

**A Resolution To Adopt An Energy Efficiency Policy  
R-22-2014**

**City Council of the City of Glenarden, Maryland  
2013-2014 Legislation**

**Resolution: R-22-2014**  
**Introduced By: Council President Carolyn Smallwood**  
**Co-Sponsors: At the request of the Administration**  
**Session: Regular Session**  
**Date of Introduction: December 9, 2013**

**A Resolution To Adopt An Energy Efficiency Policy**

WHEREAS, by agreeing to adhere to the Maryland Energy Administration's Smart Energy Communities Program the City of Glenarden will commit to being a socially responsible leader by decreasing electricity consumption; and

WHEREAS, the City recognizes that investing in energy efficiency can produce significant monetary savings in the long term; and

WHEREAS, the Council has determined that it is in the public interest to enroll as a Maryland Smart Energy Community and adopt this Energy Efficiency Policy ("Policy").

**NOW, THEREFORE, BE IT RESOLVED, by the City Council of Glenarden, Maryland sitting in Regular Session this 9th day of December, 2013 as follows:**

**Section 1: PURPOSE:** The purpose of the Policy is to:

- a) Become a Maryland Smart Energy Community by enrolling in the program and following the program instructions issued by the State of Maryland.
- b) Establish the goal of reducing per-square-foot electricity consumption by 15 percent relative to the baseline within 5 years of the baseline year.
- c) Report electricity consumption and progress toward this goal annually to the Maryland Energy Administration in order to ensure that the City accomplishes said goals in a timely fashion.

**Section 2: DEFINITION.** For the purposes of this Policy, the following terms shall have the meaning given:

- a) Electricity Consumption – The amount of megawatt-hours (MWhs) purchased by the City on a calendar year basis, excluding electricity consumed for streetlights and for buildings owned by the City but paid for by a building lessee.

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- 43 b) Building Space – The amount of gross square feet (GSF) of building space owned by the
- 44 City for which electricity is paid by the City
- 45 c) Per – square-foot-electricity consumption – Electricity consumption (in MWhs) divided
- 46 by building space (in GSF) calculated on an annual calendar year basis.
- 47 d) Baseline – Per-square-foot-electricity consumption (MWhs/GSF) in a pre-determined
- 48 baseline year.
- 49 e) Baseline Year – City selects Calendar Year 2012 as its baseline year.

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**Section 3: GUIDELINES.**

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54 The City will maintain an annual electricity consumption inventory for all City owned buildings  
55 and other entities captured in the initial baseline. This annual inventory will be conducted using  
56 Energy Star Portfolio Manager (or equivalent energy management program previously approved  
57 by the Maryland Energy Administration), the results of which will be presented to the Maryland  
58 Energy Administration by no later than April 1<sup>st</sup> of each year until the completion of said goals  
59 are accomplished.

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*Inventory Reporting*

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63 The following information shall be included in an annual inventory of City electricity  
64 consumption and provided to the Maryland Energy Administration.

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City Building	Building Size	Electricity – Conventional Energy	Electricity- Renewable Energy	Total MWh	Electricity Consumpti on Intensity
	Square Feet	MWh	MWh		Total MWh/SF
City Hall					
<b>Total</b>					

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68 *Plans and Implementation*

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70 The City will establish an Energy Reduction Plan ("Plan"). The Plan will outline the process and  
71 include a timetable of execution by which the City will accomplish designated tasks in order to  
72 reach the energy reduction goal. The City will implement the necessary projects described in the  
73 Plan in order to meet the goal outlined in this Policy.

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75 *Applicability*

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77 This policy applies to all departments of the City.

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79 *Implementation Team*

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81 The following City staff will be responsible for overseeing this project and implementing the  
82 Plan: City Manager.

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84 This Resolution shall take effect immediately upon passage.

