



Amesbury

Mayor C. Kenneth Gray
City Hall, 62 Friend Street
Amesbury, MA 01913-2884

(978) 388-8121
Fax: (978) 388-6727
mayor@amesburyma.gov

May 5, 2014

Joseph W. McMilleon
Council President – District 5
City Clerk - City Hall
62 Friend Street
City of Amesbury, Mass 01913

Dear Council President McMilleon;

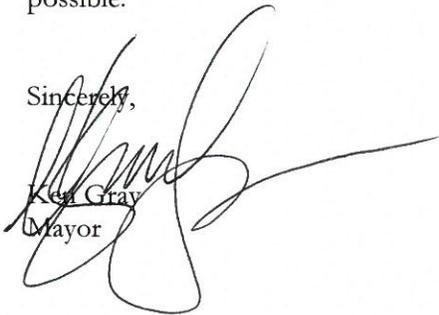
I respectfully submit for Council consideration the attached report titled; "*Amesbury Energy Projects 2014.*" The document, outlines the City's first DOER Designation Grant application and other key funding sources for 2014. The program outlined in the report focuses on comprehensive list of projects within the public domain to demonstrate we are dedicated to energy programs. The list of programs are briefly outlined by the attached letter from William Scott, Deputy Director of Community and Economic Development.

The report includes an Order requesting the receipt of these funds so we may proceed with execution of these programs.

The budget employs multiple funding sources to maximize the City's leverage of other funds while obtaining a broad range of benefits. The short and long term approaches outlined by this program will set the stage for a successful future focused on energy management and the resulting environmental benefits and costs savings to Amesbury taxpayers.

As always, I look forward to an informed process where we work in unison to reach the best outcome possible.

Sincerely,

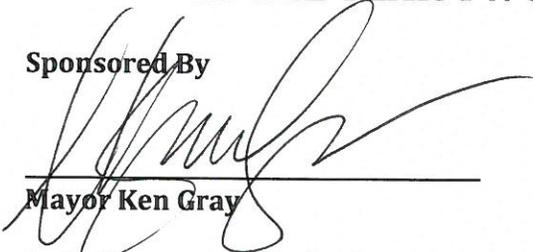

Ken Gray
Mayor



**CITY OF AMESBURY
IN THE YEAR TWO THOUSAND FOURTEEN**

Sponsored By

Bill No. _____



Mayor Ken Gray

An Order to request the City Council vote receive grant funds from the following sources in the following amounts:

Source	Amount	Purpose
DOER	\$173,775	Green Communities Designation Grant
DEP	\$17,500	Electric Vehicle and Charging Station
DOER	\$25,000	Energy Manager Position
DOER	\$12,500	Owners Agent Grant
Total	\$228,775	Mass Office of Energy and Env. Affairs

Further the City Council is requested to act to amend the unspent appropriation of \$20,000 originally for the purpose of the Owners Agent Grant for the Titcomb Landfill, to allow the appropriation to be used to as match for the above referenced programs, principally the Energy Manager position, as outlined in the report titled City of Amesbury Energy projects 2014. The Owners Agent project program will continue with match from DOER at a reduced cost.

Summary: Since January the City has sought every possible energy funding opportunity that will publicly demonstrate a strong sense of commitment by the City to the Green Communities program. This Order is based on the attached report titled: "City of Amesbury Energy Projects 2014" which outlines the grant applications for a variety of programs. The contracts for the programs are in process and should be available by the next Council meeting on June 10, the letters of award, and or contract sent, are included in the attached report.

Be it Ordained by the City Council of the City of Amesbury assembled and by the authority of the same name as follows: that the Amesbury City Council accept funds in the total amount of \$228,775 from the Massachusetts Office of Energy and Environmental Affairs, concerning projects related to the Green Communities and energy programs as outlined in the report titled "City of Amesbury Energy Projects 2014" and hereby authorizes the Mayor to contract for and expend any Federal or State Aid available for the projects, and the Mayor is authorized to take any other action necessary to carry out the referenced projects. Further the City Council hereby votes to amend the unspent appropriation of \$20,000 originally for the purpose of the Owners Agent Grant for the Titcomb Landfill, to allow the appropriation to be used to as match for the above referenced programs, principally the Energy Manager position, as outlined in the report titled City of Amesbury Energy projects 2014.

May _____, 2014



Amesbury

William Scott
Deputy Director Office of Community Development
City Hall, 62 Friend Street
Amesbury, MA 01913-2884

(978) 388-8110 - 313
scottw@amesburyma.gov

May 5, 2014

Mayor Ken Gray
City Hall
City of Amesbury
62 Friend Street
Amesbury Massachusetts 01913

Dear Mayor Gray,

The attached report titled; "*Amesbury Energy Projects 2014*," is a synopsis of the energy programs grants obtained for 2014 through multiple funding sources. Over the past few months we have been coordinating a comprehensive list of programs with opportunities provided through DOER, DEP and NGRID. The programs with DOER are currently nearing a completion of the review and have been through several iterations with the help of DOER staff.

The projects outlined in the report include the following:

1. The conversion of the 140 downtown period lights to LED
2. The replacement of door seals at various public buildings.
3. The conversion of outdoor lighting for school to LED.
4. A study of the Middle school HVAC system.
5. The purchase and installation of two solar powered trash compactors.
6. The purchase of a fully electric vehicle to replace the current water meter reading van.
7. The purchase and installation of two electric vehicle charging stations in the downtown parking garage.
8. The hiring of a consultant to serve as an Owners Agent for the Titcomb landfill solar project.
9. The hiring of a part-time energy manager.

This transmittal includes the report with an order to request authorization to accept the grant funding.

Sincerely,


William J. Scott



City of Amesbury Energy Projects - 2014

*Setting the foundation for
responsible energy management*

May 5, 2014

Mayor Ken Gray

William Scott
Deputy Director Community Development



Introduction Purpose of First Year Funds

The City of Amesbury appreciates its new status as a Green Community. Our approach to this effort is to create a strong commitment to the Green Community brand by using the initial allocation of funding for obvious public implementation projects, combining those efforts with education, establishing plans for next steps, and staffing the effort toward creating a permanence. The selection of projects is based on a desire to create initial success and support from the community while providing concrete everyday examples of conservation that a broad spectrum of the Amesbury community will encounter.

Objectives First Year Projects

The objectives for this first project series is as follows:

- ◆ Focus on new technologies to demonstrate the City's commitment to innovation with cost effective outcomes.
- ◆ Provide everyday examples that are obvious, within the public domain, and across multiple venues.
- ◆ Keep the implementation simple and straightforward to demonstrate that energy efficiency is not complex.
- ◆ The first year projects should provide rapid solutions and long term plans to show that conservation is a combination of positive implementation and longer term planning.
- ◆ Establish staffing and leadership to guide planning and implementation.

General Program Description

The spreadsheet on the next page indicates the projects planned for the first year. The projects result from both the energy reduction plan and coordination with department heads. Each of the projects outlined in the spreadsheet are described in more detail using excerpts from the applicable grants applications. The City of Amesbury Energy Reduction Plan outlines an ambitious five year approach to achieve the goal of 20% baseline energy reduction. Five-years is not a long time. The items within the plan require support by the general public to move forward. The goal becomes more difficult as budgets and priorities compete for resources to reach the goal. The City of Amesbury approach, for the first year, will create a clear pattern of success in a manner that places energy conservation and reduction in the public eye, everyday. The first year is the means to expand the Green Communities brand with meaningful cost conscious, commonsense approaches. Therefore we have chosen the following projects that move us toward the goal while providing a visible and viable set of results. The downtown period lighting will now be the beacon of energy conservation and innovation. Two public spaces, outfitted with solar compactors, will deliver the message of conservation and recycling. The common-sense approach of updating exterior lighting at the schools and replacing worn door seals will show that simple steps can create results. Moving forward the Middle School project will set the stage for informed decisions regarding larger scope projects and blend immediate results with long term planning. The Energy Manager position will facilitate implementation of these programs, a continued focus on energy and costs savings. Further we intend to create a local Green Communities website, and a community survey to set the stage for the community needs and participation associated with residential energy programs. Throughout this first year and into the future we will connect to education and marketing of the Green Communities program. At each improvement location we will erect small placards explaining the project, its outcome, and the technology, with a QR codes linked to a City Green Communities Web-page. These programs will be lead by a rejuvenated team of Energy Committee members looking forward to a stronger role in programmatic development and implementation. The legacy of the City of Amesbury is a manufacturing community that continues to be an innovator. The community that produced one of the first electric cars, and once was a leading manufacturer of carriages and auto bodies, will be the community that delivers on the Green Communities mission with the same innovation and commitment.

