

The Commonwealth of Massachusetts
Department of Energy Resources
100 Cambridge Street, Suite 1020
Boston, MA 02114
<http://www.mass.gov/doer>



PROGRAM OPPORTUNITY NOTICE (PON)

Green Communities Grant Program
FISCAL YEAR 2010:
Application for Designation and Competitive Grants

PON-ENE-2010-022
March, 2010



Green Communities Division

INTRODUCTION

The Green Communities Act of July 2008 (GCA), enacted by the Massachusetts General Court and signed by Governor Patrick, establishes a grant program to provide technical and financial assistance, in the form of grants to municipalities and other local governmental bodies that qualify as green communities (M.G.L. Ch. 25A § 10). This Public Opportunity Notice (PON) provides local governmental bodies the opportunity to apply for the Green Communities designation and, when designated, for competitive grants.

PROGRAM OUTLINE

The Department of Energy Resources (DOER), Green Communities Division is seeking to designate local governmental bodies that have met all five criteria established through the Green Communities Grant Program as Green Communities. In addition, for those local governmental bodies so designated a Green Community, the Green Communities Division is seeking to award grant funding for energy efficiency and renewable energy projects. DOER will evaluate these proposals and provide funds in the form of competitive grants to awarded Green Communities. Green Communities can apply to fund more than one project but must submit only one (1) application.

DESIGNATION

Local governmental bodies may qualify as a Green Community if they file an application with the Department of Energy Resources (DOER) in a form and manner to be prescribed by the Department and have met the following criteria:

1. Provide for the as-of-right siting of renewable or alternative energy generating facilities, renewable or alternative energy research and development facilities, or renewable or alternative energy manufacturing facilities in designated locations.
2. Adopt an expedited application and permitting process under which these energy facilities may be sited within the municipality and which shall not exceed 1 year from the date of initial application to the date of final approval.
3. Establish 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. Purchase only fuel-efficient vehicles for municipal use whenever such vehicles are commercially available and practicable.
5. Require 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.

Further definition of these criteria can be found here:

http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/qualification_for_gc.pdf.

The Green Communities Division requires that entities eligible to qualify as green communities complete a designation form.

GRANT FUNDING

Once designated as a Green Community, the entity is then eligible to apply for grant funds through the Green Communities Grant Program. Grants shall be used to finance all or a portion of the costs of studying, designing, constructing and implementing energy efficiency activities, including but not limited to, energy conservation measures and projects; procurement of energy management services; installation of energy management systems; adoption of demand side reduction initiatives; and the adoption of energy efficiency policies. They shall also be

used to finance the siting and construction of renewable and alternative energy projects on municipally-owned land.

Funding for the competitive grants is made possible through the Regional Greenhouse Gas Initiative and is provided by the Green Communities Division. The maximum amount of funds a Green Community can apply for in this round is \$1,000,000, regardless of the number of projects. Funds cannot be used for projects that have already begun physical construction. The total amount of funds available for this program is \$7,000,000. Awards will be evaluated based on the following criteria:

Project Viability

- Shovel readiness (feasibility, design, permits, procurement)
- Budget / Financing (including project budget, pay-back, funds leveraged, etc.)
- Energy reduced by funds spent

Projected Energy Impacts

- Efficiency Measures Implemented to date
- Availability of resources (e.g. Wind Mapping Score)
- CO2 reductions
- Energy reduced by funds spent

Projected Economic Development Benefit

- Job creation / job retention
- Market transformation
- Other economic development benefits associated with this project

Bonus

- Environmental Justice Community
- Regional Applications
- As-of-Right Zoning for generation
- Innovative Green Initiatives Implemented (Appendix D of grant application)

It is anticipated that grant funds will be allocated based on the percent completion of a project. For example, a grantee will receive 25% of their award after the grant agreement and Standard State Contract are executed. An additional 50% will be allocated upon review and verification that the initial 25% has been completed and funds have been expended. The final 25% will be allocated upon completion of the project.

The Grantee will be required to execute a Standard State Contract with the Commonwealth prior to receiving funds. The contract will establish terms and conditions and detail how and when payment will be made. Payments will be made directly to the Grantee. To be considered for funding, applicants must supply a list of all costs associated with the project. The receipt and use of the funds for these services are subjected to unprecedented levels of transparency and reporting requirements including but not limited to reporting, tracking and segregation of incurred costs, job creation and retention, access to records and ensuring prevailing wage rates. The Grantee will be responsible for complying with all compliance and reporting measures.

PROGRAM ADMINISTRATION

The Grantee will manage the program and will ensure that funds are utilized for the projects as awarded in a timely manner, that all applicable permits are obtained, local and state procurement methods are employed, all applicable labor requirements are met, and state approved accounting procedures are used.

