

# Town of Newtown, CT

3 Primrose Street, Newtown, CT

## THESE MINUTES ARE SUBJECT TO APPROVAL BY THE SUSTAINABLE ENERGY COMMISSION

The Sustainable Energy Commission held a regular meeting Thursday, March 17, 2016 in shared meeting room 3 of the Municipal Center located at 3 Primrose Street, Newtown, CT 06470.

The meeting was called to order by Chairman, Kathy Quinn at 7:04 pm.

**Present:** Chairman, Kathy Quinn, Steve Gogliettino, Mark Sievel, Dave Stout, and Barbara Toomey

**Also Present:** One member of the press.

**Absent:** Joseph Borst, George Brown, Karen Pierce, Fred Hurley

**Communications:** Ms. Quinn went to a Regional Task Force meetings on Feb. 27<sup>th</sup> at the Energy CT Center in North Haven. The CT Green Bank is reviewing how they assign bonus points.

**Public Comments:** none.

**Acceptance of Minutes:** Mr. Sievel made a motion to accept the minutes of the February 18, 2016 meeting minutes. Ms. Toomey seconded. The motion unanimously passed.

### **Business:**

a. **Status of Landfill Solar Projects:** Mr. Hurley attending a hearing in Hartford on virtual net metering. Newtown remains one of the eleven communities waiting for room in the credit queue. Solar City will continue to move forward with preparations for the project. There has been positive news from Hartford regarding the stranded eleven towns.

b. **Energy Savings program update – Vendor Selection**

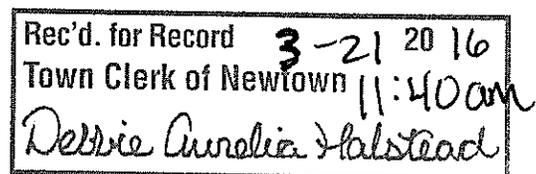
**Municipal Center:** Energy Solutions met relative to the Municipal Center (attached). The insulations around windows need to be redone and information on the lighting will be coming soon.

**Waste Water Treatment Plant:** Nxegen has been to the Waste Water Treatment Plant. There is no preliminary report.

c. **Microgrid feasibility study:** Celtic has preliminary planning for a microgrid at Fairfield Hills (attached).

d. **Street Lighting:** A third vendor has come forward on the street lighting proposal.

e. **Ban on Fracking Waste:** Rob Sibley will look into the best way to address a ban on fracking waste being stored in Newtown.



**Additional Items for discussion:**

1. **EV Charging stations:** Betsy Paynter, Economic Development Coordinator approached Lexington Gardens about having an EV Charging station. They are not opposed to the idea and interested in grants when they become available. Mr. Stout recommends the developer trench, run wire and bury it for now and we will apply for a grant. Ms. Quinn said an additional location to consider is within the upcoming development in Hawleyville; then there would be one at exit 9 and exit 10.
2. **Municipal Energy Plan:** No update.
3. **Portfolio Manager:** No update.
4. **Budget and Grant Spending:** No update.
5. **Web Site:** Ms. Quinn will get information to Mr. Stout for the website.
6. **Outreach to Schools:** Two Newtown High School students received awards for the recycling poster contest.
7. **Bridgeport Eco-Park:** Ms. Quinn and Jeff Leichtman presented to the Economic Development Commission. A greenhouse will be built in Stafford Springs, it will be hydroponic; it will be the first one in CT. It will help supply markets with fresh produce 12 months a year. Bridgeport has a company coming in to process medical waste.
8. **Earth Day:** Earth Day is April 23. Ms. Quinn will have picture boards of solar installations.

Ms. Quinn talked with Kate Donnelly regarding Solarize CT. She will get Ms. Quinn materials and said that she matched us up with a local vendor.

Mr. Stout said that Curtis Packaging is extending the gas line, has new rooftop units, solar, a new compressor and new lighting. They received an award from the Green Bank as one of the most comprehensive package. Ms. Quinn would like to include this in the display for Earth Day. Mr. Stout spoke to Curtis about bringing students in to see the project.

**Adjournment: Ms. Toomey made a motion to adjourn the meeting at 7:47pm. The motion was seconded by Mr. Gogliettino. The motion was carried unanimously.**

The next regular meeting will be held on Thursday, April 21, 2016 at 7:00 pm at the Newtown Municipal Center in Shared Meeting Room 3.

