REQUEST FOR PROPOSALS

Greenhouse Gas Emissions Reduction
Mitigation Grant Program

Application Due Date:

Thursday, February 16, 2012
4:00 pm

RFP Release Date:

November 21, 2011

Grant Application Workshops

The Port of Long Beach will host three workshops to inform applicants about the GHG Grant Program, application process, and application requirements. A question-and-answer session will follow the workshop presentation. Potential applicants are strongly encouraged to attend one or more of the workshops.

DATE	TIME	LOCATION
November 30, 2011	1:30pm to 3:30 pm	Port of Long Beach Board Room, 6th Floor 925 Harbor Plaza, Long Beach
December 8, 2011	4:00pm to 6:00 pm	Long Beach Neighborhood Resource Center 425 Atlantic Avenue, Long Beach
December 14, 2011	7:00pm to 9:00 pm	City of Long Beach Council Chambers 333 W. Ocean Boulevard, Long Beach

Assistance and Contact Information

Grant guidelines, program announcements, application information and frequently asked questions can be found on the Port's grant program website:

http://www.polb.com/grants

In addition, Port staff is available to answer questions and provide technical or administrative assistance during the solicitation period. Inquiries can be directed to:

Ms. Lora Granovsky
Grant Program Coordinator
grants@polb.com
888-789-GRANT

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Guidelines Glossary	
Advisory Committee	The Mitigation Grant Programs Advisory Committee includes representatives from the public (selected by the Mayor of Long Beach); the port industry; and state and local regulators. Together, the Advisory Committee makes recommendations to Port staff about Grant Programs guidelines and the ranking of eligible projects.
Applicant	The term "applicant" refers to the organization requesting grant funding.
Biogenic Volatile Organic Compounds	As they relate to trees, biogenic volatile organic compounds (BVOCs) are chemicals that are produced by a tree's natural living process. BVOCs are volatile, meaning they can be released into the atmosphere at normal temperatures and air pressures. Some trees, such as certain eucalyptus species, release volatile chemicals that contribute to ozone or have other negative environmental impacts.
Biological Sequestration	The net removal of carbon dioxide from the atmosphere by plants and micro-organisms and its storage in vegetative biomass and in soils. For the purposes of the GHG Grant Program, the planting of trees is the only eligible method of biologic sequestration.
Board of Harbor Commissioners	The Port of Long Beach, a department of the City, is governed by a 5-member Harbor Commission. Nominated by the Mayor and approved by City Council, harbor commissioners are eligible for two 6-year terms.
CEQA	The California Environmental Quality Act (CEQA) is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. See http://ceres.ca.gov/ceqa/.
Cost Effectiveness	Cost effectiveness is the benefit received for the cost of the project. For example, cost effectiveness could be calculated as the amount of grant funding requested to reduce one metric ton of GHG emissions or to save 1,000 kilowatts of electricity.
Electric Vehicle	A vehicle – car or truck – powered exclusively by electricity. Hybrid vehicles that combine an electric and gas- or diesel-powered motor will not be considered for funding under this grant program.

Guidelines Glossary	
Eligible Projects	The Port has developed a list of eligible projects on the basis of their ability to cost-effectively reduce, avoid, or capture GHG emissions. Because grant funding is a mitigation measure to reduce GHG emissions, no other types of projects can be considered.
Energy Efficiency Projects	Energy efficiency projects reduce energy consumption by improving equipment performance. Reducing electricity use reduces GHG emissions from the power generating plants.
ENERGY STAR®	ENERGY STAR® is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. The program provides information about energy-efficient products and practices for home and commercial use, helping consumers save money and protect the environment.
Geographic Eligibility	Because some projects, such as green fleets and tree planting, also reduce other air pollutants, projects closer to Port activities will score higher, based on these zones: Zone 1 is defined as within 1 mile of the Port. Zone 2 is defined as within 2 miles of the Port. Zone 3 is defined as within 3 miles of the Port. Zone 4 is defined as within 4 miles of the Port. Projects located within the City of Long Beach boundaries will score higher than those outside the city boundaries.
GHG	Gases that trap heat in the atmosphere are referred to as greenhouse gases or GHGs. GHGs are emitted by both natural processes and human activities. Examples of GHGs that are produced both by natural processes and industry include carbon dioxide, methane, and nitrous oxide. Examples of GHGs created and emitted primarily through human activities include fluorinated gases (used in aerosol products) and sulfur hexafluoride.
HVAC	HVAC stands for heating, ventilation, and air-conditioning system. The main purposes of HVAC systems are to maintain good indoor air quality through adequate ventilation with filtration and provide thermal comfort. Because HVAC systems can be the largest energy consumers in buildings, equipment and controls to provide energy efficiency can be very cost-effective.

