GREEN COMMUNITIES GRANT PROGRAM

GUIDANCE

Energy Use Baseline

Criteria 3

Sample Energy Reduction Action Plan Outline

INTRODUCTION

Criteria Three of the Green Communities Program requires that a municipality:

(1) Establish an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting

The energy use baseline is applied in the aggregate across buildings, streetlights and vehicles on an MMBTU (million British Thermal Units) basis.

There are a number of acceptable tools for performing the inventory including:

a. EnergyStar Portfolio Manager
b. ICLEI software
c. DOER's Energy Information Reporting System
d. Other tools proposed by the community and deemed acceptable by DOER

(2) Put in place a comprehensive program designed to reduce this baseline by 20 percent within 5 years of initial participation in the program.

This guidance was prepared to assist cities and towns in developing a comprehensive program designed to reduce their baseline energy use by 20% within five years of initial participation in the Green Communities Program. This outline is intended for illustration purposes only, though communities are free to utilize the format provided.

ENERGY REDUCTION ACTION PLAN OUTLINE

A comprehensive reduction plan consists of a number of key components which enables a municipality, to establish energy reduction goals and develop a structure to meet those goals over a specific period of time. Green Communities recommends the following information / data be included in a energy reduction plan:

PURPOSE AND ACKNOWLEDGEMENTS

- Letter from municipal officials verifying adoption of the energy reduction plan

- List of contributors that participated in the baseline and reduction plan process
- Executive summary

I. INTRODUCTION

A. ***Background***

i. Summary of the town – populations, number of municipal buildings including schools, number of vehicles, fuel usage (eg. oil, propane, natural gas)

ii. Goal of reducing fossil fuel energy use – include goals regarding any special school accreditations, Energy Star ratings, becoming a Green Community, EPA Community Energy Challenge, ICLEI community

iii. Municipality's role

a. Energy use baseline inventory
b. Energy use forecast
c. 20% reduction
d. Statement of goals and strategies to be used in carrying out the action plan

II. RESULTS OF ENERGY USE BASELINE INVENTORY

A. ***Inventory tool used***

B. ***Existing municipal energy use***

i. Municipal buildings
ii. Vehicles
iii. Street and traffic lighting

C. ***Existing efficiency measures implemented in last 2 years***

D. ***Areas of least efficiency/greatest waste***

E. ***Areas that can be most easily addressed***

III. SUMMARY OF ENERGY AUDIT

NOTE: Although an energy audit is not a requirement, we strongly recommend an audit in order to provide better understanding of existing conditions and identification of opportunities for energy reduction

IV. SUMMARY OF FOSSIL FUEL REDUCTION MEASURES

A. ***Overview of short-, and long-term goals***

B. ***Getting to 20%***

i. Prioritized list of strategies to reduce fossil fuel usage
ii. Tools, resources and financial incentives
iii. Program Management Plan for implementation, monitoring and oversight

V. FOSSIL FUEL ENERGY REDUCTION MEASURES

A. *Short-term energy reduction goals – getting to 20% reduction in 5 years*

i. Municipal Buildings (including schools)
   a. General goals and Prioritized List of Specific Projects
      - Retrofits and Renovations
      - New Construction and Additions
   b. Projected Energy savings
   c. Estimated Project Capital and Operating Costs
   d. Schedule for implementation

ii. Vehicles (including schools)
   a. Areas of vehicle fleet affected
   b. New vehicle/technology costs
   c. Projected Annual energy savings
   d. Timing of anticipated purchase

iii. Street and traffic lighting
   a. General goals and specific projects
   b. Projected Energy savings
   c. Project cost
   d. Timeframe for implementation

iv. Municipally-owned and -operated clean renewable or alternative energy installations
   a. Project overview
   b. Projected clean energy production
   c. Project Capital Cost
   d. Timeframe for implementation

v. Total projected fossil fuel energy reduction

B. *Measurement and Verification Plan for Projected Reductions*

i. Provide Common Technology Features as applicable, e.g. submetering, smart metering, energy management systems

ii. Energy Information Reporting System
   a. Centralized Compilation of data and creation of tracking reports
   b. Comparison of actual vs projected reductions

C. *Long--term energy reduction goals – Beyond 5 years*

i. Municipal Buildings (including schools)

ii. Vehicles (including schools)

iii. Street and traffic lighting

iv. Municipally-owned and -operated clean renewable or alternative energy installations

v. Total fossil fuel energy reduction

VI. CONCLUSION

List of Resources – Identify resources that are available (websites, documents, tools)

Contacts – Provide contact information for local, state, federal non-profit entities that support energy reduction planning

MISCELLANEOUS

- AFTER all energy reduction measures have been taken, credit may be given for the addition of renewable energy resources to reach the 20% reduction goal.
- A community can meet this requirement if it has completed an inventory as described above and has already implemented a program to reduce the baseline within the previous 24 months.
- For applications consisting of more than one community, all communities must complete the inventory. However, the comprehensive program to reduce the baseline by 20% can be applied across all communities.

BTU Conversion Chart

Fuel Energy Content of Common Fossil Fuels Per DOE/EIA

BTU Content of Common Energy Units – (1 million Btu equals 1 MMBTU)

- 1 barrel(42 gallons) of crude oil = 5,800,000 Btu
- 1 gallon of gasoline = 124,000 Btu (based on U.S. consumption, 2007)
- 1 gallon of diesel fuel = 139,000 Btu
- 1 gallon of heating oil = 139,000 Btu
- 1 barrel of residual fuel oil = 6,287,000 Btu
- 1 cubic foot of natural gas = 1,028 Btu (based on U.S. consumption, 2007)
- 1 gallon of propane = 91,000 Btu
- 1 short ton of coal = 20,169,000 Btu (based on U.S. consumption, 2007)
- 1 kilowatt hour of electricity = 3,412 Btu
- 1 therm = 100,000 Btu

FOR MORE INFORMATION

Website:

www.mass.gov/energy/greencommunities