regarding this RFP shall be made in writing and directed to Mr. David Sacchitella, Building Superintendent, at (860) 652-7706 or via e-mail at Dave.Sacchitella@glastonbury-ct.gov. Administrative questions should be directed to Mary F. Visone, Purchasing Agent at (860) 652-7588. All questions, answers, and/or addenda, as applicable, will be posted on the Town’s website at www.glastonbury-ct.gov (Upon entering the website click on Bids & RFPs). It is the respondent’s responsibility to check the website for addenda prior to submission of any proposal.

Note: Responses to requests for more specific contract information than is contained in the RFP shall be limited to information that is available to all offerors and that is necessary to complete this process. The request must be received at least five (5) business days prior to the advertised response deadline.

16. The Town of Glastonbury is dedicated to waste reduction and the practice of using and promoting the use of recycled and environmentally preferable products. Respondents are encouraged to submit RFP responses that are printed double-sided (except for the signed proposal page) on recycled paper, and to use paper dividers to organize the RFP for review. All proposal pages should be secured with a binder clip, staple or elastic band, and shall not be submitted in plastic binders or covers, nor shall the proposal contain any plastic inserts or pages. We appreciate your efforts towards a greener environment.

- Failure to include any of the above-referenced items in the submitted PROPOSAL may be grounds for disqualifying said proposal.
EVALUATION CRITERIA

The Town of Glastonbury shall select the responsible and responsive Proposal which is determined by the Town to be the best suited, most advantageous, and provides the best value to the Town on the basis of the criteria included in this Request for Proposal. The Town expressly reserves the right to negotiate with the selected Proposer prior to an award of any contract pursuant to this RFP. Best value shall be determined by consideration of some or all of the following factors as deemed appropriate by the Town.

- The qualifications and experience of the vendor and its designated account representative. Successful performance of similar work on other accounts.

- Completeness of the proposal and adequacy of the information provided.

- Technical Solution/Approach to Project: Types, capabilities, efficiency, applicability, ease of operation and maintenance, warranties, etc. of system and components proposed.

- Schedule.

- Total Cost/Overall Value: Initial price to provide and install and incentives and rebates available and confirmed.

- The number, scope, and significance of conditions or exceptions attached or contained in the proposal.
REQUEST FOR PROPOSAL  RPGL-2013-36

SELECTION PROCESS

• This request for proposals does not commit the Town of Glastonbury to award a contract or to pay any costs incurred in the preparation of a proposal to this request. All proposals submitted in response to this request become the property of the Town of Glastonbury. The Town of Glastonbury reserves the right to accept or reject any or all proposals received as a result of this request, to negotiate with the selected respondents, the right to extend the contract for an additional services, or to cancel in part or in its entirety the request for proposals, if it is in the best interests of the Town to do so.

• An Evaluation Committee, appointed by the Town Manager, will evaluate all proposals received for completeness and the respondent's ability to meet all requirements as outlined in this RFP.

• Following review and evaluation of proposals, the Town reserves the right to request certain additional information. Based on review and rating of proposals, if determined to be necessary, a short list of respondents may be invited to interview with the Town Selection Committee.

• Additional technical and/or cost information may be requested from any respondent by the evaluation committee prior to, during, or after the interview for clarification purposes, but in no way changes the original proposal submitted. Interviews are at the option of the evaluation committee and may or may not be conducted.

• Based on the results of the interview process, the Town will review the Scope of Services, proposed price, and other factors with the top-rated firm(s) and negotiate a specific agreement based on these discussions.

• The selected respondent will be issued a purchase order to perform the work.

TIMELINE

The Town intends to adhere to the schedule listed below as closely as possible, but reserves the right to modify the schedule in the best interest of the Town as required.