Amesbury Energy Projects Funding Sources and Uses

Project #	Capital Projects Project	Total	New Funds		DOER Designation Grant	DEP Vehicle/Station Grant	DOER Manager Grant	NGRID Incentive	Owners Agent Funding	Former Funds for Owners Agent
			City	Water						
1	Downtown Period Lights LED	\$ 82,000.00			\$ 54,000.00			\$ 28,000.00		
2	2 Solar Compactors	\$ 13,000.00	\$ 3,000.00		\$ 10,000.00					
3	Middle Sch HVAC Analysis	\$ 20,000.00			\$ 20,000.00					
4	Outside Lighting Schools	\$ 28,000.00			\$ 19,750.00			\$ 8,250.00		
5	Schools, Municipal Bldgs. Door Seals	\$ 26,500.00			\$ 26,500.00					
6	Ford Focus EV & Charging Station	\$ 50,500.00		\$14,250.00	\$ 17,000.00	\$17,500.00				\$ 1,750.00
7	Owners Agent Landfill Project	\$ 20,000.00			\$ 6,000.00			\$12,500.00		\$ 1,500.00
Capital Projects Total		\$ 240,000.00	\$ 3,000.00	\$14,250.00	\$ 153,250.00	\$ 17,500.00	\$ -	\$ 36,250.00	\$ 12,500.00	\$ 3,250.00
Funds by Source Capital Projects										
	City Funds	\$ 17,250.00	\$ 3,000.00	\$14,250.00						
	City Funds Prior Authorization	\$ 3,250.00							\$12,500.00	\$ 3,250.00
	State Funds	\$ 183,250.00			\$ 153,250.00	\$ 17,500.00		\$ 36,250.00		
	NGRID	\$ 36,250.00								
Capital Projects Total		\$ 240,000.00	\$ 3,000.00	\$14,250.00	\$ 153,250.00	\$ 17,500.00	\$ -	\$ 36,250.00	\$ 12,500.00	\$ 3,250.00
Staffing Funding										
8.1	20 Hr Energy Manager Year 1	\$ 29,300.00					\$25,000.00			\$ 4,300.00
8.2	20 Hr Energy Manager Year 2	\$ 29,950.00					\$17,500.00			\$ 12,450.00
Staffing Funds Totals		\$ 59,250.00					\$42,500.00			\$ 16,750.00
Capital and Staffing Totals		\$ 299,250.00	\$ 3,000.00	\$14,250.00	\$ 153,250.00	\$ 17,500.00	\$42,500.00	\$ 36,250.00	\$ 12,500.00	\$ 20,000.00
Funds by Source Capital and Staffing Projects										
	City Funds	\$ 17,250.00	\$ 3,000.00	\$14,250.00						
	City Funds Prior Authorization	\$ 20,000.00							\$12,500.00	\$ 20,000.00
	State Funds	\$ 225,750.00			\$ 153,250.00	\$ 17,500.00	\$42,500.00	\$ 36,250.00		
	NGRID	\$ 36,250.00								
Capital and Staffing Totals		\$ 299,250.00	\$ 3,000.00	\$14,250.00	\$ 153,250.00	\$ 17,500.00	\$42,500.00	\$ 36,250.00	\$ 12,500.00	\$ 20,000.00

City of Amesbury - Green Communities Grant Application

Winter 2014 Round - Designation Grant



Project 1

Downtown Period Lighting Retrofit

- ⇒ **Purpose:** The project will retrofit with LED technology for 140 downtown period lights toward providing an energy reduction as demonstrated below. This project demonstrates to the general public the benefits of the program in an obvious downtown location. When compared to the current bulb technology in the period street lighting the LED technology, with a 11 plus year life span, creates an additional savings by reducing the replacement frequency and resulting personnel costs. This is part of the initial year strategy to show energy efficiency and cost conscious approaches through durable technologies with a straightforward approach. The simple to implement results oriented approach will gain the public trust for future more complex projects.
- ⇒ **Timeline - Complete by November 2014:** The project will begin the procurement process within the month of May, complete procurement by the end of June, establish contracts for purchase and installation by the end of July, and complete the installation by November 2014. The City has already completed initial research to develop the specifications for the project.
- ⇒ **Procurement status:** The project will follow the approach as outlined by the LED Street Lighting Program document created by the Metropolitan Area Planning Council December 27, 2012. Link: [LED Specs MAPC](#). After creating the scope of work we will employ the [State Bid list Contract FAC76](#) under category 6 LED Street lighting through the Comm-Pass and Comm-Buys websites for vendors and products.
- ⇒ **Anticipated impact:** The impact will be a definitive public display of the energy efficiency program, improved lighting and a savings per year as shown in the tables subsequent pages titled Downtown Lighting.
- ⇒ **Supports Five year Plan and Green Communities Criteria :** The project is included within the City of Amesbury Five Year Energy Reduction Plan as follows from page 6 of the plan:

There are 1,433 streetlights in Amesbury. 133 (actually 140) of these streetlights, in the Downtown area, are already owned by the City. 1,300 streetlight are still owned by National Grid and will be purchased by the City for ultimate conversion to LED. There are also 5 individual traffic signals under City control, all of which have already been converted to LED technology.

- ⇒ **PERIOD LIGHTING ONLY:** The Period Lighting project will address **only the downtown lights**. The **Energy Reduction Plan does not provide an accurate count of the Period lights, there are 140 period lights** in the downtown, not 133. The analysis for this item will be based on the **impact on the Period lighting and not the entire street light inventory**. The assessment by the ERP provided information on energy impacts for the entire street light inventory regardless of the type. Therefore the more detailed analysis on the next pages **provides information for the Period Lighting only and should not be compared to the ERP** which assesses the entire inventory regardless of ownership or type.



Project 1: Downtown Lighting



LED System Proposal

City of Amesbury



Thank you for the opportunity to present the following LED technology proposal. This mercury free system is tested and proven in many demanding field applications. These LED retrofit systems are designed for maximum long term performance, low cost operation, and ease of installation, and are backed by OSRAM SYLVANIA's industry leading warranty. The below numbers are based on your specific system and actual measurements taken from similar installations.

Average Monthly Energy, Labor, & Material Savings: \$2,208

Lifetime Energy, Labor & Material Savings: \$315,350

Environmental Savings:

Total pounds of CO2	1,665,475
Total pounds of NOX	2,282
Total pounds of SO2	5,898
Total pounds of PM10	137
Total pounds of PM2.5	78
Total pounds of VOC	34
Total pounds of CO	269

Total Equivalent Cars Taken Off the Road for 10 Years: 9

Proposed System Includes: 140 Retrofit Kits (see summary for details)
Projected LED Life: 11.9 Years
Energy Savings: 73.8% Reduction
Return on Investment (ROI): 309.5%

I am pleased to present this proposal. With over 100 years of experience in lighting, over 30 years as a world leader in LED technology, and the resources to support you before, during, and after the sale, you can purchase this technology with confidence.

Thank you for your careful consideration.

Sincerely,

John E. Rogalski
OSRAM SYLVANIA

0

LED Case Sign Kit Payback and Savings Summary

Savings Results of Customer System

Customer: **City of Amesbury**

System Includes:

<u>Unit Qty</u>	<u>Description</u>	<u>Payback (years)</u>	<u>System Life (years)</u>	<u>Cost Each</u>
140	LED Post Top Retrofit	2.9	11.9	\$550

Total System Savings (over LED life): **\$315,350**

Energy Savings Only:

Monthly:	\$1,139.25
Annually:	\$13,671.00

Cost of Delaying Change (Potential Losses):

Energy, Labor & Material Loss:	
Monthly	\$6,622.35
Annually	\$79,468.20

Environmental Savings of Above Listed System:

Over Life of Product, assuming coal electrical generation

Total kWh Saved: **1,085,000**

Protects Environment From:

Total pounds of CO2	1,665,475
Total pounds of NOX	2,282
Total pounds of SO2	5,898
Total pounds of PM10	137
Total pounds of PM2.5	78
Total pounds of VOC	34
Total pounds of CO	269
Total pounds of Mercury	0
Total number of Equivalent Cars Taken Off the Road for 10 Years:	9

Financing Option - Convert 100% to LED, Minimal Monthly Cost, Protect the Environment

Through Siemen's Financial* - 72 Months

Total Monthly Savings:	\$2,208.33
Monthly Payment:	\$1,155.00
Net Monthly Cashflow:	\$1,053.33

*Requires credit approval

Total Cost of Operation - Current vs LED Retrofit

City of Amesbury



INPUTS:			
Cost per kWh:	\$0.1500		
Operating Hours per Year:	4,200		4,200
Number of Fixtures/Retrofits:	140		
		Current	LED Solution
Model:	175MH		55 watt D-6
Lamps per Fixture:	1		1
Lamp Wattage:	175		55
System Wattage:	210		55
Lamp Life:	10,000		50,000
Cost per Lamp:	\$20.00		\$550.00
Ballast Life:	50,000		N/A
Cost per Ballast:	\$90.00		N/A
Relamp Service Cost:	\$150.00		

RESULTS: (cost of LED system not factored in)			
Average Years Between Relamps:	2.4		11.9
Annual Energy Used kWh:	123,480		32,340
Annual Energy Savings:			\$13,671.00
Annual Service Cost Savings:			\$8,820.00
Average Annual Material Savings:			\$3,998.40
Annual Energy, Labor & Material Savings:			\$26,489.40
Total Savings over LED System Life:			\$315,350.00
			91,140 savings kWh

RESULTS - (with LED system cost factored in):			
Total Energy Cost:	\$220,500.00		\$57,750.00
Total Lamp and Ballast Cost:	\$26,600.00		\$77,000.00
Total Service Cost:	\$105,000.00		\$0.00
Total Cost of Operation	\$352,100.00		\$134,750.00
Payback in Years (w/ Labor & Material Savings):			2.9
Return on Investment (ROI):			309.5%
Annual Cost of Operation Per Unit After Payback:			\$34.65

Environmental Savings:			
Over Life of Product, assuming coal electrical generation			
Total kWh Saved	1,085,000		
Total pounds of CO2			1,665,475
Total pounds of NOX			2,282
Total pounds of SO2			5,898
Total pounds of PM10			137
Total pounds of PM2.5			78
Total pounds of VOC			34
Total pounds of CO			269
Total pounds of Mercury			0.052
Total number of Equivalent Cars Taken Off the Road for 10 Years:			9.4

Total Cost of Operation - Current vs LED Retrofit

City of Amesbury



INPUTS:			
Cost per kWh:	\$0.1500		
Operating Hours per Year:	4,200		4,200
Number of Fixtures/Retrofits:	140		
		Current	LED Solution
Model:	175MH		55 watt D-6
Lamps per Fixture:	1		1
Lamp Wattage:	175		55
System Wattage:	210		55
Lamp Life:	10,000		50,000
Cost per Lamp:	\$20.00		\$550.00
Ballast Life:	50,000		N/A
Cost per Ballast:	\$90.00		N/A
Relamp Service Cost:	\$150.00		

