

Attachment D
Energy Efficiency and Conservation Strategy
for Units of Local Governments & Indian Tribes

Grantee: Salem/Essex/MA

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1. Describe your government's proposed Energy Efficiency and Conservation Strategy. Provide a concise summary of your measurable goals and objectives, which should be aligned with the defined purposes and eligible activities of the EECSG Program. These goals and objectives should be comprehensive and maximize benefits community-wide. Provide a schedule or timetable for major milestones. If your government has an existing energy, climate, or other related strategy please describe how these strategies relate to each other.

Measurable Goals and Actions

Given its extensive history and breadth of actions on energy efficiency and renewable energy, the City of Salem chose to use an inclusive public process to create its EECS. In addition, the recent decisions to become a certified DOER Massachusetts Green Community and enter into a long-term energy services management plan both help provide efficient and systematic approaches to developing and implementing an Energy Efficiency and Conservation Strategy (EECS) that will assist the city in accomplish its EECS goals and actions, as follows:

Goal 1) Reduce greenhouse gas emissions from municipal buildings and operations by at least 20 % from Fiscal Year 2009 levels by 2014 and;

Goal 2) Reduce community-wide greenhouse gas emissions by at least 10% from existing levels by 2013.

Measurable Short Term Implementation Actions

Objective A) Establish a baseline, investment grade energy audit of all municipal energy uses in Salem;

Objective B) Use baseline measurement information to create a cleaner, more reliable and efficient municipal energy infrastructure by implementing a long-term Energy Services Management Plan;

Objective C) Implement school building energy efficiency lighting retrofits and help pay for retrofits recently implemented;

Objective D) Conduct traffic light retrofits;

Objective E) Hire Energy and Sustainability Manager to coordinate and implement municipal and community EECS goals; and

Objective F) Become a certified Massachusetts Department of Energy Resources (DOER) Green Community.

Longer Term Implementation Actions

- Add renewable sources of energy such as solar panels at municipal parking garages and the high school and complete the installation of a wind turbine at Winter Island.
- Research the feasibility of creating or accessing commercial and residential financing programs for energy efficiency improvements.
- Implement pedestrian, bike, public transit and shared transportation options to reduce transportation related greenhouse gas emissions;
- Develop community energy choice programs.

Municipal and residential/commercial energy savings gained through executing its primary EECS goals and objectives are critical because of the essential services that municipalities can provide. Adopting and implementing a long-term Energy Services Management Plan (ESMP), performing city building and traffic light energy retrofits, hiring an Energy Conservation Manager, and meeting the criteria to become a MA DOER certified Green Community will all provide measurable and reliable energy savings and help the city fulfill its all of its EECS goals.

Metrics for Short Term Strategy Goals

Energy Audit and ESMP Salem will be selecting its energy services company (ESCO) in January, 2010 and anticipates having its Comprehensive Energy Audit (CEA) completed by the end of March, 2010 by the chosen ESCO. This will accomplish the city's first EECS objective of establishing a baseline measurement of all municipal energy uses in Salem. In order to satisfy its second EECS objective of providing a cleaner, more reliable and efficient municipal energy infrastructure, Salem anticipates entering into a long-term Energy Services Management Plan (ESMP), using the information gathered from its CEA. The ESMP is a comprehensive study which will include extensive site examination, analysis of historical utility billing data for all utility services, building energy modeling, development engineering and an investment grade financial assessment. The data from the CEA

will serve as the basis for recommended actions within the ESMP. Once implemented, those actions will determine the total city energy savings in dollars and total energy savings in kWh of electricity, Therms of fuel oil and natural gas saved, as well as include any new renewable energy sources created by actions under the ESMP.