<table>
<thead>
<tr>
<th>Event</th>
<th>Date/Time</th>
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</thead>
<tbody>
<tr>
<td>Publicize RFP</td>
<td>May 9, 2013</td>
</tr>
<tr>
<td>Mandatory Pre-proposal Meeting</td>
<td>May 16 at 1:00 p.m.</td>
</tr>
<tr>
<td>RFP Due Date</td>
<td>May 28, 2013 at 11:00 a.m.</td>
</tr>
<tr>
<td>Shortlist of Submittals Received</td>
<td>TBD, if necessary</td>
</tr>
<tr>
<td>Interviews with Top Respondents</td>
<td>TBD, if necessary</td>
</tr>
<tr>
<td>Contract Effective Date</td>
<td>TBD</td>
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</tbody>
</table>
INSURANCE

The Bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Bidder and all of its agents, employees and sub-contractors and other providers of services and shall name the Town and its employees and agents as an Additional Insured on a primary and non-contributory basis to the Bidders Commercial General Liability and Automobile Liability policies. These requirements shall be clearly stated in the remarks section on the Bidders Certificate of Insurance. Insurance shall be written with Carriers approved in the State of Connecticut and with a minimum Best's Rating of A-. In addition, all Carriers are subject to approval by the Town. Minimum Limits and requirements are stated below:

1) Worker's Compensation Insurance:
   - Statutory Coverage
   - Employer's Liability
   - $100,000 each accident/$500,000 disease-policy limit/$100,000 disease each employee

2) Commercial General Liability:
   - Limits of Liability for Bodily Injury and Property Damage
     Each Occurrence $1,000,000
     Aggregate $2,000,000 (The Aggregate Limit shall apply separately to each job.)
     - A Waiver of Subrogation shall be provided

3) Automobile Insurance:
   - Including all owned, hired, borrowed and non-owned vehicles
   - Limit of Liability for Bodily Injury and Property Damage:
     Per Accident $1,000,000

4) Professional Liability:
   - Limit of Liability: $1,000,000

5) Umbrella Liability:
   - Limit of Liability: $2,000,000 Per Occurrence & Annual Aggregate

Coverage is to apply in excess of all primary insurance policies, coverages, and limits specified above

The Bidder shall direct its Insurer to provide a Certificate of Insurance to the Town before any work is performed. It is the responsibility of the Contractor to notify the Town 30 days in advance of notice of cancellation or non-renewal. The Certificate shall evidence all required coverage including the Additional Insured and Waiver of Subrogation. The Bidder shall provide the Town copies of any such policies upon request.
INDEMNIFICATION

To the fullest extent permitted by law, the Bidder shall indemnify and hold harmless the Town and its consultants, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Bidder's work, provided that such claim, damage, loss or expense is caused in whole or in part by any negligent act or omission by the Bidder, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Bidder to perform or furnish either of the services, or anyone for whose acts the Bidder may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

The above insurance requirements are the Town's general requirements. Insurance requirements with the awarded respondent are subject to final negotiations.
ATTACHMENT A

See attached plans/data:

- Copies of proposed RCx scopes
Finding

The Police Department's chilled water system is a constant volume primary-only pumping primary-secondary system with a constant volume primary and constant flow secondary system. The chilled water is cooled at a cooling tower, each chill tower has (2) cooling towers, each with a summer and winter mode. The chilled water system is designed to have chilled water valves also modulating open to maintain the discharge air temperature at a constant set point. The Economizer Zone is set to 77° F, and the Economizer Control is on the AHUs. The chilled water system is on based on the chilled water valve position. The chilled water system is on based on the chilled water valve position. The chilled water system is on based on the chilled water valve position. The chilled water system is on based on the chilled water valve position.

Solution

Reprogram the Alert on BMS control logic software to enable the chilled water system using OA Entropy control (2.5% Bluff) and cycle the chiller operation. Review all chilled water system operation and Alert trending reports from the BMS after implementation of RCx changes and compare to existing operation.

Persistence Strategy

Program a persistence chillier trend on the BMS which will be reviewed monthly. The operator shall review trends to assure that the CHW system is operating as per the revised control sequence as documented in the RCx program. All trend points will have (60 Min).

Implementation and Verification Plan

Refers to ECM # PD-HL-1, which will optimize the interaction between OA Economizer and CHW Cooling.

