

Maryland Smart Energy Communities: Guidelines and Resources for Energy Efficiency Policy



Maryland Energy

ADMINISTRATION

Powering Maryland's Future

Energy Efficiency Policy:

Establish an electricity consumption baseline and develop a plan with the goal to reduce per-square foot electricity consumption of the city/town/county buildings by 15% within 5 years of adoption.

Purpose

The purpose of this document is to help Maryland Smart Energy Communities (MSEC) better understand the program and ultimately meet the three program deliverables required to receive MSEC funding. This document is an excellent starting place for completing the deliverables, but should be supplemented by asking MEA staff and/or resources on the MSEC website at:

<http://energy.maryland.gov/Govt/smartenergycommunities/>.

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Energy Efficiency Policy Guidelines

Establish an electricity consumption baseline and develop a plan with the goal to reduce per-square foot electricity consumption of the city/town/county buildings by 15% within 5 years of adoption.

INTRODUCTION

Maryland has adopted an aggressive goal for reducing per capita energy consumption by 15% by 2015. Reducing energy usage lower greenhouse gas emissions and saves residents money.

GOAL

Becoming a Maryland Smart Energy Community requires that a local government (city, town, or county) sets the goal of reducing per-square foot electricity consumption of government buildings by 15% within 5 years.

DELIVERABLES

By applying to become a Maryland Smart Energy Community, the local government agrees to the following three deliverables, to be completed by October 31, 2013:

- (1) Develop an initial estimate of total local government building electricity consumption for a baseline year.** This baseline electricity consumption must include all divisions and departments of the local government including all municipal buildings, drinking water and wastewater treatment plants, and pumping stations owned by the local government. If you are also pursuing the renewable energy policy, please use the same electricity consumption baseline.
 - The baseline year should consist of the most recent year of complete data. For applications due in December 2013, this should be Calendar Year 2013. However, to allow communities to take credit for energy efficiency measures completed in recent years, a local government may provide a baseline that goes back as far as 2010, and provide a reduction plan that begins 2011. Already-completed measures should be documented in your communities energy reduction plan (See below).
 - The electricity use baseline should be provided on kWh (kilowatt-hour) per year basis. Please be sure to specify your units. 1000 kWh = 1 MWh. Gross floor area should also be provided to determine an electricity use per square foot calculation. Measuring electricity use per square foot allows for new buildings to come online that will contribute positively to the per-square foot reduction goal.
 - MEA recommends entering building data into ENERGY STAR Portfolio Manager to establish the electricity baseline inventory or via the Excel file developed for MD Smart Energy Communities (see below). A variety of tools and methods are

acceptable, but must be approved by MEA. If a local government owns a very large number of buildings, they may work directly with MEA to define an appropriate way to benchmark and plan for electricity reductions on the most relevant subset of their buildings.

- If you choose to use Portfolio Manager, completing the baseline inventory requires the following information about each building:
 - Building street address
 - Year built: this information can often be found in the State's real property database, located at <http://sdat.resiusa.org/RealProperty/Pages/default.aspx>
 - Gross floor area
 - Key operating characteristics for each major space type (details found on the Portfolio Manager website)
 - 12 consecutive months of electricity bills. If you don't have this information readily available, contact your electric utility provider, as most will be able to easily supply this historical information.

(2) Pass a policy committing the local government to reducing the electricity use baseline by 15% within the 5-year period following the Baseline Year. MEA provides sample policy language below, which local governments can modify to suit their specific needs. MEA will provide local governments with technical support as they work through the policy development process.

(3) Put in place a comprehensive program designed to reduce the electricity use baseline by 15% within the 5-year period following the Baseline Year. For example, applicants using a Calendar Year 2010 baseline must reduce their total energy use by 15% by the end of 2015. Please note that the 5-year time period begins the year following the baseline year, not the year following designation as a Smart Energy Community. The 15% reduction is applied to the aggregate electricity use (in MWh or kWh).

Create an Energy Reduction Plan (ERP) to document both the baseline electricity consumption and the comprehensive program to reduce normalized electricity consumption by 15%. An ERP is a document that requires thoughtful planning and participation by all municipal departments. A team of individuals and a designated lead responsible for conducting the baseline inventory and developing the ERP should be identified. The process will involve collecting electricity data using ENERGY STAR Portfolio Manager or equivalent, analyzing the data to understand where reductions can be achieved, setting goals and developing strategies based on data collection and analysis, and finally developing and writing the ERP. MEA will be available to provide support for local governments as they conduct the baseline inventory and develop the ERP.