School Lighting Retrofits Implementing three additional exit sign retrofit projects- at the Bentley, Collins and Saltonstall Schools- will allow Salem to realize an annual projected energy savings of \$39,517 dollars per year once all four projects have been completed. The first of the four projects, the already completed Salem High School lighting retrofit of 2009 is currently providing an annual reduction of 126,762 kWh and a yearly savings \$19,014 dollars to the city in avoided electricity costs. There is a 2.4 year project period payback period even without the use of any additional funding to pay down the project. The completed lighting retrofit projects were financed using zero interest loans to the city by National Grid and the utility is also offering a total rebate of \$69,353 against a total project cost of \$165,009 for completing all four lighting retrofits. one at the Salerno Automotive Center, the other retrofitting exit signs

Traffic Light Retrofits Retrofitting the city's 815 traffic light signal lenses from the conventional 100 watt luminaire to a 23 watt LED luminaire is estimated to reduce power consumption by approximately 85%. Current conventional traffic light fixtures consume approximately 15,938 kWh per month in Salem, at a monthly cost to the city of \$1657. LED fixtures could reduce monthly traffic light electricity costs to \$249 per month and use only 2391 kWh of electricity. Because LED fixtures have an estimated 9 year life compared to 1000 hours for conventional traffic fixtures, the city expects substantial maintenance cost savings with the LED fixtures as well. National Grid is offering a 45% rebate to the city against a total estimated project cost of \$120,510 once the project is completed.

Energy and Sustainability Manager The city will hire an Energy and Sustainability Manager by January 2010. The person staffing the new position will serve as staff to the Salem Renewable Energy Task Force, and work within the city's Community Development and Planning Department to create, coordinate and implement new or existing city energy policies or programs. The Manager will also serve as the liaison between city departments for energy-related projects and as the city's primary contact for existing state or federal energy programs such as MA DOER or US DOE.

Green Community There are five criteria to qualify as a certified Massachusetts DOER Green Community, including: 1) Providing for the as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development (R&D) facilities, or renewable or alternative

energy manufacturing facilities in designated locations; 2) Adopting an expedited application and permitting process under which these energy facilities may be sited within the municipality within 1 year; 3) Establishing an energy use baseline inventory for municipal buildings, vehicles, street and traffic lighting, and put in place a comprehensive program designed to reduce this baseline by 20 percent within 5 years of initial participation in the program; 4) Purchasing only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable; and 5) Requiring all new residential construction over 3,000 square feet and all new commercial and industrial real estate construction to minimize, to the extent feasible, the life-cycle cost of the facility by utilizing energy efficiency, water conservation and other renewable or alternative energy technologies.

The city is committed to meeting the five required Green Community criteria by the end of November, 2010 and augment its strong commitment to reducing energy use through its ESMP and other EECS objectives.

Recent City Strategy Energy Reduction Efforts

The City of Salem's commitment to energy reduction and efficient use is well documented. Staff has worked successfully with the City's Renewable Energy Task Force on activities such as the current effort to site a municipally owned, commercial grade wind turbine at Winter Island-including partnering with the Massachusetts Mass Energy Consumers Alliance to provide turbine financing, and passage of a city ordinance to allow the siting of commercial and residential wind turbines. The recent high volatility of energy prices, concerns about climate change, and the 2008 passage of the landmark Massachusetts Green Communities and Global Warming Acts have spurred many Massachusetts communities, including Salem, to begin creating a formal energy policy, including the city's recent commitment to select an energy services management company and enter into a long-term energy services management plan. These actions, and Salem's 2009 decision to become a certified Green Community under the Massachusetts Division of Energy Resources' (DOER) Green Communities Program, are among the most recent noteworthy events of the community's clean energy efforts.

Within the last seven years, the city has also been an award winning participant in National Grid's GreenUP program to promote the choice of purchasing electricity generated by renewable energy sources, partnered with ICLEI in its Cities for Climate Protection Program while completing baseline energy inventories in 2002 and 2004, signed on to EPA's Community Energy and Keyspan's Energy Challenges, advocated for responsible energy use by creating the "Solar in Salem Case Studies" and the 2007 Clean Energy Week activities, and supported transportation

emission reductions by being a charter member of the 2008 North Shore Transportation Management Association.

2. Describe your government's proposed implementation plan for the use of EECSBG Program funds to assist you in achieving the goals and objectives outlined in the strategy describe in question #1. Your description should include a summary of the activities submitted on your activity worksheets, and how each activity supports one or more of your strategy's goals/objectives.