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86 Date Approved: December 9, 2013

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88 ATTEST:

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93 Toni Taylor  
Toni Taylor, Council Clerk

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**City Council of Glenarden**

Carolyn Smallwood  
Carolyn Smallwood, President, Ward I

Elaine A. Carter  
Elaine A. Carter, Vice-President Ward II

Judy C. Diggs  
Judy Diggs, Councilwoman, At Large

Deborah A. Eason  
Deborah A. Eason, Councilwoman, Ward II

James A. Herring  
James Herring, Councilman, Ward I

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118 Yes -6-

119 No -0-

120 Abstain -0-

Jennifer A. Jenkins, Councilwoman, Ward III

*Maxine E Phifer*  
Maxine Phifer, Councilwoman, At Large

# EECBG

## AUDIT REPORT

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December 9, 2013

Mr. Bill Reaves  
City of Glenarden  
8600 Glenarden Place  
Glenarden, MD 20706  
[breaves@cityofglenarden.org](mailto:breaves@cityofglenarden.org)

Dear Mr. Reaves:

On behalf of the Maryland Energy Administration's (MEA) EmPOWER Energy Efficiency and Conservation Block Grant (EECBG) program, MEA Technical Assistance Team member Khepra Energy Group has performed a field audit showing preliminary energy savings and financial analysis of energy efficiency improvements for the Town of Glenarden.

This *Audit Report* presents summary information regarding your proposed EECBG project. Please feel free to use this information in submitting your project for MEA approval.

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### PROJECT DESCRIPTION & ADDRESS

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#### 1. Municipal Building: HVAC Consolidation

- a. Recommended Energy Efficiency/Conservation Measures (EECMs) from information determined during field audit
  - i. Demo 9.0 EER, 4 ton heat pump (1992) located on roof, serving the Conference Room and the 9.0 EER, 2-1/2 ton rooftop unit (1997) serving the TV/Small Office. Ordinary life expectancy of the existing equipment is 15 years.
  - ii. Replace with new 19 SEER heat pump condensing unit and 19 SEER rooftop electric cool / gas heat unit.

#### 2. Municipal Building: T-8 Relamping

- a. Recommended EECMs from information determined during field audit
  - i. Relamp existing T8s with high efficiency T8

#### 3. Municipal Building: Occupancy Sensors

- a. Recommended EECMs from information determined during field audit
  - i. Install occupancy sensors throughout the building

#### 4. Location

- a. Municipal Hall  
8600 Glenarden Parkway  
Glenarden, MD 20706

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**BASELINE ANALYSIS**


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**1. Energy Consumption**

A year of electricity and gas bills were provided.

The following table summarizes the baseline consumption data and projected savings from the results of the field audit.

Assumptions and calculations performed in the analysis:

**Upgrade Poor Efficiency HVAC**

- Existing Heat Pump – 10.0 SEER (4.8 kW), 7.0 HSPF (6.86 kW)
- Existing RTU – 8.5 EER (3.53 kW)
- New Heat Pump – 19.0 SEER (2.53 kW), 9.5 HSPF (5.05 kW)
- New RTU – 19.0 SEER, 17 EER (1.76 kW)
- Full Load Cooling Hours 1,080, Full Load Heating Hours 890
- Existing Energy Use - 5,184 kWh [HP<sub>c</sub>] + 6,103 [HP<sub>h</sub>] + 3,812 [RTU<sub>c</sub>]
- New Energy Use - 2,728 kWh [HP<sub>c</sub>] + 4,497 [HP<sub>h</sub>] + 1,906 [RTU<sub>c</sub>]

**Relamp T8.**

- Replace 153, T-8, 32 watt lamps with T-8, 25 watt lamps

**Add Occupancy sensors**

- Add 40 occupancy sensors
- Overall lighting reduced by 780 hours per fixture

**Table 1: Historical Baseline Data and Projected Savings**

		Replace HVAC Units	Relamp	Install Occ. Sensors	Totals
a.	Average annual energy consumption <sup>1</sup>				
	Electricity [kWh]	15,099	70,785	70,785	162,945
	Natural gas [Therms]	0	0	0	0
b.	Number of hours of operation	1,080 cooling 890 heating (full load hours)	~2,100-8,760	~780 reduction	N/A
c.	ECM Energy Consumption				
	Electricity [kWh]	9,311	56,508	65,587	126,807
	Natural gas [Therms]	0	286	104	332
d.	Annual energy consumption savings				
	Electricity [kWh] {a <sub>1</sub> -d}	5,967	14,277	5,198	36,138
	Natural gas [Therms] {a <sub>2</sub> -c}	0	-286	-104	-332

<sup>1</sup> Calculated based on estimated wall area

## 2. Utility Bill Analysis

Electric service is provided by BGE. Economic savings calculations are based on an estimated average blended tariff rate of **\$0.1228 per kWh**. The rate includes all surcharges, which are added on a per-kWh basis.