A well-prepared ERP will provide a realistic path for implementation of energy-saving improvements. MEA encourages local governments to think creatively

about how they will reach the 15% savings goal. The benefits of ERP implementation include long-term savings in annual electricity costs and reductions in a local government's greenhouse gas emissions. It also presents an opportunity to perpetuate these benefits if a portion of the cost savings is re-invested in further energy efficiency. Finally, the ERP is an opportunity to engage the community in municipal energy reduction, both in its design and implementation and in publicizing its successes.

ANNUAL REPORTING

The local government will submit annual reports to MEA documenting the progress made during that year. Participants must show that they are making a good-faith effort to achieve the electricity consumption reduction goal. Local governments who earn the Smart Energy Community designation and are up-to-date on their annual reporting may be eligible for grant funding in future years.

PROGRAM SUPPORT

The Maryland Energy Administration will provide technical assistance to all participating local governments to help with (1) developing an initial estimate of total local government building electricity consumption for a baseline year, (2) developing and passing the proper policies/ordinances to commit to a 15% reduction in local government electricity consumption within 5 years, and (3) developing a plan to reduce electricity consumption. Participants may also use 30% of their grant award to pay for the administrative costs, indirect costs, and pre-project activities including, but not limited to, staff time, project design, feasibility studies, and energy audits.

Electricity Consumption Baseline Template

(Ask contacts at Environmental Finance Center to provide .xls version of the Baseline Template)

The electricity baseline for both the energy efficiency and renewable energy policies may be calculated using the table below. The energy efficiency goal is assessed against the baseline electricity consumption per gross square foot of space (kWh/SF) and the renewable energy goal is assessed against total baseline electricity consumption (kWh). See the language in the guidelines above about what facilities and buildings should be included in the baseline and how to select a baseline year. An Excel version of the baseline template is available at the Maryland Smart Energy Communities website. Please visit the MSEC website for sample baselines or contact MEA staff for help.

Building Type and Address	Building Age	Building Size	Electricity Purchased	Electricity On-Site Generation	Electricity Total	Electricity Consumption Intensity
	Year Built	Square Feet	kWh	kWh	kWh	Total kWh/SF
<i>Example: Town Hall</i>						
<i>Example: Police Station</i>						
Subtotal for Buildings						
<i>Example: Waste Water Treatment Plant</i>						
<i>Example: Streetlights</i>						
Total						

Rules of Thumb:

- If the town/county pays for electricity on a particular meter, then it should be included in the inventory.
- Electricity consumed at all town/county owned buildings and sewer and water related electricity end-uses should be included in the inventory unless removed under the 75% rule (see below).
- Schools may be excluded from the baseline electricity consumption inventory.
- Streetlights do not need to be included in the inventory, but if your community pays the electricity bills on streetlights, they could be a prime candidate for efficiency savings and should be considered.
- Not all buildings need to be included in the baseline inventory, but at least 75 % of the town's/county's overall electricity consumption should be in the inventory.
- Do not overlook the square footage data, which are essential part of the efficiency baseline. Some electricity meters will have no associated SF data; this is fine.

Energy Efficiency Model Policy

(Ask contacts at Environmental Finance Center to provide .doc version of the model policies)

POLICY NAME _____

Disclaimer – This model policy was prepared to assist Maryland Smart Energy Communities adopt a policy related to energy efficiency. The policy is for illustrative purposes and may be modified.

A POLICY DECLARING THE TOWN/CITY/COUNTY OF (COMMUNITY NAME)'S INTENT TO TAKE A LEADERSHIP ROLE IN REDUCING ELECTRICITY CONSUMPTION WITHIN (COMMUNITY NAME), PARTNERING WITH THE MARYLAND ENERGY ADMINISTRATION, AND ENROLLING AS A MARYLAND SMART ENERGY COMMUNITY.