Submitted, Susan Marcinek, clerk

Attachments: Environmental Systems Corporation; Celtic Energy



## INTELLIGENT BUILDING SOLUTIONS

Comprehensive Energy Solutions ■ Building Automation ■ HVAC/Mechanical  
■ Security/Access/CCTV ■ Fire/Life Safety ■ Multimedia Solutions

# ***PRELIMINARY ENERGY EFFICIENCY PROPOSAL***

March 15, 2016

Energy Solutions, LLC  
223 Canal Street  
Shelton, CT 06484

Attn: Mr. Robert Harvey

Ref: **Newtown Municipal Center – 3 Primrose Street, Newtown CT  
Energy Audit**

Dear Bob,

Environmental Systems Corporation (ESC) is pleased to present this ***Preliminary Energy Efficiency Proposal*** to Energy Solutions for the above referenced location. Our findings are based on a ASHRAE Level 1 Energy Audit which was performed during a site visit on Friday February 12, 2016. Below is a summary of our findings.

### **Building Summary:**

The Newtown Municipal Building is approximately 33,000 square feet and was originally built in 1933 and served as a state mental health hospital (Fairfield Hills Hospital) until approximately 1963. In 2004 The Town of Newtown purchased the building and in 2009 it opened as the Newtown Municipal Building. The building has one main floor which houses Town and Board of Education offices, a basement and several attics. The exterior of the building is masonry block and brick construction with an asphalt shingle roof.

### **Hours of Operation:**

The building hours are Monday through Friday from 8:00 AM to 4:30 PM.

### **Utilities:**

Electric is provided by Eversource (formerly CL&P) and there is one electric meter and natural gas is also provided by Eversource (formerly Yankee Gas) and there is one natural gas meter.

## **HVAC System:**

The Heating, Ventilation and Air Conditioning System consists of the following:

- 1) Heating Hot Water System— Heating is done through a boiler plant located in the basement consisting of two Lochinvar copper fin type gas-fired hot water boilers each rated at 831 MBH and originally 85% efficient. The heating hot water system is piped in a primary / secondary arrangement. There are four hot water pumps; two pumps are in-line and serve as primary boiler pumps (one dedicated per boiler) and the other two base mounted secondary variable speed pumps circulate heating hot water to the various air handling unit hot water coils, cabinet unit heaters, unit heaters, VAV box hot water reheat coils and perimeter baseboard radiation.
- 2) Air Handling Units – There are three Carrier split system variable air volume air handling units (AHU's) each with a dedicated outside condensing unit providing a total of 115 tons of cooling. There is one AHU located in each of the three attics and the AHU's provide conditioned air to their associated variable air volume boxes (VAV) that provide the zone control. Each AHU consist of a supply air fan with VFD, return air fan with VFD, DX (direct expansion) cooling coil, hot water reheat coil and airside economizer. Static pressure is controlled by variable frequency drives (VFD). The economizer control uses outside air enthalpy.
- 3) Terminal Units – There are several types of variable air volume (VAV) boxes that provide the zone control:
  - a. Cooling Only VAV Box (Qty. 8)
  - b. VAV Box with Hot Water Reheat (Qty. 2)
  - c. VAV Box with Perimeter Baseboard Radiation (Qty. 20)

The VAV boxes are associated with the air handling units as follows:

- ❖ AHU-1 / (10) VAV Boxes
- ❖ AHU-2 / (12) VAV Boxes
- ❖ AHU-3 / (8) VAV Boxes

There are unit heaters and cabinet unit heaters that provide additional heat to utility areas and

- 4) Exhaust Fans – There are eight exhaust fans; two for toilet exhaust, one to exhaust air from the trash room and five that provide ventilation to the three attics.
- 5) Miscellaneous HVAC Equipment – There are several cabinet unit heaters, unit heaters and fin tube radiation zones that all use heating hot water from the boiler plant.
- 6) Domestic Hot Water – There are two electric hot water heaters that produce domestic hot water.

- 7) Energy Management System (EMS) – The EMS is a Alerton system based on the BACnet protocol. The EMS provides Direct Digital Control of the HVAC system and consists of the following components:
- Workstation (computer) which has graphics for each system and serves as the user interface.
  - Network Controller and BACnet Network – Allows for communications to each controller.
  - Programmable Field Controllers – Controllers with inputs and outputs that control and monitor each piece of HVAC equipment and the mechanical systems.
  - Field Devices – All of the temperature and humidity sensors, relays, damper actuators, control valves, etc...
- 8) Lighting – Most of the interior office spaces use T5 compact fluorescent lamps. Some non-office areas such as the attics and restrooms use T8 fluorescent lamps. The exterior fixtures do utilize some LED technology.