PROGRAM REPORTING

The Grantee will be responsible for compliance with all related program requirements, including but not limited to quarterly reports for the program period to DOER electronically in a format provided by DOER.

HOW TO APPLY

Designation Form

In order to be considered for grant funding, the applicant must first be designated as a Green Community. To receive official designation as a Green Community, the applicant must complete a "Designation Form" and submit it to the Green Communities Division by the specified deadline. The applicant will be notified as to whether they qualify as a Green Community once the designation form has been reviewed.

Designation Form Deadline: The designation process is a rolling process. Eligible local governmental bodies may apply for designation at any time. However, in order for a local governmental body to be eligible to submit a grant application, it must submit a designation application prior to the grant application deadline. For the FY 2010 program, in order to be eligible to submit a grant application, the local governmental body must submit a designation application by:

Deadline: Friday, May 14, 2010 by 5:00pm to be eligible to participate in FY 2010 grant round.

To apply: Designation forms are available on the Green Communities Division website at:
www.mass.gov/energy/greencommunities and on www.comm-pass.com

Designation forms must be submitted electronically to Cliff Sullivan at cliff.sullivan@state.ma.us and as one (1) unbound hard copy (including attachments) to the following address:

Department of Energy Resources
Green Communities Division
100 Cambridge Street, 10th Floor
Boston, MA 02114
ATTN: Cliff Sullivan

QUESTIONS:

Questions related to the qualification requirements and the designation form should be directed to Cliff Sullivan at (617) 626-7360 or by email at cliff.sullivan@state.ma.us.

Grant Application

Once designated, the Green Community is eligible to apply for grant funds through the Green Communities Grant Program. Green Communities must fill out a grant application (included in this packet) and submit it by the established deadline. Amount of awards will be based on available funds, the number of applicants, evaluation criteria as outlined in the PON and grant application, and the bonus points achieved. Eligible uses of funds are described in the grant application. However, in a cover letter to this application, applicants are requested to present ideas of how a community would plan to spend an award of funds

Deadline: Friday, May 28, 2010 by 5:00pm

Grant applications will be accepted beginning on Friday, March 19, 2010
 Grant awardees will be notified on Monday, June 28, 2010

To apply: Applications are available on the Green Communities Division website at:
www.mass.gov/energy/greencommunities and on www.comm-pass.com

Applications must be submitted electronically to Cliff Sullivan at cliff.sullivan@state.ma.us and as one (1) unbound hard copy (including attachments) to the following address:

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DOER reserves the right to limit the number of awardees. Requests for clarification or additional information regarding this PON must be submitted to the bidders' forum on Comm-PASS (www.comm-pass.com).

DESIGNATION AND GRANT SCHEDULE

DATE	EVENT
Friday – March 19, 2010	Begin accepting grant applications
Friday – May 14, 2010	Deadline for designation applications to be submitted by communities intending on submitting grant applications by May 28th
Friday – May 28, 2010	Grant Applications due
Monday – June 28, 2010	Announce Grant Awards

Lincoln Green Community Grant Request – Appendix A

Project Narrative

May 15, 2010

The Massachusetts Department of Energy Resources (MA DOER) released a Program Opportunity Notice (PON) for energy efficiency, renewable energy, and alternative energy investments on March 19, 2010 for MA DOER designated "Green Communities". 36 communities including Lincoln submitted Green Community designation applications in time to potentially qualify for this Grant opportunity. Pending MA DOER's review of the applications some or all of these communities will be eligible to submit funding proposals for the Green Community Grant PON that is due on May 28. Qualified projects include:

- Energy conservation measures and projects
- Procurement of energy management services
- Installation of energy management systems
- Adoption of demand side reduction initiatives
- Adoption of energy efficiency policies
- Financing the siting and construction of renewable and alternative energy projects on municipally-owned land

In anticipation of this opportunity, Lincoln's Green Technology Committee (GTC) identified five funding areas that we encourage the Board of Selectmen and Lincoln School Committee to include in a Green Community grant request to MA DOER. The funding areas include:

1. School Facility Upgrades	\$	
2. Town Facility Energy Upgrades		\$
3. Residential Energy Initiative	\$	
4. School Curriculum Energy Initiative	\$	
5. Project Management support	\$	<u> </u>
Total Cost	\$	

Funding areas 1 and 2 include energy upgrades in Lincoln's town and school facilities that qualify under the energy conservation measures and projects funding category. The total proposed investment is \$_____ with an estimated annual cost savings of \$____. These two measures account for ___% of the total grant fund request. Funding area 3 includes an innovative residential initiative that will help up to 100 families (about 10% of the town's households) reduce their energy consumption by 20% that falls under the adoption of demand side reduction initiatives category. Funding area 4 includes a creative school curriculum initiative that integrates web-accessible energy monitoring equipment, student accessible measuring devices, and energy efficiency and renewable energy measures installed in the Hartwell A Pod with 4th grade science and 7th, and 8th grade engineering and technology MCAS curriculum requirements. This funding area falls under the adoption of demand side reduction initiatives and siting and construction of renewable energy category. Funding area 5 includes financial support to help manage the proposed energy installations and initiatives and help the town prepare for additional energy investments to meet the Green Community 20% reduction in five years target.