The implementation and verification plan consists of the following steps:

1. Reconfigure chiller enthalpy and CHW system control.
2. Program a persistence chillier trend on the BMS which will be reviewed monthly.
3. Review all chilled water system operation and Alert trending reports from the BMS after implementation of RCx changes and compare to existing operation.
4. Persistence Strategy
   - Program a persistence chillier trend on the BMS which will be reviewed monthly.
   - Review trends to assure that the CHW system is operating as per the revised control sequence as documented in the RCx program. All trend points will have (60 Min).

### Table: Estimated Annual Total Electric Peak Demand Savings

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<tr>
<td></td>
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<td>Summer Part Load Demand Saving kWh</td>
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<td>Winter Part Load Demand Saving kWh</td>
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Finding

AHU-1 and AHU-2 are variable air volume (VAV) systems serving the Police Department. AHU-1 supplies 5,600 CFM and AHU-2 supplies 4,900 CFM. The VAV boxes can be used to control the VAV box damper positions, with a reset based on the outside air temperature. The VAV boxes are cooling only VAV boxes with no heating by default. Conference rooms and other administrative areas within the Police Department have AHU boxes that are cooling only VAV boxes with no heating by default.

Solution

Add and program on the Alerton BMS for AHU-1 & AHU-2 the VAV box damper control, maintaining VAV box damper positions with a reset based on the outside air temperature. The VAV boxes are cooling only VAV boxes with no heating by default. Conference rooms and other administrative areas within the Police Department have AHU boxes that are cooling only VAV boxes with no heating by default.

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Building Perimeter HW Radiation System

PD-AHV-1

Total Savings: $5,928

Summer Winter

PEAK DEMAND FUEL SAVINGS (KWH), SUMMER & WINTER PEAK DEMAND SAVINGS (KWH), ANNUAL FUEL SAVINGS (KWH), GAS AND ELECTRIC (CFU), ELECTRIC COST SAVINGS, TOT_ALTERNATIVE | GAS (CFU), ELECTRIC (CFU), ANNUAL SAVINGS, IMPLEMTATION COST AND PAYBACK FOR ECM # PDCH-1, PDP-HV-1 AND PDP-HV-2.

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Town of Glastonbury
Retrocommissioning Project: Glastonbury Town Buildings

Implementation and Verification Plan

EA-10-M-006-010

Estimated Annual Total Electric Peak Demand Fossil Fuel Electric

Persistence Strategy

Program a system trend on the BMS for AHU-1 & 2 for the following points: Supply Fan VFD Speed, Supply Fan Status, OA Damper Position, Supply Air Temperature, Hot Water Temperature Setpoint, and Pump Status. All trended BMS points shall have (60 Min. intervals).

Program a system trend on the BMS for the hot water system for the following points: Lowest Zone Temperature, Hot Water Supply Temperature, and Supply Air Temperature. All trended BMS points shall have (60 Min. intervals).

Review all air handling unit operation and trending reports from the BMS after implementation of RCx changes and compare to existing trends for enhanced monitoring as per the RCx modifications.

Review all air handling unit operation and trending reports from the BMS after implementation of RCx changes and compare to existing trends for enhanced monitoring as per the RCx modifications.

Generate an alarm at the BMS if the supply discharge air stack pressure reads greater than (95 mm Hg) above the calculated reset control setpoint for more than (60 Min.).
Finding

RTU-1 is a 110 CFM constant volume unit with a 1 HP supply fan motor with a DX cooling coil and (two) hot water and electric reheat coils which serves the

Solution

Install a CO2 sensor in the return duct and implement a demand control ventilation sequence with a return air CO2 enable setpoint of (1000 ppm). Adjust and

Verification

Review all rooftop unit operation and Alert on trending reports from the BMS after implementation of RCx changes and compare to existing trending reports for the

Persistence Strategy

Program a system trend on the BMS for the following RTU-1 points: CO2 reading and OA damper position. All trended BMS points shall have 60 (min. intervals)

Progranms as per the RCX modifications:

Review all rooftop unit operation and Alert on trending reports from the BMS after implementation of RCx changes and compare to existing trending reports for the

Implementation and Verification Plan

Implementation and Verification Plan: Glastonbury Town Buildings

Glastonbury Town Buildings

Program a system trend on the BMS for the following RTU-1 points: CO2 reading and OA damper position. All trended BMS points shall have 60 (min. intervals)
Retrocommissioning has been identified as per the RCM modifications.