**HVAC Equipment Schedules:**

Boiler Schedule:

Boiler Tag	Manufacturer	Type	Capacity (MBH)
B-1	Lochinvar	Gas Fired Hot Water Boiler	831
B-2	Lochinvar	Gas Fired Hot Water Boiler	831

Hot Water Pump Schedule:

Pump Tag	Serves	Manufacturer	Type	Motor HP	Pump GPM
P-1	B-1 Primary Hot Water	Bell & Gossett	In-Line		55.0
P-2	B-2 Primary Hot Water	Bell & Gossett	In-Line		55.0
P-3	Secondary Hot Water	Bell & Gossett	Base Mount	7.5	160.0
P-4	Secondary Hot Water	Bell & Gossett	Base Mount	7.5	160.0
P-5	AHU-1 HW Coil Freeze	Bell & Gossett	In-Line	0.5	27.0
P-6	AHU-2 HW Coil Freeze	Bell & Gossett	In-Line	0.75	36.0
P-7	AHU-3 HW Coil Freeze	Bell & Gossett	In-Line		22.0

VAV Air Handling Unit Schedule:

AHU Tag	Manufacturer	Model	Type	CFM	S/Fan HP	Cooling Tons
AHU-1	Carrier	39MN25	VAV Central Station Air Handling Unit	12,325		25
AHU-2	Carrier	39MN30	VAV Central Station Air Handling Unit	14,425		30
AHU-3	Carrier	39MN21	VAV Central Station Air Handling Unit	9,750		21

Air-Cooled Condensing Unit Schedule:

CU Tag	Manufacturer	Model	Type	Tons
CU-1	Carrier	38AH-044	R-22 Air-Cooled Condensing Unit	40
CU-2	Carrier	38AH-054	R-22 Air-Cooled Condensing Unit	50
CU-3	Carrier	38AH-034	R-22 Air-Cooled Condensing Unit	30

Terminal Unit Schedule:

Terminal Unit Type	Manufacturer	Model	Type
VAV Cooling Only	Titus	DESV	Single Duct Terminal Unit
VAV with Hot Water Reheat	Titus	DESV	Single Duct Terminal Unit
VAV with Hot Water Perimeter Radiation	Titus	DESV	Single Duct Terminal Unit

Exhaust Fan Schedule:

Fan Tag	Serves	Motor HP	CFM
EF-1	Toilets	0.25	600
EF-2	Toilets	0.33	600
EF-3	Trash Room	0.25	275
EF-4	Attic Ventilation	0.25	2500
EF-5	Attic Ventilation	0.5	3000
EF-6	Attic Ventilation	0.5	3000
EF-7	Attic Ventilation	0.5	3000
EF-8	Attic Ventilation	0.5	3000

Domestic Hot Water Heater Schedule:

Heater Tag	Manufacturer	kW	Gallons
EWH-1	Bradford White	6.0	30
EWH-2	Bradford White	6.0	40

Potential Energy Conservation Measures:

ECM No.	ECM Description
ECM-1	EMS Improvements
ECM-2	Computer Power Management
ECM-3	Vending Machine Controls
ECM-4	Weatherization
ECM-5	LED Lighting Upgrades

low value  
-  
caulk windows

ECM-1: EMS Improvements

This measure would provide a software upgrade to the EMS and add the necessary hardware to make it web-based. Existing air handling unit time schedules would be adjusted to the present building hours, implement optimal start and re-commission the existing programs to ensure they are operating correctly. Check and calibrate if necessary existing temperature and humidity sensors and verify all end devices work properly.

### ECM-2: Computer Power Management

A typical desktop computer may use up to 100 watts. This measure would install devices that automatically place desktop computers into a "sleep mode" after a period of inactivity.

### ECM-3: Vending Machine Occupancy Controls (VMOC)

Install a vending machine control that utilizes a passive infrared sensor to detect occupancy. When the sensor detects that there is no occupancy the vending machine will be powered down so the refrigeration will not run in turn reducing power consumption. Once the machine is powered down the VMOC will monitor the room temperature and the machine will be re-power every one to three hours to maintain product temperature control. This would not apply to any machines that have perishable products.

### ECM-4 Weatherization

A further onsite survey and study would need to be conducted to see if there are any weatherization opportunities which could include the following:

- ❖ Insulation of soffits or overhangs
- ❖ Sealing if cracks to prevent air leaks
- ❖ Weather stripping on doors

### ECM-5 LED Lighting Upgrades

Provided in Energy Solutions proposal.

### Operations and Maintenance Issues:

1. Presently the air conditioning equipment (air handling units and air-cooled condensing units) use refrigerant R-22. R-22 has been phased out by the Federal EPA because it contains HCFC which has been linked to environmental concerns. Typically, the condensing units have an average life expectancy of 20 years. There are several options to retrofit the existing air handling units so the cooling coil would work with a newer refrigerant such as R-410A.
2. An HVAC issue was brought to our attention regarding the Registrar's Office. There seems to be some temperature control issues with the Registrar's Office and the Tax Office which is next to it. Both offices share zone control from one VAV box. The Registrar's Office is typically open on Tuesday, Wednesday and Thursday from 8:00 to 12:00. We would suggest one of two, options to deal with this issue:
  - a. Option No. 1 would be to split the two offices and keep the existing VAV box for the Tax Office and re-balance it. The Registrar's Office would get a new smaller appropriately sized VAV box dedicated to that space.
  - b. Option No. 2 would still split the two spaces and keep the existing VAV for the Tax Office and re-balance it and then add an appropriately sized ductless split system dedicated to the Registrar's Office.