WHEREAS, by adhering to the Maryland Energy Administration's Smart Energy Communities Program the town/city/county of (COMMUNITY NAME) has committed to being a socially responsible leader by decreasing its electricity consumption; and

WHEREAS, the town/city/county of (COMMUNITY'S NAME) recognizes that by smartly investing in energy efficiency, it can have significant monetary savings in the long term;

NOW, THEREFORE, THE (COMMUNITY NAME) TOWN/CITY/COUNTY COUNCIL RESOLVES TO ADOPT THE FOLLOWING GOALS AND COMPLETE THE FOLLOWING INITIATIVES LISTED BELOW:

Section 1: PURPOSE. The purpose of this policy is:

- To become a Maryland Smart Energy Community by enrolling within the program and following the instructions provided by the State of Maryland.
- To establish the goal of reducing per-square-foot electricity consumption by 15 percent relative to the baseline within 5 years of the baseline year.
- To report electricity consumption and progress towards the goal annually to the Maryland Energy Administration in order to assure that the town/city/county of (COMMUNITY NAME) accomplishes said goals in a timely fashion.

Section 2: DEFINITION. For the purpose of this policy, the following terms shall have the meaning given:

- a) *Electricity Consumption* – The amount of kilowatt-hours (kWhs) consumed by (City/Town name) on an annual basis including electricity generated and consumed on-site and electricity purchased from a utility.
- b) *Building Space* – The amount of gross square feet (GSF) of building space owned by the (City/Town) AND for which electricity is paid by the (City/Town).
- c) *Per-square-foot-electricity consumption* – Electricity consumption (in kWhs) divided by building space (in GSF) calculated on an annual basis.

- d) *Baseline* – Per-square-foot-electricity consumption (kWhs/GSF) in a pre-determined baseline year. May include streetlights, but is not mandatory. Must include all buildings as well as sewer and water facilities.
- e) *Baseline Year* – The 12-month period selected by (City/County) as the baseline.

Section 3: BASELINE DOCUMENTATION

The baseline including data related to the specific time period, electricity consumption, building size, and results will be completed by October 31, 2014 and can be found as an appendix to later be attached to this document titled, “MSEC_Baseline_(COMMUNITY NAME)”

Section 4: GUIDELINES

The (City/Town/County) will maintain an annual electricity consumption inventory for all (City/Town/County) owned buildings and other entities captured in the initial baseline. This annual inventory will be conducted using Energy Star Portfolio Manager or similar tool and will be provided to the Maryland Energy Administration by April 1 annually.

Plans and Implementation

The town/city/county will additionally establish an Energy Reduction Plan. The plan will outline the process and include a timetable of execution by which the town/city/county of (COMMUNITY NAME) will accomplish designated tasks in order to reach their goal. (COMMUNITY NAME) will implement the necessary projects laid out in their Energy Reduction Plan in order to meet the goal outlined in this policy.

Questions/Enforcement

All inquiries should be directed to the person responsible for implementing this policy. The Community Energy Manager and/or their designee will implement this policy.

Applicability

This policy applies to all departments of the (Town/City/County) with the exception of the exclusions outlined in the definitions above.

Section 5: EFFECTIVE DATE

This policy shall be effective immediately.

Date (Mayor’s/County Executive’s Name)

Town/City/County Energy Efficiency Policy	
Original Proposal Date	
Revision Date	
Adoption Date	
Effective Date	

Energy Reduction Plan Instructions and Outline

Disclaimer – This outline was prepared to assist Maryland Smart Energy Communities as they assemble an electricity reduction plan (ERP). The outline is for illustrative purposes and may be modified to suit the community. Contact MEA for completed samples from previous Maryland Smart Energy Communities.

A comprehensive ERP consists of a number of key components that enable a local government to establish energy reduction goals and develop a structure to realistically meet those goals over a specific period of time. The outline below presents the format for the ERP and addresses its key components. *The information contained in the outline below is the **recommended** information that a local government is expected to provide in its ERP.* Please use the sample tables/spreadsheets provided or equivalent tables/spreadsheets generated in Portfolio Manager. Note that it is important to also provide a brief supporting narrative.

Resource permitting, MEA will provide support for participants as they develop the ERP, including webinars, in-person trainings, and on-site technical assistance.

This policy also references two spreadsheets, labeled “Energy Use Baseline” and “Planned Energy Conservation Projects” Excel spreadsheets, available for download at <http://energy.maryland.gov/Govt/smartenergycommunities>.

Why Does MEA Want This Level of Detail?

This information will be used by MEA to:

- Confirm that a local government has a well thought-out and documented path to fulfill their commitment to reduce their energy consumption by 15% in five years.
- Ensure that all Smart Energy Communities have met similar criteria in order to be designated.
- Measure progress toward the [EmPOWER Maryland goal](#), including energy reduction and energy cost savings.