Natural gas is provided by Washington Gas. The average tariff rate for natural gas is **\$1.143 per Therm**.

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## EECBG PROJECT ANALYSIS

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The analysis methodology used is consistent with the *International Performance Measurement and Verification Protocol* ([www.ipmvp.org](http://www.ipmvp.org)) adopted in 2009.

### 1. Costs

The estimated costs of the project are based on the engineering estimated project costs using RS Means Mechanical for consolidating the HVAC system. Installation cost for the occupancy sensors were estimated at \$255/ceiling-mounted sensor and \$58/wall-mounted sensor. The installation cost for the T-8 replacement is based on \$47/lamp.

Based upon our calculations, with your EECBG award of \$37,000, you could consolidate existing cooling systems, relamp existing T-8 with high efficiency T-8, and install occupancy sensors.

**Table 2: Estimated Costs within EECBG Award Amount**

		<b>Municipal Building</b>
a.	EECBG award amount	\$37,000
b.	Upgrade HVAC	\$14,800
c.	Relamp with high efficiency T-8	\$6,567
d.	Install Occupancy Sensors	\$6,260
e.	Total cost	\$27,627

### 2. Economic, Energy, and Environmental Benefits

If you use your \$37,000 EECBG award to implement the recommended Energy Efficiency/Conservation Measures, we calculate the below estimated energy, economic and environmental benefits.

**Table 3: Estimated Energy, Economic and Environmental Benefits**

<b>Energy Benefits</b>		Consolidate HVAC	Relamp T-8	Install Occ. Sensors	Total
a.	Electricity Annual Demand Reduction ( <i>kW</i> )	4	20	0	24
b.	Annual Reduction in Electricity Consumption ( <i>kWh</i> ) {From estimated cost and savings table line a.}	5,967	14,277	5,198	21,626
	Annual reduction in Natural Gas Consumption ( <i>Therms</i> )	0	-286	-104	-332
c.	Lifetime energy savings from source (Million Btu)	895	913	499	2,299
<b>Economic Benefits</b>					
d.	Installed Cost (\$)	\$14,800	\$6,567	\$6,260	\$27,627
e.	Annual Cost Savings (\$) {From estimated cost and savings table line g.}	\$733	\$1,420	\$519	\$2,276
f.	Simple Payback (years) { $d \div e$ }	20.2	4.6	12.1	12.1
g.	Lifetime Cost per Million Btu (\$) { $d \div c$ }	\$16.54	\$7.19	\$12.55	\$12.02
<b>Environmental Benefits</b>					
h.	Annual carbon dioxide emission reductions (kg)	3,079	5,765	2,100	9,299
i.	Lifetime carbon dioxide emission reductions (Metric Tons)	46.2	46.1	25.2	116.8
j.	Lifetime Cost per Metric Ton of carbon reduced (\$) { $d \div i$ }	\$320.45	\$142.40	\$248.46	\$236.54

**3. Additional Benefits**

Reducing the lighting power will have the secondary benefit of reducing cooling demand in the building. The occupancy sensors can reduce the cooling demand further.



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## RECOMMENDATIONS

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### Recommended EECMs

After analyzing your potential energy efficiency/conservation measures (EECMs), we **recommend that you implement all three EECMs**. The existing low efficiency cooling equipment can be replaced to reduce operating costs while eliminating near term equipment replacement costs. You will save additional energy by relamping the existing T-8 lamps with high efficiency T-8 lamps and installing occupancy sensors in all spaces. In addition to energy savings, the relamping and occupancy sensor replacement measures provide savings in maintenance reduction costs not accounted for in this analysis.

We can confirm that the recommended EECMs are eligible to receive EmPOWER EECBG funds, are within your EECBG budget, will reduce energy consumption and/or generate clean energy, and have reasonable payback. Keep in mind EECM costs are estimates and may change after you have actual costs from contractor bids, which in turn may affect estimated payback.