RESULTS: (cost of LED system not factored in)			
Average Years Between Relamps:	2.4		11.9
Annual Energy Used kWh:	123,480		32,340
Annual Energy Savings:			\$13,671.00
Annual Service Cost Savings:			\$8,820.00
Average Annual Material Savings:			\$3,998.40
Annual Energy, Labor & Material Savings:			\$26,489.40
Total Savings over LED System Life:			\$315,350.00
			91,140 savings kWh

RESULTS - (with LED system cost factored in):			
Total Energy Cost:	\$220,500.00		\$57,750.00
Total Lamp and Ballast Cost:	\$26,600.00		\$77,000.00
Total Service Cost:	\$105,000.00		\$0.00
Total Cost of Operation	\$352,100.00		\$134,750.00
Payback in Years (w/ Labor & Material Savings):			2.9
Return on Investment (ROI):			309.5%
Annual Cost of Operation Per Unit After Payback:			\$34.65

Environmental Savings:			
Over Life of Product, assuming coal electrical generation			
Total kWh Saved	1,085,000		
Total pounds of CO2			1,665,475
Total pounds of NOX			2,282
Total pounds of SO2			5,898
Total pounds of PM10			137
Total pounds of PM2.5			78
Total pounds of VOC			34
Total pounds of CO			269
Total pounds of Mercury			0.052
Total number of Equivalent Cars Taken Off the Road for 10 Years:			9.4

Project 1 - PERIOD LIGHTING ONLY PROJECT

The below table outlines only the Period Lighting and is not from the ERP. The number shown for savings are calculated from the material on the prior pages as follows:

- ◆ 1,085,000 kWh saved over life of product
- ◆ Divided by 11.9 years which is the life of product
- ◆ = 91,176.47 kWh Annual Savings
- ◆ Project cost: \$77,000 materials + \$5,000 installation = \$82,000

Category/Building	Energy Conservation Measure	Status (Completed with month/year or planned Qtr/year)	Projected Annual Electricity Savings (kWh)	Projected Annual Natural Gas Savings (therms)	Projected Annual Oil Savings (gallons)	Projected Annual Propane Savings (gallons)	Projected Annual Gasoline Savings (gallons)	Projected Annual Diesel Savings (gallons)
<i>Period Streetlights</i>	<i>Conversion to LED</i>		91,176.47					
PERIOD LIGHTS SUBTOTAL			91,176.47	0	0	0	0	0

Table 4 Energy Conservation Measure Data Total Street Lights

The below table is from the ERP and represents the entire street light inventory. Do not use this data to compare to the Period Lighting Only project above. This table is only provided to show what is in the Energy Reduction Plan.

Category/Building	Energy Conservation Measure	Status (Completed with month/year or planned Qtr/year)	Projected Annual Electricity Savings (kWh)	Projected Annual Natural Gas Savings (therms)	Projected Annual Oil Savings (gallons)	Projected Annual Propane Savings (gallons)	Projected Annual Gasoline Savings (gallons)	Projected Annual Diesel Savings (gallons)
<i>Streetlights</i>	<i>Conversion to LED</i>		322,392					
STREET AND TRAFFIC LIGHTS SUBTOTAL			322,392	0	0	0	0	0



Project 2

Solar Compactors

- ⇒ **Purpose:** The project will replace two existing trash receptacles at key public locations to increase the capability of recycling efforts, reduce the fuel use associated with the visits to trash receptacles sites, reduce manpower requirements, and increase the knowledge of energy efficiency by installing the technology in a public place.
- ⇒ **Timeline - Complete by November 2014:** The project will begin the procurement process within the month of May, complete procurement by the end of June, establish contracts for purchase and installation by the end of July, and complete the installation by September 2014. Because the technology represents a product installation the bidding will be a vendor based approach with installation included in the procurement.
- ⇒ **Procurement status:** The project has completed initial research and will use the [State Bid Contract FAC 61](#) (see [Contract FAC 61 attachment 7](#)) MA State Contract for Recycling Containers and Compost Bins – Contract # FAC61 - Pricing Through 9/30/2014 through the Comm-Pass and Comm-Buys websites for vendors and products already bid.
- ⇒ **Anticipated impact:** The project will result in a reduction in fuel use associated with Public Works vehicles traveling to each of the waste receptacle sites. The disbursement of the compactors will include one downtown and one park location.
- ⇒ **Supports Five year Plan and Green Communities Criteria :** While this project is not directly articulated in the City Plan the intended outcome meets the intent of the document by reducing energy costs while providing a public display of the City’s commitment to the environment.

From BigBelly Solar Website
BigBelly.com

Turn a liability into an asset — instead of viewing trash cans as a necessary evil, BigBelly waste & recycling stations are a platform to communicate with your constituents about your environmental programs. Customizing stations with wraps and/or message panels provides a unique branding opportunity for your sustainability initiatives, and the highly visible recycling offerings and eye-level solar provides the perfect opportunity for community engagement.

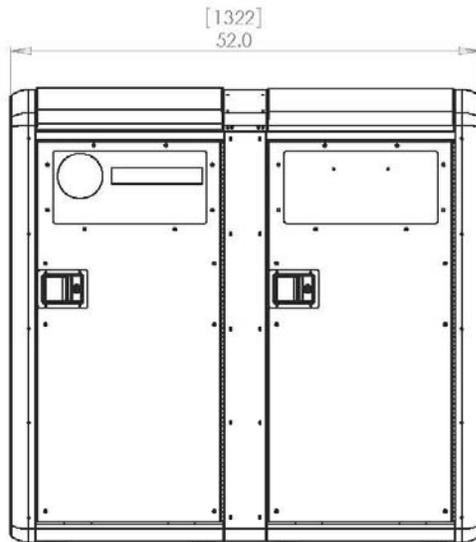
Figuring out whether or not a particular trash can needs to be emptied used to be a guessing game: do you over-collect to ensure there are no overflows or do you roll the dice and hope it can make it another day?

But we offer a better solution for this age-old conundrum with its intelligent waste & recycling collection system. SmartBelly components let customers use real-time data to drive their operational decisions – from any computer or smartphone you can see your entire portfolio of waste & recycling stations and determine if you need to collect some or any of them.

This knowledge empowers just-in-time collection, saving organizations time and fuel while ensuring there are no overflow issues in the field.



BigBelly Solar Intelligent Waste & Recycling Collection System



SmartBelly Technical Specs

Overall Machine Dimensions

Height: 50.4" (1281mm)

Width: 26.5 (672mm)

Depth: 26.0" (660mm)

Weight: 170 lbs (77 kg)

Bin Volume: 50 gallons (227 L)

Liner Bag: at least 48" (122cm) H, 47" (119cm) W
recommended thickness at least 2 mil (50 mic)

Materials

RoHS compliant

Galvanized sheet metal steel interior and exterior
construction (recycled content)

Heavy duty plastic side panels for dent and scratch
resistance (recycled content)

Exterior Finish: polyester TGIC powder-coat finish for
outdoor and salt-spray durability

Interior Bin: single bin is leak proof made out of low-
density polyethylene plastic

Configurations

Insertion area can be configured for multiple recycling
and waste streams

Modular system design: BigBelly Solar Compactors,
Compacting Recyclers, and SmartBelly components
can be combined into customized 2- and 3-unit waste
& recycling stations. Please contact BigBelly Solar for
more details.

Sensing Features

Ultrasonic waste height sensing

3-color LED status lamps indicate waste level

Fully automated, IC processor controlled system

GPRS wireless data radio for online monitoring and
management system

Power & Electronics

Polycrystalline silicon cell PV module (6 watts)

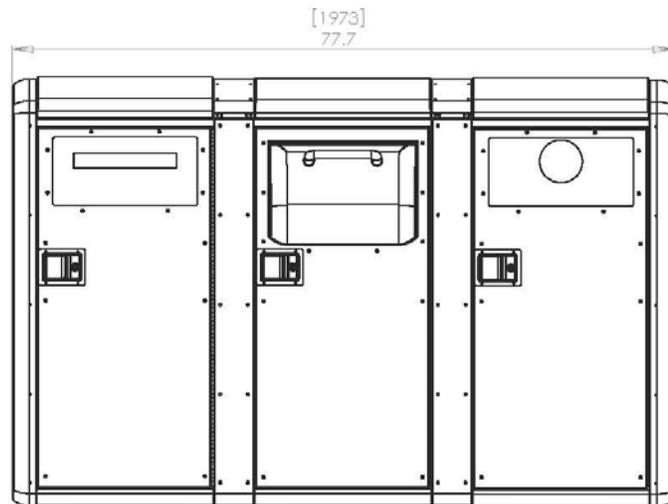
PV panel protected by polycarbonate bubble