ENERGY REDUCTION PLAN OUTLINE

I. LETTERS FROM THE LOCAL GOVERNMENT VERIFYING ADOPTION OF THE ERP

- The local government should provide a letter from the Chief Executive Officer of the city or town stating that it has adopted the Energy Reduction Plan. The Chief Executive Officer is defined as the city/town manager, the Mayor, the County Executive, the County Commissioners, or equivalent.
- Include a copy of the enabling legislation or policy.

II. EXECUTIVE SUMMARY

A.Narrative Summary of the Town - including population, relevant history, Energy Star® ratings (from Portfolio Manager, if applicable), EPA Community Energy Challenge participant, DHCD Sustainable Communities participant, Sustainable Maryland Certified participant, etc.

- *Summary of Municipal Energy Uses* – Describe the total amount of electricity consumed (kWh), the amount of building space (square footage), and any relevant context related to recent or forecasted physical changes.
- *Total Number of Local Government Buildings* – Break down buildings by type of heating fuel (e.g. electric, oil, propane, natural gas, etc.). This program focuses on reducing electricity consumption, but there may be opportunities in the future to reduce other fuel types as well.
- *Water and Sewer* – note the number of drinking and wastewater treatment plants and pumping stations owned by the local government.

B.Summary of Energy Use Baseline and Plans for Reductions – use sample Table 1 provided below. This should be a summary, consistent with the data in the “Energy Use Baseline” and “Planned Energy Conservation Projects” Excel spreadsheets (download at <http://energy.maryland.gov/Govt/smartenergycommunities>)

Table 1: Summary of Municipal Energy Use Baseline

BASELINE YEAR —	kWh Used in Baseline Year	% of Total kWh Baseline Electricity Consumption	Gross Square Footage (Baseline)	Projected Planned kWh Savings	Savings as % of Total kWh Baseline Electricity Consumption	Gross Square Footage (Projected for Year 5)
Buildings						
Water/Sewer /Pumping						
Total		100%			15%	

III. ENERGY USE BASELINE INVENTORY

A.Identification of the Baseline Year

B.Local Government Energy Consumption for the Baseline Year

How much electricity did your local government buildings use in the baseline year? MEA recommends using ENERGY STAR Portfolio Manager to create a baseline inventory and track the ongoing energy consumption. If you choose not to use Portfolio Manager, provide a description of how you determined the baseline, as well as all relevant data and calculations.

For all buildings:

- Using the separately-provided Excel spreadsheet called “Energy Use Baseline,” provide the annual kWh consumption. Include building size (gross square feet) and a calculation of electricity consumption intensity (kWh/SF). The Excel spreadsheet can be found at <http://energy.maryland.gov/Govt/SmartEnergyCommunities>

Or

- Use ENERGY STAR Portfolio Manager to provide a summary of baseline energy consumption, in kWh. Include building size (gross square feet) and a calculation of electricity consumption intensity (kWh/SF)

IV. ELECTRICITY REDUCTION PLAN

A. *Narrative Summary* –

1. *Overview of Goals for Years 1-3*
2. *Overview of Goals for Years 4-5*
3. *Identify Areas of Least Efficiency/Greatest Waste*

B. ***Getting to a 15% Electricity Use Reduction Within the 5 Year Period Following the Baseline Year*** - This section should include electricity reductions anticipated from all divisions and departments including: all local government buildings,

drinking water and wastewater treatment plants, and pumping stations owned by the local government.

1. *Program Management Plan for Implementation, Monitoring and Oversight* – Identify the personnel responsible both for oversight of the Electricity Reduction Plan implementation and for implementation of energy conservation measures in specific departments or buildings, if applicable. Also identify personnel responsible for the Annual Reporting requirements.
2. *Summary of Energy Audit(s) or Other Sources for Projected Energy Savings* - Although an energy audit is not a requirement for an ERP, an audit can provide a better understanding of existing conditions and can identify opportunities for electricity reduction. All sources for projected energy savings for individual measures should be identified in the separate “Planned Energy Conservation Projects” Excel spreadsheet and included as attached audits or calculations. Please identify if any energy audits have been completed in the past (as part of the MEA-funded EECBG program or otherwise), and provide the audit report as an attachment.
3. *Electricity Conservation Measures* – In the “Planned Energy Conservation Projects” spreadsheet, list completed and planned electricity conservation measures (see Table 2). References for each measure should be included in the spreadsheet and these references should be included as appendices to the

Electricity Reduction Plan. Please subtotal projected annual kWh savings for each category: buildings, water and sewer, as well as a municipal total. Refer to the samples in the spreadsheet.