The HVAC system is a critical component of the building's energy efficiency, and its proper operation is crucial for maintaining a comfortable indoor environment. As a result, it is essential to ensure that the HVAC system is functioning optimally. This involves reviewing all the HVAC controls and verifying that all sequences of operations and control parameters are being met.

Verification

Verification involves reviewing and modifying the HVAC system to ensure that it is operating at its peak efficiency. This includes checking the HVAC boxes for proper airflow and ensuring that all heating/cooling controls are functioning correctly.

Finding

AHU-1 is a 12,000 CFM unit with a 15 hp supply and 10 hp return air, which serves 22 VAV boxes within the Riverfront Community Center. AHU-1 is a cooling coil with a 78% efficiency rating.

Solution

The solution involves reconfiguring the supply and return fan VFD for the correct input signal and adjusting the damper reset pressure. The damper reset pressure will be determined at 20 psi to ensure proper sequencing and operation. The damper reset pressure will be set at 20 psi to ensure proper operation.

Verification

Verification involves reviewing all the HVAC controls and verifying that all sequences of operations and control parameters are being met. This includes checking the HVAC boxes for proper airflow and ensuring that all heating/cooling controls are functioning correctly.

Strategic Building Solutions, LLC Page 5 of 18 Proprietary and Confidential
Generate an alarm at the BMS if the supply discharge air static pressure reads greater than (2.5" wc) above the calculated reset control setpoint for more than (60) minutes.

Strategic Building Solutions, LLC EP-6 of 8 Proprietary and Confidential

**Persistence Strategy**

| Program a system trend on the BMS for AHU-1 for the following points: supply fan VFD speed, supply fan supply VFD speed, supply fan static air discharge, and supply air damper position. Of damper position, supply air discharge air static pressure and setpoint. All trended BMS points shall have (60) MIII intervals.
|
Town of Glastonbury
Retrocommissioning Project: Glastonbury Town Buildings
Implementation and Verification Plan

Town of Glastonbury

RCC-HV-2 Add Interlocks for MAU-I and Kitchen Hood Operation

<table>
<thead>
<tr>
<th>ECM #</th>
<th>ECM TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E4.10-M-006-010</td>
<td>10/13/2011</td>
</tr>
</tbody>
</table>

Finding

MAU-I is a direct-vent gas heated makeup air unit which serves the kitchen area of the Riverfront Community Centre. It supplies 1,000 CFM with a 0.75 HP motor.

Verification

Review all exhaust fan and makeup air unit operation and Alert on trending reports from the BMS after implementation of ECM changes and compare to existing trending reports for the ECM.

RCC-HV-2 Add Interlocks for MAU-I and Kitchen Hood Operation

Solution

The existing local operating switch on the control panel for the kitchen exhaust shall be replaced with a new adjustable electronic time switch for the kitchen exhaust operation. For normal operation, the local exhaust fan shall be controlled by a local switch on the control panel. For automatic operation, the local exhaust fan shall be controlled by an adjustable electronic time switch for the kitchen.

ESTIMATED ANNUAL ELECTRIC SAVINGS = 3,763 kWh
ESTIMATED SUMMER PEAK DEMAND SAVINGS = 0 kW
ESTIMATED WINTER PEAK DEMAND SAVINGS = 0 kW
ESTIMATED ANNUAL ELECTRIC SAVERS = 3,763 kWh

ESTIMATED ANNUAL Fossil Fuel SAVINGS = 774.4 ccf
ESTIMATED ANNUAL Fossil Fuel SAVINGS = 774.4 ccf

ESTIMATED ELECTRIC COST SAVINGS = $684.00
ESTIMATED Fossil Fuel COST SAVINGS = $1,206.00

ESTIMATED ANNUAL Fossil Fuel COST SAVINGS = $1,206.00

ESTIMATED IMPLEMENTATION COST = $5,878

ESTIMATED PAYBACK = 3.1 YEARS

Due to lack of BMS connectivity, this ECM is categorized as an "IT" and will not be implemented as part of the RX Program.

control programming enhancements as per the RX modifications.