System Voltage: 12 Volts DC

Spill-proof, sealed maintenance-free 12V battery

Charge maintained by Pulse Width Modulator

Cordless, self-powered unit requires no wiring



BigBelly Solar, Inc.
85 Wells Avenue, Suite 305
Newton, MA 02459 USA

BigBelly
SOLAR
Sales@BigBellySolar.com
BigBellySolar.com

Toll-free: +1-888-820-0300
Int'l: +1-781-444-6002
Fax: +1-617-558-1010

Eliminating the Waste in Waste Collection™



Project 3

Amesbury Middle School HVAC Specifications

- ⇒ **Purpose:** The next step for the Middle School project subsequent to the Energy Reduction Plan and the Building Assessment is the ASHRAE Level-2 audit/assessment. The Level-2 project starts with the findings of the Level-1 audit, and evaluates the building energy systems in detail to define a variety of potential energy-efficiency improvements. This should include the Building Envelope, Lighting, Heating, Ventilation, and Air Conditioning (HVAC), Domestic Hot Water (DHW), Plug Loads, and Compressed Air and Process Uses. This study starts with a detailed analysis of energy consumption to quantify base loads, seasonal variation, and effective energy costs. From there, the study will include an evaluation of lighting, air quality, temperature, ventilation, humidity, and other conditions that may affect energy performance and occupant comfort. The process also includes detailed discussions with the building Ownership, Management, and Occupants to explore potential problem areas, and clarify financial and non-financial goals of the program. The Level-2 audit will result in a clear and concise report and briefing with the Owner and Management Team describing a variety of Energy Efficiency Measures (EEMs) including no- and low-cost measures, modifications to system controls and building automation, operational changes, and potential capital upgrades. The findings will include cost, equipment, and performance metrics, as well as a means for the Owner to evaluate the EEMs and decide how to proceed with implementation. Many of the EEMs revealed during the ASHRAE Level-2 audit will be implemented quickly with rapid or immediate financial payback for the Owner. Other EEMs may require more detailed analysis of benefit and cost and the other goals that are important to the Owner. The audit should define next steps to accomplish this analysis and decision making. Sometimes it is through discussion with manufacturers or suppliers or other relatively simple means. For other EEMs, involving complex interaction among building systems and potentially large financial investments, it may be necessary to dig deeper into the building operation and also the human factors influencing performance. The audit may move toward a level three for specific target areas where implementation will be planned for the following year. As a component of the commitment to Green Communities education a requirement of this scope will be two presentations to students of an applicable curriculum to highlight the importance of energy conservation projects. This will provide a provide background on the applicable real world science of energy efficiency.
- ⇒ **Timeline - Complete by December 2014:** The project will begin the procurement process within the month of June, complete procurement and establish contracts by the end of July, and complete by December 2014.
- ⇒ **Procurement status:** The City will release an RFP for services by the end of May and move forward within the context of the above timeline. The City will target the PEX consultants and others available through DOER.
- ⇒ **Anticipated impact:** Amesbury's Middle School was completed in the 1960s as well, and then added to and renovated in 1997. The middle school's energy use index (EUI) is 75 kBtu/SF, which is on the high side for similar facilities in the region. Certainly a major roadblock to achieving better performance is lack of modern controls. We've seen schools of this vintage that have been equipped with EMS controls and aggressive operating practices performing in the high 40's kBtu/SF. As such, we believe there ample opportunity to achieve utility reduction of 20% or more. The following page provides a Summary of Opportunities that are included in the Opportunity Selection Tool in the Energy Reduction Plan will form the basis for the HVAC analysis and specifications.
- ⇒ **Supports Five year Plan and Green Communities Criteria :** The project is referenced in the Energy Reduction Plan and the facilities analysis which is a component of the plan. The project will provided the necessary information toward development the specifications for implementation of the Energy Reduction plan components regarding the Middle School as outlined above.

Building Assessment Middle School

Amesbury's Middle School is located at 220 Main Street and totals 152,600 square feet. The building has two levels, plus an unoccupied basement and was first opened in the late 1960's. There have been a number of updates, including a major addition and renovation completed in 1997 that included much new mechanical equipment, new windows, doors, etc. There are currently 500-plus sixth, seventh and eighth students enrolled in this school with a staff of roughly 100. The multi-level facility has approximately 55 classrooms, several computer labs, a wood shop, home economics room, a large cafeteria with kitchen, gymnasium, library and administration area. Normal school hours are weekdays 7:30 a.m. to 2:30 although the building is often lightly used in select area through the afternoon and into the early evening. There are minimal weekend and summer activities and most of the HVAC systems are turned off during those times.

Building Envelope

This facility is constructed of brick-faced concrete blocks with a steel deck and membrane roof. It is unlikely that there is wall insulation in the older parts of the building unless added as interior treatment in one of the more recent renovations. We expect the roof has rigid insulation installed in the built up roof system. The newer section of the building should have ample insulation in compliance with recent energy codes. Casement windows were installed in 1996 and those seen where in reasonable condition. Staff report leakage problems in some locations (unconfirmed). The exterior doors and their seals are also in good condition, having recently received attention. In several cases, we would like to see weather seals on vestibule inner doors sets.

HVAC

This school has a mix of hydronic and steam heating systems. Each classroom has a unit ventilator, all but about 20 of which were replaced in 1997. There are nine H&V units, most of which are smaller fractional horsepower units. There are four A/C units. The largest unit is 7.5 hp with a 50 top split condensing unit on the roof serving the auditorium.

Central Plant

The middle school has a central steam plant serving the original section of the facility. There is also a second hot water boiler plant serving the newer section. The main steam plant consists of two Burnham sectional units rated at 4,551 MBH output with 5 hp dual fuel burner (only natural gas is used). The steam plant serves about 20 unit ventilators and H&V and MUA unit steam coils. A new stainless steam receiver was recently installed. There is also a newer hot water heat exchanger with dual 5 hp heating hot water pumps providing heating hot water to additional UVs and coils. Pipe insulation is missing in some sections. The hot water boiler plant consists of two Burnham sectional units rated at 2,957 MBH output with 2 hp dual fuel burners (only gas is used). There are two sets of hot water zone pumps (1.5 hp and 5 hp) for the hot water plant.

Controls

HVAC systems are controlled by an older pneumatic system. The system has day/night settings in seven zones with electronic timeclock control. It is expected that the system is functional, even if not optimal. Exhaust fans are included in the nightly shutdown. The intended night setback set-point is 60oF. Newer equipment has electric thermostats. There is opportunity to improve the operation of this building by installing a supervisory DDC system, which could employ much tighter scheduling, outside air management, heating hot water reset, etc.

Lighting

This facility has mostly newer super T8 fluorescent lamps and ballasts that were installed within the last two years. Exterior lighting is metal halide.

Domestic Water

Domestic hot water is supplied by two pairs of Jarco gas-fired units rated at 970 MBH input, one pair per boiler room. This is an older atmospheric type boiler and the equipment is reaching the end of service life. Each system is coupled to an approximately 500-gallon storage tank, much larger than necessary given the discontinued use of student showers.

Kitchen

The school operates a typical kitchen. Cooking equipment is gas-fired with central hood. The walk-in coolers were recently updated with ECM motors and cycling controls.

Miscellaneous

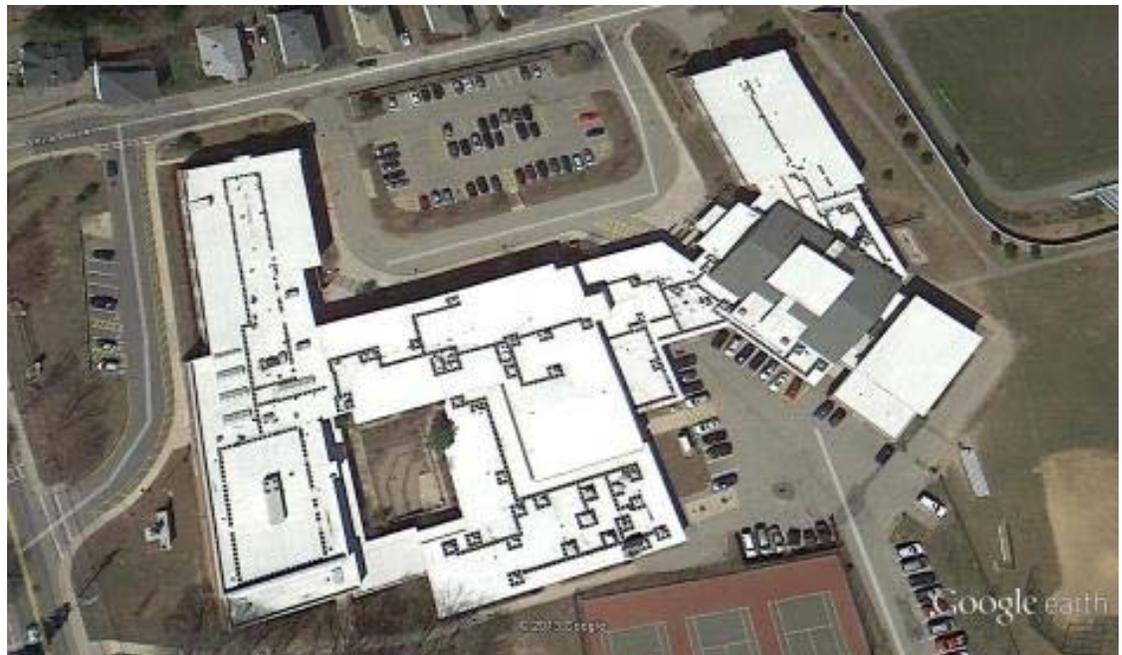
The school has several refrigerated drink vending machines.

Energy Efficiency Opportunities

The middle school's energy use index (EUI) is 75 kBtu/SF, which is on the high side for similar facilities in the region. Certainly a major roadblock to achieving better performance is lack of modern controls. We've seen schools of this vintage that have been equipped with EMS controls and aggressive operating practices performing in the high 40's kBtu/SF. As such, we believe there ample opportunity to achieve utility reduction of 20% or more.