This funding area cuts across all the project funding categories and is a critical component of the proposed program's success.

Scope and Purpose

Lincoln's Green Technology Committee has identified an integrated, well balanced program that includes direct energy measure installations in Town and School facilities, incentives and support for 100 households (about 10% of all Lincoln households) to install energy efficiency measures, energy-related curriculum for the next generation of Lincoln residents, and a part time employee to implement all the measures and initiatives. Following are more detailed descriptions of the proposed funding areas.

School Facility Upgrades

The Lincoln K-8 School is a large campus with multiple buildings spread out over a 54 acre campus. The Smith and Brooks Schools are linked together by the library into one contiguous building housing kindergarten through the eighth grade. The Brooks and Smith Buildings have separate boilers rooms. The stand-alone Reed Field House is located next to the Brooks Building. The Field House functions include gymnasium, food service area for grades five through eight, and community pool electrical feed. The Hartwell Building houses the Central Offices, the Lincoln preschool, and a day care operation. In addition the complex has three (3) Pods constructed in the 1950's that are occupied by the Recreation Department, School maintenance offices and storage, and the LEAP after-school program. The school complex scored a 42 on a scale of 0 to 100 on US EPA's Portfolio Manager building performance benchmark tool. The minimum score for an Energy Star building is 75.

Energy Management System

According to the Lincoln K-8 Campus Energy Benchmark report, "The existing EMS system, Pod thermostats, and boiler room controls are not living up to its potential due to failed devices, e.g. sensors, actuators, and outdated scheduling, hard to update holiday scheduling, and failed controllers...The existing EMS system is functionally obsolete."

Lincoln proposes to overlay a WEB compatible EMS system over the existing Barber Colman 8000 system utilizing as much of the existing communication loop, sensors, actuators, etc. that can be salvaged. The vendor will convert all unit ventilators (UV) from pneumatic control to modern unitary control with CO₂ based demand controlled ventilation. This will include replacing the damper actuator, heating valve, thermostat, and install a discharge air sensor for troubleshooting. The UVs will be grouped based on the current after school and summer space usage so that only the spaces that are being used can be programmed for occupied operation after normal school hours. The three gym H&V units will be outfitted with demand ventilation control based on return air sensor. In addition, the Reed Field House and the Auditorium will operate

with CO2 ventilation control so fans operate only when CO2 or space temperature requires operation. The library unit will be outfitted with CO2 demand controlled ventilation (DCV) controls by using a combination thermostat/CO2 sensor.

The three boiler room controls will be converted to DDC. Outdoor reset control will be set as aggressively as possible taking into consideration the buildings are poorly insulated, the long distribution piping runs, and the minimum and maximum heating water temperature needs of the multiple types of room heating elements installed throughout the campus. The circulating pumps will shut down when the outdoor air temperature is above 55 Degree F (adjustable) and the building is unoccupied. During unoccupied periods the circulating pumps will be shut down when the outdoor air temperature is above 35 Degree F unless sample quantities of room temperatures drop below night setback set point. The pumps will operate below 35 Degree F to prevent frozen pipes.

Relays will be installed on each Hartwell window A/C unit power supply so that the EMS system can control them. The primary reason for this relay is to provide automatic night setback control of the air conditioning. The Hartwell Building may have to have a separate supervisory controller due to its distance from the other building on the complex. The Pods may require WIFI thermostats or other web communication for monitoring and control.

Electric demand current transformers will be installed on each major electric panel and sub panel in order to monitor and document electricity consumption trends. In addition, as part of the system setup the software vendor will activate trend logs for each major piece of equipment operated by the EMS.

Lighting and HVAC Occupancy Sensors

Lincoln will install dual technology dual output occupancy sensors in six classrooms and other rooms. The sensors will shut down the lighting when the room is unoccupied during the normal day and turn the lighting on for custodial services. The dual output sensor can send a signal to the EMS system so that the UV can be put in standby operation during occupied periods when the classroom is vacated. This will reduce both lighting energy consumption and HVAC energy consumption.