Proposed Implementation Plan

The EECSBG funding will be used to help address achieving several of Salem's EECS goals and objectives including:

Objective C: Implement school building energy efficiency lighting retrofits. \$44,115 of the EECSBG funding will be used to towards paying for the total project cost for the already completed and still to be completed lighting retrofits in the Salem schools. Retrofit projects include the installation of new Salem High School gymnasium lighting, lighting retrofits at the Bates, Bentley, Collins, Nathaniel Bowditch, Saltonstall and Witchcraft Heights Schools, the Salerno Automotive Center, and exit sign retrofit programs at the Bentley, Collins and Saltonstall Schools. Salem will realize an annual projected energy savings of \$39,517 dollars per year once all four projects have been completed. The city is a partner in this effort with National Grid, who financed the completed lighting retrofits and is offering a significant rebate towards the final cost of the project.

Objective D: Conduct identified traffic light retrofits. Retrofitting the city's 815 traffic light signal lenses from the conventional 100 watt luminaire to a 23 watt LED luminaire is estimated to reduce power consumption by approximately 85% and significantly reduce maintenance costs. Salem will apply \$74,010 of the EECSBG funding towards the completion of this project, which also features a \$45,000 rebate from National Grid against the total project cost.

Objective E: Hire an Energy and Sustainability Manager to coordinate and implement EECS goals. The person staffing the new position will serve as staff to the Salem Renewable Energy Task Force, and work within the city's Community Development and Planning Department to create, coordinate and implement new or existing city energy policies or programs. The city plans to allocate \$43,000 of its EECSBG funding towards establishing this new staff position.

The listed objectives support both of the City's primary EECS goals by helping to either:

1) *Reduce greenhouse gas emissions from municipal buildings and operations by at least 20 % from Fiscal Year 2009 levels by 2014 or;*

2) *Reduce community-wide greenhouse gas emissions by at least 10% from existing levels by 2013.*

3. *Describe how your government is taking into account the proposed implementation plans and activities for use of funds by adjacent units of local government that are grant recipients under the Program (response not mandatory for Indian Tribes).*

Coordination with North Shore Communities

As a member of the Metropolitan Area Planning Council (MAPC), the regional planning agency for the 101-member communities in the metropolitan Boston area, Salem will be active in sharing its energy challenges and successes while completing its lighting and traffic retrofits projects, creating a new Energy Services Manager position, developing access for home and business owners to energy retrofit financing options, and beginning its energy baseline audit and subsequent ESMP. Salem will participate with its neighboring communities in two eastern Massachusetts regional groups- MAPC's North Shore Coalition and its North Shore Task Force (NSTF). The North Shore Coalition (NSC) is a collaborative initiative between MAPC and the mayors, managers and town administrators on Boston's North Shore. Established in 2006, the group currently consists of 14 active members who attend meetings and work together on municipal financial management issues and initiatives. Membership in the coalition includes the mayors and town managers or administrators of Beverly, Danvers, Essex, Gloucester, Hamilton, Ipswich, Manchester, Marblehead, Middleton, Peabody, Salem Swampscott, Topsfield and Wenham. The MAPC North Shore Task Force (NSTF) is a group of sixteen communities north of Boston also working collaboratively on issues of regional planning concern. The goal of the NSTF is to cooperate with and to assist each city and town in the task force to coordinate its planning and economic development so as to obtain maximum benefits for the North Shore district and for its cities and towns. Member communities focus on a broad range of issues that impact the North Shore including sustainable development, equitable housing, transportation, clean energy, climate change and transportation.

The city will also share the information gained through all of its projects through the Energy Information System now being established by MA DOER's Green Communities Program as this service becomes available and the Comprehensive Energy Audit comes on line. This will help other communities in the state to gain energy input data as well as experience and "lessons learned" from Salem's efforts to systematically plan, coordinate and implement its EECS goals.

4. Describe how your government will coordinate and share information with the state in which you are located regarding activities carried out with grant funds to maximize energy efficiency and conservation benefits (response not mandatory for Indian Tribes).