Summary of Opportunities Identified that are Included in the Opportunity Selection Tool

- Consider centralized computer load management software.
- Replace antiquated refrigerator in the home economics department
- Update fluorescent lighting to latest generation super T8 technology where omitted (presumably less desirable application, such as areas with lower run hours).
- Update exterior lighting to LED.
- Add occupancy sensor lighting controls in hallways and bathrooms and potentially other areas as determined to be appropriate (gym, teacher lounge, and any other intermittently used areas that are liable to have lights left on).
- Add new webQbased DDC system on all HVAC systems (air handlers, UVs, pumps, boilers, etc.) to provide automatic and “smart” scheduling, resets and ventilation management. A significantly less costly option would be to forgo DDC conversion on UVs, but having temperature monitoring and control of classrooms has major O&M advantages.
- Add demand control ventilation on the auditorium unit to minimize use of outside air when the space is lightly occupied.
- Add heating water reset capability based on outside air temperature so that circulation temperatures in the building are lowered whenever possible. The installation of return blending valve is required.
- Schedule domestic hot water return pumps off at night and on weekends.
- Install variable speed drive on auditorium unit to reduce fan power when loads are light (can be installed as part of aforementioned demand control ventilation strategy).
- Consider use of variable speed drives on the two 5 hp pump sets (need to check valves in system to make sure they are twoQway type)
- Add plug load controller devices to refrigerated vending machines.
- Update hot water and steam pipe insulation in mechanical rooms where it is missing or damaged.
- Review condition of all steam traps and repair/replace as necessary. Note: the last time the traps were inspected and serviced was 2004.
- Replace older 5 hp heating hot water pump motors with premium efficient motors.
- Replace antique domestic hot water plants (2) with new high efficiency condensing units with less (i.e. “rightQsized”) storage capacity.
- Replace steam portion of the building’s systems with hot water, including new high efficiency condensing heating plant. The installation requires, at minimum, new coils, or preferably outright replacement of air handlers and UVs, new piping and distribution pumping system. Hot water heating offers much better control than steam systems and is easier to maintain, has less thermal losses, etc.
- Add weather stripping on inner vestibule doors.





Project 4

Schools Outdoor Lighting

- ◆ Cashman
- ◆ High School
- ◆ Middle School

- ⇒ **Purpose:** The project will retrofit with LED technology the outdoor metal halide lighting for the following schools: Cashman, High School, and Middle School. Each of these schools is listed as a priority one item in Table 4 resulting from the Energy Reduction Plan, which is provided on the next page.
- ⇒ **Timeline - Complete by December 2014:** The project will begin the procurement process within the month of May, complete procurement by the end of June, establish contracts for purchase and installation by the end of July, and complete the installation by December 2014. The City has already completed initial research to develop the specifications for the project.
- ⇒ **Procurement status:** The project will follow take advantage of M.G.L. ch. 25A which provides several mechanisms to encourage the implementation of energy efficiency and renewable energy projects, including streamlined procurement pathways for energy conservation measures and energy management services. Solicitations issued pursuant to 25A, as well as questions pertaining to these procurement processes, fall under the jurisdiction of the Department of Energy Resources (DOER). Any solicitations, executed agreements, and annual reports based on 25A must be filed with DOER.
- ⇒ **Anticipated impact:** The impact will be a definitive public display of the energy efficiency program by replacing the metal halide lighting with LED at each of the applicable schools. The impacts are listed in the below table resulting from Table 4 of the Energy Reduction Plan.
- ⇒ **Supports Five year Plan and Green Communities Criteria :** The project is included within the City of Amesbury Five Year Energy Reduction Plan as cited from page 2 of the separate document Energy Assessments for School Buildings: *There are additional lighting opportunities in some of the buildings to update metal halide lighting, including exterior applications that can be changed to LED.*



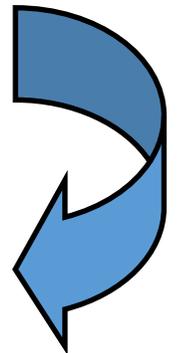
Project 4 - Schools Outdoor Lighting

Cashman - High School - Middle School

**Table 4 Energy Conservation Measure Data
From Energy Reduction Plan - Peregrine Assessment**

Category/Building	Energy Conservation Measure	Status (Completed with month/year or planned Qtr/year)	Projected Annual Electricity Savings (kWh)
Cashman	Exterior Lighting Retrofit	2014	\$ 5,000.00
Middle School	Exterior Lighting Retrofit	2014	\$ 13,000.00
High School	Exterior Lighting Retrofit	2014	\$ 15,000.00
			\$ 33,000.00

Projected Annual Cost Savings (\$)	Total Installed Cost (\$)	Green Community Grant (\$)	Utility Incentives (\$)	Other Grants (\$)	Net Town Cost (\$)
\$ 800.00	\$ 6,000.00	\$ 4,750.00	\$ 1,250.00	\$ -	
\$ 2,000.00	\$ 10,000.00	\$ 6,750.00	\$ 3,250.00	\$ -	
\$ 2,300.00	\$ 12,000.00	\$ 8,250.00	\$ 3,750.00	\$ -	
\$ 5,100.00	\$ 28,000.00	\$ 19,750.00	\$ 8,250.00	\$ -	



The above table is excerpted from Table 4 of the City of Amesbury Energy Reduction Plan. The table is split in to two section to allow it to be readable and fit on the page.



Project 5

Schools and Municipal Buildings Door Seals

- Amesbury ES
- Cashman ES
- High School
- Middle School
- Police Dept.
- Town Hall

- ⇒ **Purpose:** The project will replace and improve door seals at various buildings to reduce heat and cooling losses.
- ⇒ **Timeline - Complete by December 2014:** The project will begin the procurement process within the month of May, complete procurement by the end of June, establish contracts for purchase and installation by the end of July, and complete the installation by December 2014. The City has already completed initial research to develop the specifications for the project.
- ⇒ **Procurement status:** The project will follow take advantage of M.G.L. ch. 25A which provides several mechanisms to encourage the implementation of energy efficiency and renewable energy projects, including streamlined procurement pathways for energy conservation measures and energy management services. Solicitations issued pursuant to 25A, as well as questions pertaining to these procurement processes, fall under the jurisdiction of the Department of Energy Resources (DOER). Any solicitations, executed agreements, and annual reports based on 25A must be filed with DOER.
- ⇒ **Anticipated impact: Exterior Doors and Envelope.** With few exceptions, outside doors need attention to weather stripping and alignment to ensure tight closing and elimination of drafts. This is an ongoing challenge for most buildings since door seals wear out quickly and will require periodic replacement. For that reason, weatherstripping should be treated as a maintenance practice. There is also opportunity to add building insulation and for comprehensive air sealing of leaks at many of the municipal buildings. From Page 2 of Energy Assessments for City and School Buildings October, 2013
- ⇒ **Supports Five year Plan and Green Communities Criteria :** The project is included within the City of Amesbury Five Year Energy Reduction Plan as follows from page 2 of the Energy Assessments for School Buildings. The tables on the next page are from Table 4 of the Amesbury Energy Reduction Plan.

Project 5 - Schools and Municipal Buildings Door Seals

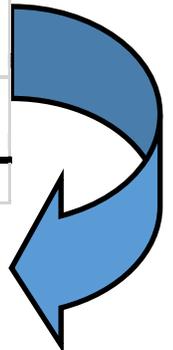
Amesbury ES - Cashman ES - High School - Middle School - Police Dept. - Town Hall

**Table 4 Energy Conservation Measure Data
From Energy Reduction Plan - Peregrine Assessment**

Category/Building	Energy Conservation Measure	Status (Completed with month/year or planned Qtr/year)	Projected Annual Electricity Savings (kWh)	Projected Annual Natural Gas Savings (therms)
Amesbury ES	Add / Replace Door Seals & Align Doors	2014	\$ -	900.00
Cashman ES	Add / Replace Door Seals & Align Doors	2014	-	200.00
High School	Add / Replace Door Seals & Align Doors	2014	-	500.00
Middle School	Add / Replace Door Seals & Align Doors	2014	-	150.00
Police Dept	Add / Replace Door Seals & Align Doors	2014	-	75.00
Town Hall	Add / Replace Door Seals & Align Doors	2014	-	100.00
			-	1,925.00

Projected Annual Cost Savings (\$)	Total Installed Cost (\$)	Green Community Grant (\$)	Utility Incentives (\$)	Other Grants (\$)	Net Town Cost (\$)
\$ 1,000.00	\$ 12,000.00	\$ 12,000.00	\$ -	\$ -	
\$ 220.00	\$ 2,000.00	\$ 2,000.00	\$ -	\$ -	
\$ 600.00	\$ 7,500.00	\$ 7,500.00	\$ -	\$ -	
\$ 170.00	\$ 2,000.00	\$ 2,000.00	\$ -	\$ -	
\$ 80.00	\$ 1,500.00	\$ 1,500.00	\$ -	\$ -	
\$ 110.00	\$ 1,500.00	\$ 1,500.00	\$ -	\$ -	
\$ 2,180.00	\$ 26,500.00	\$ 26,500.00			

The adjacent table is excerpted from Table 4 of the City of Amesbury Energy Reduction Plan. The table is split in to two section to allow it to be readable and fit on the page.





Project 6

Water Department

Electric Vehicle and Charging Station Acquisition

⇒ **Purpose:** Acquisition of the vehicle and Charging station as shown on the next page. The vehicle will be used by the Water Department to replace a meter reader van. The charging station will be located in the public parking garage for access by the public. The funding allocation between the two items is shown in the adjacent spreadsheet.

Project 7 Sources and Uses			
Source	Focus EV	EV Station	Total
DOER	\$ 14,000.00	\$ 3,000.00	\$ 17,000.00
City	\$ 15,000.00	\$ 1,000.00	\$ 16,000.00
DEP	\$ 7,500.00	\$ 10,000.00	\$ 17,500.00
	\$ 36,500.00	\$ 14,000.00	\$ 50,500.00

⇒ **Timeline - Complete by December 2014:** The City has already received approval through the DEP EV program (grant application attached to this section) the City funds are available through the Water Department in this fiscal year.

⇒ **Procurement status:** The vehicle and charging station are listed on the State Bid list, with preselected vendors and is part of Department of Environmental Protection Grant. The City has already contacted the selected vendor for a quote (see attached).

⇒ **Anticipated impact:** The vehicle will be used by the Water Department for meter reading. The vehicle will visit over 90% of the City properties throughout the community to read water meters. The slow speed and occasionally stopping increases gas consumption using the current Water Department van. The calculations are shown below. The charging station will provide public access to charging.