Hartwell Building Curtain Wall Upgrade

The School Department proposes to replace the entire "store front" window assembly with a new high performance wall and window system. This is a follow up measure to the rigid insulation (R30) that was installed on the roof in 1994. The major source of heat loss in the building is currently the concrete masonry and brick (R2.5) exterior walls and the store front window assembly (R 1.5 – R 2). The storefront window assembly consists of single pane metal casement windows with storm windows, 1/4" double

pane metal fixed windows with no thermal break, and 1" R5 insulated panels. As figure ___ indicates the exterior walls the exterior walls are responsible for about 50% of the total design heating load (see figure ___). The energy benchmark report identified single pane window upgrades as a high priority but did not provide pricing or cost savings for this measure. The energy performance of the existing curtain wall window assembly is only slightly better than single pane windows particularly with the metal on metal storm windows over the casements with no thermal breaks.

Figure __. Hartwell Building design heat load

DESIGN HEAT LOSS ESTIMATE			
Area	UA	Design	% of Total
	Btu/hr-F	Btu/ Hr	
	Total	Total	
Wall	1,853	139,005	24%
Window 1	1,646	123,456	21%
Window 2	391	29,300	5%
Door 1	105	7,890	1%
Door 2	30	2,235	0%
Floor	-	-	0%
Basement	575	43,091	7%
Roof	574	43,050	7%
Conduction	5,174	388,027	67%
Infiltration	2,540	190,512	33%
Total	7,714	578,539	100%

Note: Infiltration UA = UA * Est Avg Air Chages Per Hour

Hartwell Building Unit Ventilator and Mechanical System Upgrades

The Hartwell Building is the last facility on the Ballfield Road campus with original non-DDC capable unit ventilators. The School Department proposes to install new DDC capable unit ventilators that can be addressed by the new energy management system. In addition, the heating/ DHW piping and control strategy will be reviewed and upgraded as necessary to make sure that the outdoor reset control can modulate the heating system water temperature correctly.

Vending Machine Controls

Refrigerated beverage coolers typically consume energy 24 hours per day, in the form of lights and refrigeration. Energy savings can be achieved by installing an occupancy based controller that will turn the lights off and reduce the compressor runtime when the area is unoccupied. The school will install one vending control.

Air Sealing

Lincoln proposes to contract with a Mass Save certified subcontractor to provide pressure- assisted thermal analysis and air sealing in the school's facilities. The number of days the contractor provides for air sealing is based on the building square feet. The contractor's service will include a full assessment each building's air tightness (CFM at 50 Pa or equivalent CFM at a lower pressure differential if necessary), 20 days of air sealing for a certified two person air sealing crew, material, and a proposal for additional air sealing recommended based on the percent reduction the crew achieves during the initial visit.

School Facility Assessment Energy Advocacy

In March, 2010 the Town meeting authorized the School Department to engage in a Massachusetts School Building Authority (MSBA)-sponsored Facility Study of the Lincoln School. The assessment will include the Smith and Brooks buildings and related facilities and will not include the Hartwell complex. Lincoln was one of 14 school districts out of 225 applicants MSBA authorized to proceed with a Feasibility Study.

Lincoln's proposal to MSBA emphasized a willingness to reuse existing facilities and a strong focus on much needed energy upgrades. Integrating aggressive energy reduction measures will be a critical component of the facility assessment. The timing of the facility assessment and the Town's proposed Green Community program activities is very good. Lincoln proposes to leverage the resources of the energy manager position included in this Grant proposal to participate in the facility assessment process and the lead the Town's efforts to meet the Architecture 2030 guidelines passed at Town meeting in 2008. A relatively small investment in energy planning and analysis resources will be able to leverage significant long-term energy consumption savings in the Lincoln K-8 school campus.

				Oct 2010- Sept 2011	Oct 2011- Sept 2012
Funding Area	Measure	Task	Lead	Cost Year 1	Cost Year 2
School Facility Upgrades					
	Energy Management System		EMA		
	Lighting and HVAC Occupancy Sensors		EMA		
	Hartwell Curtain Wall Upgrade		EMA		
	Hartwell Unit Ventilator and Mechanical System		EMA		
	Vending Machine Controls		EMA		
	Air Sealing		Next Step		
	School Facility Assessment Energy Advocacy		E Mgr	E Mgr	E Mgr
Town Facility Energy Upgrades					
	Energy Management Systems		EMA		
	Gas Conversion Burners		EMA		
	Cogeneration and Steam Conversion		EMA		
	Condensing Boiler		EMA		
	Lighting Occupancy Sensors		EMA		
	Insulation		EMA		
	Air Sealing		Next Step		
	Town Hall Assessment Energy Advocacy		E Mgr	E Mgr	E Mgr