Finding

Verifications

Due to lack of BMS connectivity, this ECM is categorized as an "IT" and will not be implemented as part of the RX Program.

Finding

Verifications

Due to lack of BMS connectivity, this ECM is categorized as an "IT" and will not be implemented as part of the RX Program.

Finding

Verifications
<table>
<thead>
<tr>
<th>Persistence Strategy</th>
<th>ECM</th>
<th>ECM Title</th>
<th>EA-10-M-006-010</th>
<th>10/13/2011</th>
</tr>
</thead>
</table>

Generate an alarm at the BMS if the MAU and kitchen exhaust fan status does not match.
### Finding

**TH-HV-1 Optimize VAV Box Control, Economizer Operation and Static Pressure Reset to AHU-1, 2 & 3**

<table>
<thead>
<tr>
<th>ECM #</th>
<th>ECM Title</th>
<th>Estimated Annual Fossil Fuel Savings</th>
<th>Estimated Annual Electric Savings</th>
<th>Estimated Summer Peak Demand Savings</th>
<th>Estimated Winter Peak Demand Savings</th>
<th>Estimated Annual Total Electric Peak Demand Savings</th>
<th>Estimated Annual Total Fossil Fuel Savings</th>
<th>Estimated Annual Total Implementation Cost</th>
<th>Estimated Payback</th>
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<tbody>
<tr>
<td>EA-10-M-006-010</td>
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<tr>
<td>10/13/2011</td>
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</tr>
</tbody>
</table>

#### Retrocommissioning Project: Glastonbury Town Buildings

Implementation and Verification Plan

**Town of Glastonbury**
Program a system trend on the BMS for AHU-1, 2 & 3 for the following points: supply airflow, supply air temperature, supply airflow static pressure, supply air flow setpoint, and supply air flow. Adjust and modify the supply air flow setpoints for proper sequencing and operation.

Review all air handling unit operation and trending using the BMS after implementation of RCx changes and compare to existing trends and performance data.

Persistence Strategy

Program a system trend on the BMS for AHU-1, 2 & 3 for the following points: supply airflow, supply air temperature, supply airflow static pressure, supply air flow setpoint, and supply air flow. Adjust and modify the supply air flow setpoints for proper sequencing and operation.

Verify all performance data on the BMS after implementation of RCx changes and compare to existing trends and performance data.

Strategic Building Solutions, LLC

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**Solution**

<table>
<thead>
<tr>
<th>ECM #</th>
<th>ECM Title</th>
<th>10/13/2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA-10-M-006-010</td>
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</tbody>
</table>
Finding

The Glastonbury Town Hall's hot water system consists of (2) H8 Smith cast iron hot water boilers. Hot water is pumped to 3 different zones to provide radiant heating. Pumps 1/4 provide primary flow through the boilers and serve C Wing (Recreation Center, Gym, Community Room) and C5, C10, and C25 are used for secondary loops supplying the other wings (South/Congregational Church, Commons). The Town Hall's hot water system has been identified as a potential area for energy savings through the installation of smart controls and efficient operation.