⇒ **Supports Five year Plan and Green Communities Criteria :** The project is included within the City of Amesbury Five Year Energy Reduction Plan as cited on pages 6 and 8 in the narrative: As of FY2013, the baseline year, Amesbury has selected, the City had a combined total of 76 vehicles of which 11 are “non-exempt” with alternative, more energy efficient alternatives available, including, potentially, electric vehicles. For Vehicles, a 22.7% improvement over five years in fuel efficiency through replacement of older vehicles with new, more fuel efficient models, better fleet maintenance, and reduced idling and other operational adjustments.

The vehicle savings is based on:

- ◆ An average of 25 miles per day at 15 miles per gallon for the current water meter van.
- ◆ The current Water Meter reader van runs 6250 miles per year as follows: over period of 50 weeks at the above mileage (25 miles * 5 days) = 125 * 50 weeks = 6250 miles per year
- ◆ The annual miles of 6,250 / 7.1* miles per gallon = 880.3 gallons per year (*from ERP Vehicle Report in ERP for 2001 Water Meter Van vin: 1FTSE34L71HA17414, PlateM53 839)
- ◆ Using \$4.00 per gallon X 880.3 gallons the cost is = \$3,521 per year fuel costs is developed.
- ◆ This is compared to the EV costs as follows: EV Cost \$0.96 per 25 miles (USEPA) = \$5.00 per week * 50 weeks = \$25
- ◆ Net of EV cost at \$250 = \$3,271.2 savings annually
- ◆ The vehicle costs is shown in the attached quote. The electric station is estimated at \$10,000 with \$4,000 in installation costs.



MassEVIP Application

APPLICANT INFORMATION: (* Indicates Required Fields, and please print clearly)

Name of Entity*: City of Amesbury

Division within Entity applying for incentive: C

Principal Contact*

Last Name: Scott

First Name: William

Title: Deputy Director Community Development

Email: scottw@amesburyma.gov

Phone: 1-978-388-8110-313

Fax: 1-978-388-6727

Street Address: 62 Friend Street

City: Amesbury

State: Massachusetts

Zip Code: 01913

Mailing address (enter ONLY if it is different from contact address above) **SAME**

Street _____ Address: _____

City: _____

State: _____

Zip Code: _____

If a municipality, are you currently a Green Community as designated by the Massachusetts Green Communities Division? (Circle one)



NO

Use the Table below to list the electric vehicle(s) your entity is considering for acquisition.*

Make/Model	Type (Electric or Hybrid)	Dealer	Purchase/Lease
2014 Ford Focus P3R	Electric	Imperial Municipal Partners	Purchase (see quote)

*If requesting more than five vehicles, please use additional pages.

In the space provided below, please indicate how the vehicle will be used to increase the visibility of electric vehicles in the community.

The vehicle will be used by the water department for meter reading. The vehicle will visit over 90% of the properties throughout the community to read meters. The slow speed necessary to electronically read meters and stopping for those meters not equipped with emitters will provide complete visibility. We have received a price of \$35,865 with an additional \$395 for lettering. We are planning on lettering the vehicle with the City Department name, The State agency funding information, and a website address we are developing for local Green Community projects. We will also in the future use a QR code system to direct people to a vehicle savings history chart online. The parked car will become a digital information source.

If planning on acquiring **one or more battery electric vehicles** (fully battery operated), your entity is eligible to apply for assistance to install a Level 2 dual-head charging station. Do you wish to apply for assistance to install a Level 2 dual-head charging station? If yes, use the Table below to provide information for the requested charging station. *Note: the acquisition of hybrid plug-in electric vehicles only does not qualify an entity for financial assistance to install a Level 2 dual-head charging station.*

Make/Model:	Similar to GE EV Charging Station EVDN3 see attached product sheet quote pending
Vendor:	Interstate Electrical turnkey installation
Proposed location:	Parking Garage off Water Street in the downtown see attached

Signature of Representative*: Mayor Ken Gray

Date*: 2/27/2014

This form should be returned to MassDEP at the address below, postmarked no later than **February 28, 2014**.

Sejal P. Shah
Environmental Analyst, MassEVIP MassDEP
One Winter Street, 6th Floor



[Back to Search Results](#)



EV Charging Station, 2 Pedestal, 7.2kW

GENERAL ELECTRIC

Price: \$9,075.00 / each

- Deliver one time only
- Auto-Reorder Every Month(s) ⓘ

Product ships within 21 business days from supplier
 Add Repair & Replacement Coverage for \$999.00 each.



Item # **10C439** Mfr. Model # **EVDN3** UNSPSC # **26111704**
 Catalog Page # **N/A** Shipping Weight **175.0 lbs.**

[close](#)

Country of Origin **United States Of America** Country of Origin is subject to change.

Technical Specs

Item	Electric Vehicle Charging Station
Mount Type	Double Pedestal
Number of Connectors	2
Output	7.2kW
Voltage	208-240VAC
Amps	30
Hz	50/60
Phase	1
RFID Reader	No
Plug Type	SAE J1772
Cable Length	20 Ft.

Display	LCD
Communication Port	Cat5
Enclosure Rating	NEMA 3R
Material of Construction	Aluminum
Color	Silver
Operating Temp.	-30 to 50 Degrees C Ambient
Height	51.10"
Width	14.90"
Depth	13.80"
Standards	UL, cUL, NEC, SAE

Compliance and Restrictions

None

Alternate Products

1 of 2 [Prev](#) | [Next](#)



EVlink Charging Station, 2 Plug, 7.2kW
 Item # 11X297
 SCHNEIDER ELECTRIC

Price:\$4,221.00

Compare



EV Charging Station, Pedestal, 7.2kW
 Item # 10C437
 GENERAL ELECTRIC

Price:\$5,418.00

Compare



EV Charging Station, 2 Pedestal, RFID
 Item # 10C440
 GENERAL ELECTRIC

Price:\$11,784.00

Compare



EV Charging Station, Pole Mnt, 7.2kW
 Item # 10C441
 GENERAL ELECTRIC

Price:\$5,079.00

Compare

Related Products



Project 7

Owners Agent Landfill Solar Project

⇒ **Purpose:** The city wishes to develop a site under M.G.L. Chapter 25A, Section 11C or Section 11I to solicit bids from private developers to finance, build, operate, and maintain ground-based photovoltaic power generation projects at little or no cost to the city. The city has interest in being an off-taker of electricity generated at the facility under a Power Purchase Agreement for municipal electricity needs at our public facilities. The city seeks grant funding in order to support city-appropriated funding for an Owner's Agent to provide technical assistance on the steps required for a solar PV development on city-owned property. The focus of this development would center on a city-owned site identified as a potential solar generation development. The site is the



former Titcomb Landfill, located on South Hunt Road in Amesbury, which is a capped landfill once operated by Waste Management. There have been a variety of steps taken in pursuit of solar development at this site. A Completion of Construction and Closure Certification was issued by MA Department of Environmental Protection on July 26, 2013, completing the post-closure permit process. In February 2011 Meridian Associates, report concluded that "the site is viable for development of ground based PV." The report further estimated that the site has the potential solar generation capacity of 4.2 megawatts of electricity.

- ⇒ **Timeline - Complete by December 2014:** The City will complete the selection process by July, and conduct the analysis before December of this year.
- ⇒ **Procurement status:** The city had solicited a number of consulting groups for proposals to perform these services and will renew the review of proposals in advance of selecting an owner's agent. The city would utilize grant funding through the OATA program to support the city funding and extend the relationship of our selected owner's agent. An owner's agent would bring the industry specific knowledge to the city as well as the ability to advance this project in a timely manner.
- ⇒ **Anticipated impact:** An owner's agent would be expected to perform tasks such as, but not limited to: *conduct additional feasibility analysis that may be required; advise the City on project delivery, contracting and any power purchase/net metering options at the sites; Draft the technical sections in the compliant RFP documents and procurement schedules while City staff will create the base administrative document's required of state law and manage the RFP process; Assist in negotiation with preferred vendor on terms of sale and contract in addition to services which will be provided by the City Attorney for drafting of the contract; Assist in preparation of City applications with state energy office and local energy companies; and Advise City in overseeing regulatory and contractual compliance.*
- ⇒ **Supports Five year Plan and Green Communities Criteria : page 22 Energy Reduction Plan:** In addition, the City is actively engaged in an investigation of the development of ground based solar at two municipally owned brownfield parcels. The capped Titcomb Landfill on South Hunt Road and the former Microfab building and site at 104 Haverhill Road, a once industrial use property that is contaminated with hazardous materials. This project will focus on the Titcomb landfill project.

City of Amesbury
Energy Manager Grant
April 2014

1. *Describe the need for the position, and what gap this position will fill that is not currently being addressed; note who, if anyone, currently addresses energy issues and projects for the applicant; describe why an Energy Manager is critical for your municipality to implement these projects and to meet overall clean energy goals;*

The City of Amesbury lacks sufficient staff to provide the necessary focus toward meeting energy management goals. Currently the energy management functions are divided amongst the building managers of several departments, Police, Fire, Public Works, and Schools. These departments focus on the regular maintenance of each facility rather than creating a coordinated approach to energy management. With the advent of the Energy Reduction Plan the City requires a position to implement the projects outlined in the document. The Office of the Mayor has overseen the creation of the Energy Reduction plan, and the Community Development Office, continues to move forward with the steps subsequent to the designation. The next step for the community is coordinating the efforts to focus directly on the opportunities of the Green Communities designation while working with the local Energy Task Force.