**Financial Summary:**

*Pending*

Thank you for the opportunity to present this proposal, we look forward to working with the Energy Solutions on this project. Please let me know if you have any questions or concerns regarding this proposal.

Sincerely,

Environmental Systems Corporation (ESC)

Kenny Wallach

Kenny Wallach  
Energy Division Project Development

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November 19, 2015

Frederick Hurley Jr.  
Public Works Director  
Town of Newtown  
4 Turkey Hill Road  
Newtown, CT 06470

**RE: Proposal for preliminary planning for a Fairfield Hills microgrid feasibility study**

Dear Fred,

Thanks to you and Kathy for spending time with us to discuss your ideas for the potential Fairfield Hills microgrid (MG). Pursuant to the blanket services agreements between Celtic Energy (CEI) and the Town of Newtown (the Town), executed on August 17, 2015, CEI proposes to perform preliminary planning for a MG feasibility study scope of work (SOW) and high-level opportunity assessment as set forth in the Scope of Services on a flat fee basis, shown below.

#### **Scope of Services**

This proposed preliminary plan for a MG feasibility assessment study and opportunity evaluation project has the primary objectives of assessing potential MG project opportunities, conceptual design and procurement options, and identifying the scope of work for further study of MG options for the Town's consideration. Initial discussions suggest that viable options exist to retrofit existing facilities with distributed energy resources, and to develop and/or modify electrical distribution infrastructure, to enable grid-independent MG operation and facility energy surety.

CEI proposes to conduct an initial scoping study for a subsequent MG feasibility assessment on a flat fee basis plus expenses. CEI will develop a scope of work for analysis of MG development potential, with very high-level comparative analysis of the relative technical and cost/benefit implications of primary MG options, and procurement and financing "business models" for MG configurations and strategies. This will not include cost/benefit analysis or estimated costs and savings except at a very general level. This process will enable the Town to assess its options at a high level, and identify preferred strategies for deeper analysis in a subsequent task order. We will work closely with the Town and provide biweekly progress reports. Our scope assumes the Town will provide facility data and other related information in a prompt and thorough manner. We will leverage the information provided to the Town by the facility audit process recently conducted by an ESCO, which we already can access.

The elements to be included in this Task Order are as follows:

1. Identify critical facilities to be included in Fairfield Hills MG feasibility analysis.



Celtic Energy Inc. • 437 Naubuc Avenue, Ste. 106 • Glastonbury, CT 06033 • 860.882.1515 •  
[www.celticenergy.com](http://www.celticenergy.com)



2. Analyze buildings' electricity and natural gas usage data provided by the Town.
3. Consider potential distributed energy resources and generation options including cogeneration, solar, storage, backup fossil generators, and load reduction.
4. Describe conceptual design options for potential MG energy systems and infrastructure.
5. Describe procurement business model options, financing strategies and potential sources of capital and operating support, e.g., DEEP MG grant, C-PACE, utility incentives, etc.
6. Meet and communicate with Town and project stakeholders, to a maximum of three visits (including multiple meetings per visit) including summary presentation.
7. Prepare and present summary report of initial findings deliverable, with 1-2 page executive summary and roughly 10 pages of report and attachments.

**Fee Schedule (confidential and proprietary)**

\$5,000

For the task elements shown in the Scope of Work CEI shall be compensated on a flat fee basis of ~~\$7,500~~ for engineering consulting services as requested by the Town, plus expenses (primarily mileage at the IRS standard rate). The cost of any materials specifically required to complete our work would be passed through to the Town. Consulting fees shall be billed monthly, based upon per cent complete tasks, and will be due within 30 days.

We look forward to providing these services to the Town. Please contact me with questions or comments. If this proposal meets your requirements as described herein, please have an authorized representative of the Town accept the terms by signing below, converting this proposal into an authorized Task Order. Or if the Town prefers, you may issue us your own Purchase Order referencing the terms of this proposal.

Thank you and the rest of the Town team for selecting CEI, and we will work very hard to exceed your expectations!

Best Regards,

*Walt Donzila*

Walt Donzila, C.E.M, C.P.C.  
Director of Business Development

CC: Kathy Quinn  
Chris Halpin  
Jim Pagliaro  
Dawn Rausch