Solution

- **Install separate control relays and program pump 2/2A to enable at 4 deg F OAT to provide minimum freeze protection for D Wing.**

The following modifications will be implemented to improve the efficiency of the hot water system:

- **Optimize Boiler Operation and Pumping Controls**

<table>
<thead>
<tr>
<th>ECM #</th>
<th>ECM Title</th>
<th>EA-10-M-006-010</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH-HW-1</td>
<td>Optimize Boiler Operation and Pumping Controls</td>
<td>10/13/2011</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ECM</th>
<th>Estimated Total Electric Peak Demand Savings (kW)</th>
<th>Estimated Summer &amp; Winter Peak Demand Savings (kW)</th>
<th>Estimated Annual Electric Savings (kWh)</th>
<th>Estimated Annual Fossil Fuel Savings (CCF)</th>
<th>Estimated Annual Electric Cost Savings</th>
<th>Estimated Annual Fossil Fuel Cost Savings</th>
<th>Total Estimated Annual Savings</th>
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<tbody>
<tr>
<td>TH-HW-1</td>
<td>2.53</td>
<td>1.3</td>
<td>2.29</td>
<td>2.9</td>
<td>4.9</td>
<td>2.9</td>
<td>2.29</td>
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<tr>
<td>ECM #</td>
<td>ECM Title</td>
<td>Persistence Strategy</td>
<td>Annual Total Electric Peak Demand</td>
<td>Annual Fossil Fuel</td>
<td>Electric Estimated ECM Cost</td>
<td>Fossil Cost</td>
<td>ANNUAL IMPLEMENTATION COST</td>
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</table>

Program a system trend on the BMS for the following hot water system points: all pump status, three-way valve position, A-wing supply temperature and setpoint. All trended BMS points shall have 60 (min) intervals. Generate an alarm at the BMS if the A-wing supply temperature reads greater than (10 deg F) above the calculated reset control setpoint for more than (90 Min).
Town of Glastonbury
Retrocommissioning Project: Glastonbury Town Buildings
Implementation and Verification Plan

Finding

The Academy School Gymnasium has (2) heating-only ventilation units operating on existing pneumatic controls which operate 24/7 with no RTUs. Lighting is provided by (24) 8-foot T-8 fixtures controlled by manual switches. The AHUs are required only for space conditioning and operate on a 7:00AM to 9:00PM schedule.

The community room is served by a 6000 CFM cooling only unit with a 37 HP supply fan motor. The AHU is required only for space conditioning and operates on a 7:00AM to 9:00PM schedule.

STRATEGIC BUILDING SOLUTIONS, LLC

Proprietary and Confidential
Persistence Strategy

The Town of Glastonbury shall conduct walk-throughs monthly year-round during off-peak hours to verify that the gym and community room lighting fixtures and air handling units are not on when the areas are not being used and that the infra-red motion detectors are operating correctly.
Finding

Verification

of heating within their respective areas.

While in the heating mode, the boiler primary pump operates and the secondary pump provides flow through the pump and regime heat exchanger than to the building's coils. Radiators in the library area are manually closed but alarm signals are provided to FOCUS.

Voluntary and mandatory volumes secondary pumps to operate properly independent of the 4-way valve's position.

The secondary supply temperature is reset based on DH and is controlled by a modulating control that allows secondary pump to operate at the constant volume.

While in the heating mode, the boiler maintains a constant primary temperature. However, the control algorithm for the boiler is adjusted to run as much as possible, allowing the boiler to operate at a constant temperature.

Verification

Strategic Building Solutions, LLC

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Proprietary and Confidential
Persistence Strategy

Program a system trend on the BMS for the following hot water system points: secondary pump status, differential pressure and secondary pump VFD speed. All trended BMS points shall have 60 (MIN) intervals.

Generate an alarm at the BMS if a pump is on and start conditions are not met.

Generate an alarm at the BMS if the secondary differential pressure reads greater than (.25" wc) above the calculated reset control setpoint for more than (60 MIN).

Estimated Annual Total Electric Peak Demand Fossil Fuel Electric Estimated Savings kWh Saving CCF Estimated Savings Annual Estimated Annual Summer Winter

<table>
<thead>
<tr>
<th>ECM #</th>
<th>ECM Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA-10-M-006-010</td>
<td>10/13/2011</td>
</tr>
</tbody>
</table>

Retrocommissioning Plan: Glastonbury Town Buildings

Town of Glastonbury
Retrocommissioning Project: Glastonbury Town Buildings

Implementation and Verification Plan

**Finding**

AHU-1 & -2 are constant volume units serving the second floor stack area of the Welles Turner Library. Each AHU has a 5 HP, 5700 CFM supply fan and a 1.5 HP, 7500 CFM return fan, and 31.5 HP, 2300 CFM make-up air fan. The AHUs return air is mixed in a plenum with the return air from the second floor stack area.