2. *Identify specific energy-saving projects the Energy Manager will focus on in Year One, as well as clearly defined projects and goals the Energy Manager will achieve over the course of the two-year grant; Break down projects and goals into Year One and Year Two, with at least two energy saving and/or renewable energy goals identified for achieving each year.*

- **Salary:** \$26,000 (20 hours per week)
- **Job Description Generally:** The Energy Manager will be responsible for the administrative, technical, and supervisory tasks related to the energy policies, practices and projects. Administers Green Communities Program grant, including annual reporting to DOER. Researches, applies for, and manages energy efficiency and renewable energy grant opportunities. Monitors municipal energy consumption and measures energy savings. Prepares and presents regular reports on municipal energy use to departments and boards. Works with municipal building occupants to achieve energy reduction goals. Works with utility companies to conduct energy audits and implement energy efficiency projects. Acts as a liaison to municipal staff and community. Researches energy technology, infrastructure and project opportunities to help municipalities achieve energy reduction and sustainability goals.
- **Minimum Education/Certification:** Bachelor's degree in mechanical engineering, engineering technology, business or related field with emphasis on facilities management. Professional designation of Certified Energy Manager (CEM), preferred.
- **Special Knowledge/Skills:** Knowledge of energy management program development. Knowledge of HVAC and lighting systems. Ability to manage budget and personnel. Strong organizational, communication, and interpersonal skills.
- **Minimum Experience:** Two years of experience in energy management, mechanical systems design, construction, and/or maintenance, or closely related field.

Year One

Goals: Projects: Implement projects outlined in designation grant and begin Solarize program. **Education:** Begin to establish local education programs. **Outreach:** Establish Website with IT.

- Period Downtown Street Light LED Project (Designation Grant Jan 29, 2014)
- Middle School HVAC analysis (Designation Grant Jan 29 2014)
- Local Energy Curriculum: Establish a curriculum in the high school science department to have an energy week with; speakers, educational materials, and coordination to the curriculum.
- Solarize Residential Program Establishment: Begin the establishment of a Solarize program. The local program would encourage small-scale solar electricity systems through a grassroots educational campaign, driven mainly by local volunteers, and a tiered pricing structure that increases the savings for everyone as more home and business owners in a community sign up. The energy manager would aid in the selection of the designated solar installation company, which would offer five tiers of pricing, with the savings for increasing for everyone as more contracts are signed. Home and business owners who want to participate can either purchase the solar electricity systems directly or enter into a lease or power purchase agreement (PPA) with the installer. Under a lease or PPA, the installer will own, operate and maintain the system, while the home or business owner agrees to purchase the power generated by the system at an agreed-upon rate.
- Amesbury Green Community Website: With IT department guide the development of a local website which provides project information, education, and resources to residents. Municipal examples: http://www.a2gov.org/government/publicservices/systems_planning/energy/Pages/Energy.aspx, <http://www.ackenergy.org/>, <http://saalemnhprojects.org/project?d=community&p=81>

- Door seals and Repairs: Scope the project for door seals and repairs as per the Energy Reduction Plan Matrix of Building ECM's page 8, items 35 and 36. Prepare the project for bidding for year two. Prepare a grant application for funding of the project.

Year Two

Goals: Projects: Continue projects from prior year expand into Priority one and others as cited below. **Education:** Implement first year of local education (NEED), begin community wide DOE Energy Literacy. **Outreach:** Complete website and populate with information.

- Middle School HVAC Project: Hire consultant to design the HVAC improvements and bid for a year three phased implementation.
- Energy Capital Plan: Prioritize improvements, outline schedule, establish precursor projects, and establish funding sources and financing program.
- In addition to continuing the above projects the focus in Year Two will be to implement as many of the Priority 1 projects identified in the Energy Reduction Plan as possible across the portfolio. We believe that many of the Priority 1 projects can be implemented within the limits of existing maintenance budgets and by taking advantage of incentives provided by utility's Municipal Programs (generally \$0.25/kWh for lighting savings, \$0.35/kWh for other electricity saving measures, and \$1.50/therm saved). They include lower cost energy conservation measures like weatherization, a variety of simple building and system controls, and retro-commissioning. Peregrine estimated that these changes, in aggregate, will reduce energy use on a Btu basis by 5.8%, with a simple payback of 3.5 years, and at a total cost of around \$202,850. These improvements would reduce the combined EUI in buildings from 85 to 80 kBtu/SF. During the same period we will begin the necessary education, planning, and budget development to proceed with Priority 2 energy measures and the Priority 3 infrastructure projects. This effort will include ranking these capital projects for inclusion in the City's capital improvement budget.

- Identify what energy tracking tool is being used; if using Mass Energy Insight (MEI), who is the authorized user; If not using MEI, provide evidence, such as printouts tracking energy usage, for other tool being used.

The City of Amesbury will be using MassEnergyInsight as its inventory tool. Initial MEI set ups of all City buildings and other accounts have been completed. Almost all energy use is accounted for in the system except for vehicle fuel. Rob Desmaris, DPW Director, and Deirdre Farrell, Assistant Superintendent of School will be the primary MEI users. The Energy Manager will be added as a user and work with the DPW to include the vehicle fuel information.

- Provide a target for annual clean energy benefits (e.g. estimated savings as a percentage of current energy costs/bills) that will result from the Energy Manager's work;

The adjacent table results from the City of Amesbury Energy Reduction plan. The Energy Manager will work on the following priority 1 projects

coordinating staff and resources across departments. The savings are anticipated as outlined in the table. The Energy Manager will work with the applicable departments to prioritize the projects outlined in the table and establish a capital plan with funding sources.

Building	Approximate Implementation Cost	Utility Incentive Available	Potential Utility Savings				Annual Cost Avoidance	Baseline EUI kBtu/sf	Projected EUI kBtu/sf	Overall Savings	Simple Payback Yr
			Demand kW	Electric kWh/yr	Gas Therm/yr	Oil Gall/yr					
Amesbury ES	\$17,400	\$0	1	8,800	1,060	-	\$2,510	94	90	4.3%	6.9
Cashman ES	\$16,300	\$0	2	77,600	290	-	\$12,230	87	82	6.0%	1.3
High School	\$107,000	\$0	2	93,500	9,150	-	\$24,410	70	63	9.7%	4.4
Middle School	\$34,200	\$0	1	33,800	490	-	\$5,660	75	74	1.4%	6.0
S School Street	\$0	\$0	29	2,800	600	-	\$1,100	12	-	100.0%	-
Cemetery Building	\$3,000	\$100	-	1,700	90	-	\$560	59	53	9.8%	9.1
DPW Garage	\$2,000	\$0	-	2,500	1,050	-	\$1,540	90	76	16.7%	7.3
Fire Station - Elm Street	\$1,750	\$0	-	800	290	-	\$420	64	58	9.5%	4.2
Fire Station - Headquarters	\$0	\$0	-	-	-	-	\$0	81	81	0.0%	NA
Horace Mann	\$0	\$0	-	6,400	-	-	\$1,000	1	-	100.0%	-
Landy Stadium	\$0	\$0	-	-	-	-	\$0	8	8	0.0%	NA
Library	\$9,800	\$0	-	3,000	600	-	\$1,050	118	106	9.4%	9.6
Ordway Bldg	\$4,000	\$0	-	-	825	-	\$1,060	88	80	10.4%	3.8
Parks Storage	\$0	\$0	-	-	-	200	\$700	15	6	61.5%	-
Police Dept	\$2,450	\$0	1	800	65	-	\$190	104	103	1.1%	12.6
Town Hall	\$3,500	\$0	-	2,000	450	-	\$760	88	84	5.3%	4.5
Town Hall Annex	\$0	\$0	-	6,600	2,500	-	\$4,100	83	-	100.0%	-
WTP	\$0	\$0	-	-	-	-	\$0	12	12	0.0%	NA
WWTP	\$1,550	\$0	12	3,800	375	-	\$860	888	880	0.8%	1.7
Total	\$202,850	\$100	48	245,300	17,825	200	\$57,860	85	80	5.8%	3.5

1. *Identify the clean energy projects the municipality has completed to date and how the Energy Manager will continue to monitor and/or improve upon these projects;*

The recently Green Communities designation by the City of Amesbury completed an Energy Reduction Plan. The Energy Manager will guide the implementation of the plan: <http://www.amesburyma.gov/>

2. *Provide an outline of school and community-wide energy education initiatives the Energy Manager will lead in Year One.*

Year one will focus on the combination of the website development and establishment of a curriculum at the High School level using the National Energy Education Development Project NEED model <http://www.need.org/>. The City of Amesbury Energy Management website will be tied to energy improvements such as the downtown lighting and other community projects through a QR coding system which will bring up the webpage of the particular project and outline the details. The web development will include, links, documents, and videos that will outline energy conservation measures based on the particular season, weatherization, purchasing energy efficient air conditioners, etc.. As energy projects such as Solarize begins the website will be the primary portal for the project. The Energy Manager will begin a long term educational effort in the first year through the establishment of a program similar to the DOE program at the following link:

http://www1.eere.energy.gov/education/energy_literacy.html. The DOE document "Energy Literacy: Essential Principles and Fundamental Concepts for Energy Education" identifies seven Essential Principles and a set of Fundamental Concepts to support each principle. The intent of the local program will be modeled after the DOE program to enhance the literacy of students and the general public. Energy literacy as defined by DOE is an understanding of the nature and role of energy in the universe and in our lives. Energy literacy is also the ability to apply this understanding to answer questions and solve problems. An Energy Literate person according to DOE, can: trace energy flows and think in terms of energy systems, knows how much energy he or she uses, for what, and where the energy comes from, can assess the credibility of information about energy, can communicate about energy and energy use in meaningful ways, is able to make informed energy and energy use decisions based on an understanding of impacts and consequences, continues to learn about energy throughout his or her life. The Energy Manager using the DOE model will create a community wide literacy program. The tenants of the program are outlined here:

http://www1.eere.energy.gov/education/pdfs/energy_literacy_2.0_low_res.pdf

3. *For a position in a municipality, explain how the Energy Manager will enhance communication on energy across multiple municipal departments, including schools.*

The Office of the Mayor and Superintendent will require quarterly energy meetings between departments, building managers, and the Energy Manager. The meetings will be a review opportunity for energy goals established at the beginning of each year. Annual workshops will be held with departments on energy management. The website will be the primary portal between departments for reporting and outcomes. The Energy Manager will produce a quarterly newsletter outlining the outcomes of each department. In year two an energy management policy will be developed that will provide the Energy Manager with certain authority to oversee capital projects to ensure compliance with the Energy Reduction Plan goals.