If you have EECBG funding still available after recommended EECMs are approved and implemented, you may want to contact Account Manager to explore ways to spend down the total award on “loose change” EECMs—such as CFL lamps, overhead fluorescent fixtures, or exit signs; central or window air conditioners, or a gas furnace; hot water tanks, tankless water heaters, or solar water heating systems; or ENERGY STAR-rated appliances including refrigerators, dishwashers, computers, and copiers.

### Next Steps

Following MEA approval, your Account Manager will work with you on Post-Project Approval steps. Please review Addendum D of your ARRA Addendum to the EECBG Grant Agreement for more information on the procurement requirements.

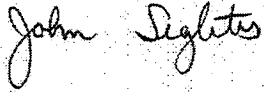
MEA and the EECBG Technical Assistance team would also like to be sure that you are aware of the following additional energy project funding sources that are available in case you wish to consider implementing future energy projects:

- EmPOWER Programs. Maryland electric utility rebate programs (e.g., for lighting and HVAC) include: Baltimore Gas & Electric: <http://www.bgesmartenergy.com/>
- MEA's Jane E. Lawton Loan Program. This Maryland state program has a limited amount of energy efficiency loan funding available that local governments are eligible for. The minimum loan size is \$40,000 so this could be useful for projects that need a substantial amount of additional funding. For more information, browse to <http://energy.maryland.gov/incentives/state-local/janeelawton.asp>.

If you decide to leverage non-ARRA financial resources to expand your EECBG project beyond the scope estimated to be fundable using your grant, please keep in mind that if you commingle other funds with your EECBG grant for additional measures, you will be required to comply with all ARRA reporting requirements.

If you would like to discuss this analysis in greater detail, please contact me or your Account Manager.

Sincerely,

A handwritten signature in black ink that reads "John Segletes". The signature is written in a cursive style with a large initial "J".

John A. Segletes, CEM  
MEA Technical Assistance Team Energy Auditor  
Khepra Energy Group  
[jsegletes@khepragroup.com](mailto:jsegletes@khepragroup.com)

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## PROJECT APPROVAL CHECK LIST

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As outlined in Attachment E of your EECBG grant agreement, once you have decided on the project that you wish to implement with your EECBG grant funds, MEA must approve your project.

Below is a check list of items that must be submitted to MEA in order for your project to be approved. Your Technical Assistance Team representative will work with you to compile the documentation listed below and to submit the appropriate documentation to MEA.

<b>Check List of Items for Project Approval</b>	
<b>1. Eligible Technology</b>	
<input type="checkbox"/>	a. Ensure that the proposed project is on the list of eligible energy technologies contained in Attachment A of your EECBG grant agreement.
<b>2. Audit Report</b>	
<input type="checkbox"/>	a. Ensure that the project energy savings have been quantified in the <i>Audit Report</i> provided by MEA's Technical Assistance Contractor.
<b>3. Historic Preservation</b>	
<input type="checkbox"/>	a. Submit Historical Preservation documentation to MEA. This can consist of either 1) a completed <i>Maryland Historical Trust (MHT) Project Approval Form</i> (Attachment C <sup>2</sup> of your grant agreement) signed by MHT <i>or</i> 2) documentation from MEA's qualified historian that your project is eligible to be exempted from the MHT review process under the Programmatic Agreement between MEA, MHT, and the U.S. Department of Energy (DOE).
<b>4. Waste Management Plan</b>	
<input type="checkbox"/>	a. Complete and Submit the <i>Maryland EECBG Waste Management Plan Template, Part 1</i> (Attachment B in your EECBG grant agreement).

Your completed forms and supporting documentation should be sent to your assigned Technical Assistance Team *Account Manager*, who will make the forms available to MEA for review.

After review by MEA, MEA will send a signed copy of the *EECBG Project Approval Form* (Attachment E of your EECBG grant agreement) to you. Only after you have a signed copy of the *Project Approval Form* can you proceed to procurement and installation for your project—as detailed in the *Post-Project Approval Checklist* available from your *Account Manager*.

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<sup>2</sup> All project forms can be found in your grant agreement, and also on MEA's EECBG website:  
<http://www.energy.state.md.us/EECBG.asp>