There is one schedule controlling the operation of all HVAC equipment in the library. The schedule operates for 52 hours a week while the library is open. There is also one schedule controlling the operation of all HVAC equipment in the library. The schedule operates for 52 hours a week while the library is open. The schedule is controlled by separate temperature sensors and heating, cooling, and economizing operations are not coordinated.

**Solution**

Install combination temperature and humidity sensors in the return duct and program dual enthalpy comparison economizer controller.

Verify that the schedule matches the building occupancy and enables humidity controls in the return duct and program dual enthalpy comparison economizer controller.

**Payback**

Refer to ECM # WTL-PT-1 for estimated annual electric savings, fossil fuel cost savings, total estimated annual savings, fossil fuel cost savings, annual electric cost savings, and annual fossil fuel cost savings.

**Table**

<table>
<thead>
<tr>
<th>ECM #</th>
<th>Summer</th>
<th>Winter</th>
<th>Total</th>
<th>Estimated Annual</th>
<th>Fossil</th>
<th>Electric</th>
<th>Total</th>
<th>Net</th>
<th>Total</th>
<th>Savings</th>
<th>Savings</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTL-HV-1</td>
<td>Add VFDs and Seasonal Control to AHU-1 &amp; -2</td>
<td></td>
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</tr>
</tbody>
</table>
Program a system trend on the BMS for the following AHU points: supply fan status, supply fan VFD speed, supply fan steady state, supply fan steady state, and current mode of operation. All trended BMS points shall have 60 (min) intervals. Generate an alarm at the BMS if a fan is on and start conditions are not met.

<table>
<thead>
<tr>
<th>Program</th>
<th>ECM Title</th>
<th>ECM #</th>
<th>Estimated Annual Cost</th>
<th>Estimated Annual Savings</th>
<th>Annual Payback Persistence Strategy</th>
</tr>
</thead>
</table>
Pricing proposals shall include line items for:

PD-CH-1 $________________
PD-HV-1 $________________
PD-HV-2 $________________
RCC-HV-1 $________________
RCC-HV-2 $________________
TH-HV-1 $________________
TH-HW-1 $________________
TH-OCC-1 $________________
WTL-DT-1 $________________
WTL-HV-1 $________________

Total $________________ (numeric)
Total $________________ (written)

Additionally, proposals shall include:

a. Hourly labor rates for on-going service work
**CODE OF ETHICS:**
I / We have reviewed a copy of the Town of Glastonbury’s Code of Ethics and agree to submit a Consultant Acknowledgement Form if I / We are selected. Yes _______ No _______ *

*R'respondent is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any proposal where the respondent has not agreed to the above statement.

The Respondent acknowledges receipt of the following Addendums:

<table>
<thead>
<tr>
<th>Addendum #1</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addendum #2</td>
<td>Date:</td>
</tr>
<tr>
<td>Addendum #3</td>
<td>Date:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type or Print Name of Individual</th>
<th>Doing Business as (Trade Name)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature of Individual</td>
<td>Street Address</td>
</tr>
<tr>
<td>Title</td>
<td>City, State, Zip Code</td>
</tr>
<tr>
<td>Date</td>
<td>Telephone Number / Fax Number</td>
</tr>
<tr>
<td>E-Mail Address</td>
<td>SS # or TIN#</td>
</tr>
</tbody>
</table>

(Seal – If proposal is by a Corporation)

Attest
The company submitting this proposal certifies that it is being submitted without any collusion, communication or agreement as to any matter relating to it with any other respondent or competitor. We understand that this proposal must be signed by an authorized agent of our company to constitute a valid proposal.

Date: __________________________

Name of Company: __________________________

Name and Title of Agent: __________________________

By (SIGNATURE): __________________________

Address: __________________________

Telephone Number: __________________________