4. *Explain how your municipality will sustain the Energy Manager position beyond Year One (with reduced DOER funding), and beyond Year Two, if Year Two funding is provided (with DOER no longer funding the position);*

Year One: The City has sufficient funds for the 10% match as required.

Year Two: The City will use funds from an unspent account and reallocate to cover the year two costs.

Year Three and beyond:

- The City will consider sharing the position with another municipality to reduce costs.
- The City will work with the Chamber of Commerce to obtain fee for services to aid businesses in obtaining energy conservation and renewable benefits such as 179d tax deductions.
http://apps1.eere.energy.gov/buildings/publications/pdfs/corporate/commercial_tax_179d_faqs.pdf
- The City will establish a budget policy that will assign energy savings to the fund the Energy Manager position.
- Any allowable grant administration funds will be applied to the position.

City of Amesbury
Green Communities Designation Grant
Award Letter



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF
ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENERGY RESOURCES
100 CAMBRIDGE ST., SUITE 1020
BOSTON, MA 02114
Internet: www.Mass.Gov/DOER
Email: Energy@State.MA.US

Deval L. Patrick
Governor

Richard K. Sullivan, Jr.
Secretary, Executive Office of
Energy and Environmental Affairs

Mark D. Sylvia
Commissioner

TELEPHONE
617-626-7300

FACSIMILE
617-727-0030
617-727-0093

December 18, 2013

Mayor Thatcher W. Kezer III
City of Amesbury
62 Friend Street
Amesbury, MA 01913

Dear Mayor Kezer:

Congratulations on the City of Amesbury's designation as a Green Community! This designation is quite an achievement and reflects the hard work and tireless efforts your community has exhibited in meeting the Green Communities Designation and Grant Program's five criteria. Meeting these criteria is proof of Amesbury's position as an energy leader in Massachusetts, poised to reduce its energy costs, improve the local environment and implement energy efficiency and renewable energy projects with funding through the Green Communities Designation and Grant Program. The purpose of this letter is to confirm your Green Community designation in writing and provide you with program information and activities relevant to you as a newly-designated Green Community. Please note there is an annual reporting requirement, detailing progress and continued compliance with the designation's five criteria, to be submitted to DOER by November 30th each calendar year.

Along with this designation the City of Amesbury has been awarded a grant of \$173,775. A formulaic allocation has been established that consists of a base grant per community of \$125,000, plus an amount adjusted for population/income, with an additional \$10,000 for designated communities that met Criterion 1 through adoption of as-of-right siting for renewable energy generation. To receive this grant award, the town of Amesbury will be required to submit a project application proposing how these funds will be spent. The Green Communities Division ("Division") will begin accepting grant applications

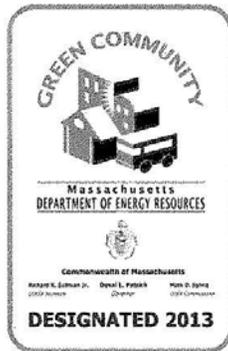
one week from the date of this letter and all grant applications must be received by 5pm on January 29, 2014. The Green Communities Grant application with submission instructions is provided as separate attached documents. No hard copies of applications will be accepted, only electronic submissions.

PLEASE NOTE: Municipalities applying for Green Communities grant funding for energy efficiency measures must meet, teleconference, or have an email exchange with their public utility regarding the availability of utility incentives for these measures. The Division will require municipalities to provide evidence of this contact as a condition of execution of your grant contract. For your convenience, we are providing here the name and contact information for your utility representative: William K. Isaksen, NGRID, William.Isaksen@nationalgrid.com, 401-784-7102, who is also copied on this letter.

PLEASE ALSO NOTE: if the person submitting the grant application is not the same person who submitted the designation application, the grant applicant must contact Jane Pfister at (617) 626-1194 or jane.pfister@state.ma.us to register for the online grant submission process.

SIGNS

Each designated Green Community will be receiving four (4) 12" x 18" aluminum signs to be displayed in your community. While you are free to place these signs wherever you choose within your community, the Division recommends installing them in highly-visible, high pedestrian traffic areas (such as near town offices, schools, and downtown business districts, and/or within parks and along walking paths). If installed on roadways leading into your municipality, the Division recommends hanging them at approximately eye-level for motorists, to maximize readability. These signs will be distributed at a future event celebrating Amesbury's designation.



CERTIFICATES

Each Green Community will also receive an official certificate for display pronouncing the municipality's designation as a Green Community and including the designation date and signatures of the Governor, Secretary of Energy and Environmental Affairs, and Commissioner of the Department of Energy Resources. The certificates are in the process of being printed and will be distributed at a future event celebrating Amesbury's designation.

PRESS EVENTS

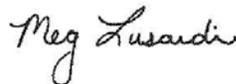
The Division is in the process of scheduling events for newly-designated Green Communities. For this reason, we ask that you contact the Division regarding any public events you may be considering. The Division's preference is to work with you on a joint event involving state and local officials. Regarding events and related questions, you may contact Lisa Capone, Deputy Director, Green Communities Division, at (617) 626-7358 or by email at lisa.capone@state.ma.us.

ACES OF GREEN COMMUNITIES WEB PAGE

Finally, the Commonwealth is extremely proud of and inspired by the efforts of the 123 Green Communities. From the tip of Cape Cod to the Berkshires, Green Communities such as yours are pursuing their own unique pathways to a clean, sustainable, and more economical energy future. To showcase the diversity of the Green Communities and their individual efforts and results, we have created a [Faces of Green Communities web page](#). Within three months of your designation as a Green Community, we ask that you complete the attached questionnaire and return it to us, along with a photo of your local energy team posing with one of your mounted Green Community signs. Please send your materials to Lisa Capone at lisa.capone@state.ma.us. Once we receive your information and photo, we will quickly add your story to the web site.

Again, congratulations on becoming a Green Community. The Division looks forward to working with the City of Amesbury to meet the objectives of the Green Communities Grant Program and to support you in meeting your local energy goals. Thank you for your commitment to a cleaner energy future for Massachusetts.

Sincerely,



Meg Lusardi
Director Green Communities Division

Cc: Eric Gregoire, Chief of Staff, Mayor's Office
Joanne Bissetta, Green Communities North Regional Coordinator
William K. Isaksen, NGRID

**City of Amesbury
Energy Manager Grant
Award Letter**



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF
ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENERGY RESOURCES
100 CAMBRIDGE ST., SUITE 1020
BOSTON, MA 02114
Telephone: 617-626-7300
Facsimile: 617-727-0030

Deval L. Patrick
Governor

Richard K. Sullivan, Jr.
Secretary

Mark D. Sylvia
Commissioner

May 1, 2014

Mayor C. Kenneth Gray
City of Amesbury
City Hall, 62 Friend Street
Amesbury, MA 1913

Dear Mayor Gray ,

I am pleased to inform you that the Department of Energy Resources (DOER) Green Communities Division has approved an award of \$25,000 for a Part-time Energy Manager for the City of Amesbury. Please note that funding is provided for one year beginning in fiscal year 2015. A second year of funding is contingent upon performance in year one. In addition, the City is committed to providing the cost share specified in its grant application.

In the next few weeks, Paul Carey, Green Communities Grants Coordinator, will follow up with the designated contact listed in your grant application to discuss next steps, including coordination of the grant contract process.

The Green Communities Division looks forward to working with you and your Energy Manager. We congratulate you on this grant award, and applaud your efforts to create a cleaner energy future for your community and the Commonwealth as a whole.

Please do not hesitate to contact me at 617-626-7364 or by email at meg.lusardi@state.ma.us with any questions you may have regarding your grant award.

Sincerely,

A handwritten signature in cursive script that reads "Meg Lusardi".

Meg Lusardi, Director
Green Communities Division

Cc: William Scott, Deputy Director, OCED

**City of Amesbury
EVIP Vehicle and Charging Station Grant
Contract Sent to DEP
Due April 30th**

**COMMONWEALTH OF MASSACHUSETTS
AGREEMENT BETWEEN MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND THE CITY OF AMESBURY**

This Agreement is entered into by the Commonwealth of Massachusetts, acting through the Massachusetts Department of Environmental Protection (MassDEP) and the City of Amesbury for the purpose of increasing the use and visibility of electric vehicles within the Commonwealth of Massachusetts (the "Agreement").

MassDEP is charged with the implementation and oversight for the Massachusetts Electric Vehicle Incentive Program (MassEVIP). The City of Amesbury has been qualified as a recipient of MassEVIP funding for the purpose of acquiring one electric vehicle and a Level 2 charging station, in an amount not to exceed \$17,500.00, as referenced in the attached application.

By accepting the benefits of MassEVIP funding, the City of Amesbury expressly agrees, through the execution of this Agreement, to be bound by the following Terms and Conditions and other requirements set forth in Attachment A and Attachment B hereto, which are incorporated herein by reference.

The undersigned representatives certify that they are fully authorized to enter into the Agreement, including without limitation the attached Terms and Conditions, and to legally bind the party on whose behalf they are signing this Agreement.

This Agreement shall become effective on the date that it is executed by MassDEP.

IN WITNESS THEREOF, the parties hereby execute this Agreement in duplicate.

CITY OF AMESBURY

By: _____

Print Name: C. Kenneth Gray
Print Title: Mayor

Date: _____

4/24/2014

COMMONWEALTH OF MASSACHUSETTS

By: _____

Bawa Wavezwa, Chief Fiscal Officer
Massachusetts Department of Environmental Protection

Date: _____