Coordination with Massachusetts

City staff and the Salem Renewable Energy Task Force have been working closely with staff from the MA DOER Green Communities Program. In 2009, Salem applied to the Green Communities Program to become a certified MA Green Community by November 30, 2010, accepting technical assistance funding provided by the program to help the city meet the five criteria of the Green Community Program. City representatives have attended workshops and webinars sponsored by MA DOER Green Communities Program as it serves to provide clean energy technical assistance to all Massachusetts Communities as established under the 2008 Green Communities Act. Salem will submit a copy of its EECS to MA DOER once it has been approved by US DOE, as well as copies of their quarterly reports to DOE and any success stories/lessons learned as a result of investments of EECSBG funds the city would like to share.

5. Describe how this plan has been designed to ensure that it sustains benefits beyond the EECSBG funding period.

Long Term Sustainable Benefits

Energy Audit and ESMP: The ESMP and audit program being entered into by the city include long-term monitoring and verification of savings. Monitoring services include services integral to the measurement and verification plan for the Guarantee of Energy Savings. Included in these monitoring services is an annual Guarantee Reconciliation report. The savings from this project on Present Value basis, as well the savings from the overall ESMP of which this project is a part, will far exceed the EECSBG funding offered to Salem for this project, given the projected cost of electricity in a state highly dependent on volatile fossil fuel sources for intermediate and peaking demand response.

School and Traffic Light Retrofits: Both the school lighting and traffic light retrofit programs being proposed by Salem will have sustained benefits far beyond the EECSBG funding period. Lighting retrofits at Salem schools will offer extended savings and reduced environmental impacts over the warranted life of the installed projects. The traffic lighting retrofit project will replace conventional fixtures lasting only 1000 hours with LED fixtures with a working life of nine years. The savings from both of these projects on a Present Value basis are substantial and will far exceed the federal block grant stimulus investment in the form of the EECSBG funds especially given expected electricity cost increases.

Energy and Sustainability Manager: The coordination and implementation of new and existing energy efficiency and conservation programs through the new Energy Conservation Manager's position will increase the effectiveness, productivity and efficiency among all city and volunteer staff involved with municipal energy programs. An energy staff person with strong communication, technical, and organizational skills will enable the city to plan and implement its energy goals and objectives while working within a wide range of city professional staff, city volunteers, area clean energy groups, state/federal energy agency staff and foundation funding staff. The increased coordination, organization, and leveraged funding opportunities offered by investing in an Energy Conservation Manager's position using EECSBG funds will project well past the EECSBG funding period.

Green Community: Once implemented by Salem, all of the MA DOER Green Community criteria, including:

- as of right siting for renewables or renewables R&D;
- expedited permitting for renewables or renewables R&D;
- energy baseline for municipal, vehicles and streetlights with a 20% reduction of use within 5 years of Green Community certification;
- purchase of fuel efficient municipal vehicles and;
- adoption of energy efficient "stretch" building code for both commercial and residential buildings- will represent significant changes to the city's zoning, energy/purchasing policies, and building codes that will far outlive the EECSBG funding period.

6. The President has made it clear that every taxpayer dollar spent on our economic recovery must be subject to unprecedented levels of transparency and accountability. Describe the auditing or monitoring procedures currently in place or that will be in place (by what date), to ensure funds are used for authorized purposes and every step is taken to prevent instances of fraud, waste, error, and abuse.

Monitoring

The city commits to using the funds in a cost effective manner. The city uses financial and management controls that are certified to comply with the requirements under 10CFR 600.220.

EECSBG funded projects will be managed by the Salem Planning and Community Development Department. The Department is responsible for developing and implementing planning and sustainability programs and practices targeted at city departments, employees, the business community and the general public. The Department Director will be responsible for the EECS implementation and will regularly report budget and metric results to the Mayor and City Council. The Director will work with the Energy and Sustainability Manager, the Salem

Renewable Energy Task Force, the utility and public stakeholders to review the EECS and provide for public input. Project highlights and results will be posted on the city's website. City funds for the project will be managed by the Mayor and Finance Director.