The “Planned Energy Conservation Projects” will be also be used for future Smart Energy Communities reporting if you are designated, including applying for and final reporting on a Green Communities designation grant and for annual reports.

For each measure, provide (see Table 2):

- Status/projected timeline,
- Projected electricity savings (kWh),
- Projected cost savings,
- Projected total cost,
- Utility incentives received,
- Planned use of Maryland Smart Energy Communities grant funds, if designated,
- Measures requiring additional funding, please list the funding source: capital budget, operating budget, debt and type, or other grants
- Source of the calculated energy and cost savings in the reference column. Audits & calculations should be included in the Appendices.

Table 2. Planned Energy Conservation Projects Table (Example)

Project/ Type	Status	Projected Annual Electricity Savings (kWh)	Projected Annual Cost Savings (\$)	Total Installed Cost (\$)	Utility Incentives (\$)	Net Cost (\$)	Funding Source(s) for Net Costs	Source for Projected Savings
CFL Lighting, City Hall	Spring 2014	5,641.00	651.51	930.00	Pepco Rebate – \$300	630.00	MSEC Grant	2012 EECBG Audit
Motion Sensors, City Hall	Spring 2014	372.00	42.95	540.00	N/A	540.00	MSEC Grant	2012 Audit
HVAC Upgrade, City Hall	Spring 2014	25,065.00	2,895.06	15,500.00	N/A	15,500.00	MSEC Grant	2012 Audit
Water Heater Upgrade, City Hall	Spring 2014	3,970.00	254.84	790.00	N/A	790.00	MSEC Grant	2012 Audit
T8 Lighting, Library	Spring 2014	9,150.00	908.11	3,340.00	Pepco Rebate - \$500	2840.00	MSEC Grant	2012 Audit
HVAC Installation, Terminal Snack Bar	TBD	4,160.00	480.49	5,035.00	TBD	TBD	Source TBD	2012 Audit
TOTAL		48,358.00	5232.96	26,135.00				

4. *If Creating an ERP Without an Audit* – Local governments can analyze the energy baseline data for the least efficient buildings to identify appropriate Energy Conservation Measures based upon knowledge of the building and its equipment. Projected electricity savings may be obtained by requesting information from equipment manufacturers. These calculations should be included in the appendices.

If sources other than an audit are used for projected electricity savings, please provide a brief summary of those sources here and include complete assumptions and calculations in the appendices. MEA recommends that local governments use the [NEEP Technical Resource Manual](#).

5. *For Local Governments Taking Credit for Efficiency Measures Occurring Before Smart Energy Communities Designation Application* - (i.e. for local governments using a 2010 baseline). Actual reductions in electricity usage may be applied to the 15% in identified energy savings. For example, a local government with a baseline year of 2010 saw an electricity reduction of 4% in 2011. They would then need to identify an additional 11% in documented energy efficiency measures in the “Planned Energy Conservation Projects” spreadsheet.

In order to claim credit for actual energy reductions, include in the “Planned Energy Conservation Projects” spreadsheet all efficiency measures implemented during the period following the baseline year with estimated energy savings from each measure.

6. *For Local Governments Using a Performance Contract (Energy Management Services)* – If an audit has been performed, a local government may provide the audit report in lieu of the “Planned Energy Conservation Projects” spreadsheet for those measures and buildings/facilities. If less than a 15 percent reduction from the baseline energy use has not been identified, additional measures should be listed using the “Planned Energy Conservation Projects” spreadsheet.

C. Summary of Long-Term Energy Reduction Goals – Beyond 5 years

1. *Local Government Buildings*
2. *Water and Sewer Facilities*
3. *Perpetuating Energy Efficiency* – Has the local government considered an energy conservation savings reinvestment plan (in which some of the energy savings are reinvested into a fund to finance future energy efficiency or renewable efficiency measures)? Or has it identified a mechanism for directing some of the energy cost savings from an annual operating budget to reinvesting in further energy efficiency?
4. *Identifying non-electric savings opportunities*

V. LIST OF RESOURCES

Identify resources that the local government used to create its ERP (websites, documents, tools). Please note that this section cannot be used in place of the Reference "Source for Projected Savings" column in the "Planned Energy Conservation Projects" spreadsheet.