Guidelines Glossary	
Induction Lights	Induction lights use magnetic fields to produce light. They produce a substantial amount of light in a compact package and have a long lamp life. Since installation costs can be high, these lights are particularly cost-effective in applications where maintenance costs are high due to difficulty in accessing the lights.
Insulation and Air Sealing	Insulation provides a barrier to air movement and minimizes the escape of warm air from a heated building to the outdoors. Similarly, insulation helps keep summer heat from coming into an air conditioned building. Sealing areas where air can leak in or out of a building, such as windows, vents or stacks, is an important part of an insulation strategy.
Integrated Solar Electric Vehicle Charging Stations	An electric car charging station that includes on-site solar power generation. Battery power storage may also be included. Often, the solar power system is integrated into a car port that houses the charging station.
LED Lights	Light emitting diodes (LEDs) use semiconductors to produce light. LEDs emit bright light using less energy than incandescent lights and also last up to 10 times longer.
Mitigation Measure	Mitigation measures are specific requirements that minimize, avoid, rectify, reduce, eliminate, or compensate for environmental effects deemed significant in a CEQA process.
Motion Sensor Outdoor Lighting	Motion sensor lights turn on when movement is detected and turn off either when movement is no longer detected or as programmed. Motion sensor outdoor lights provide security while reducing electrical use compared with traditional lights.
Programmable Thermostat	A programmable thermostat can save energy by regulating the heating and cooling of a building, especially during times it's not occupied. Many thermostats can be programmed differently for weekdays and weekends, allowing businesses to automatically turn off unnecessary heating and cooling.
R-Value	An R-Value indicates the ability of insulation to resist heat flow. The higher the R-Value, the better the insulation. R-Values are dependent upon the materials used in the insulation, not thickness or weight.

Guidelines Glossary	
Renewable Energy Projects	Renewable energy is heat or electricity from naturally replenished sources such as the sun, wind, and tides. Renewable energy projects funded under the GHG Grant Program must be warranted to perform as specified in the grant application for at least 10 years.
Room Occupancy Sensors	Occupancy sensors use heat, sound, or movement to detect human presence in a room. These devices save energy by automatically turning on when a human is in a room, and turning off when a human leaves the room.
Surplus Emission Reductions	Emission reductions that are *not* otherwise required or accounted for by a regulatory or CEQA action.
Transportation Projects	Transportation projects seek to reduce GHG emissions through the replacement of older, gas- or diesel-powered vehicles with electric vehicles and the installation of charging stations to support electric vehicles.
U-Factor	A U-Factor indicates the rate of heat loss from a door or window assembly. The lower the number, the better the product's ability to insulate against heat flow.
Urban Forests	Urban forests are tree populations living in urban settings. The trees enhance the lives of city dwellers by capturing air pollutants (including GHGs), cooling living spaces through shading, and providing habitat for local species.
Variable Frequency Drive	A variable-frequency drive is an electronic controller that adjusts the speed of an electric motor by modulating the power being delivered. Variable-frequency drives save energy by matching motor speed to the specific demands of the work being performed.
Xeriscaping	Xeriscaping is landscaping where slow-growing, no- or low-water plants are used to minimize the need for water, fertilizer, and maintenance.

1 Description of this Funding Opportunity

The Port of Long Beach (Port) has developed the Greenhouse Gas (GHG) Emissions Reduction Mitigation Grant Program (GHG Grant Program) to provide grant funds for projects that will reduce, avoid or capture GHG emissions.

Through the California Environmental Quality Act (CEQA) review process for Port development projects, the Port identifies and incorporates feasible mitigation measures that will reduce significant GHG impacts of Port projects. When it is not possible to address the significant GHG impacts from a particular project with on-site mitigation measures, the Board of Harbor Commissioners may elect to allocate mitigation funds to the GHG Grant Program that will allow Port tenants and other entities to implement projects at other locations that can offset GHG emissions from approved Port projects.

This request for proposals (RFP) solicits applications for funding under the GHG Grant Program. The Guidelines for this program were adopted by the Long Beach Board of Harbor Commissioners on October 24, 2011 and can be found on the Port's website:

http://www.polb.com/environment/grants/ggr.asp

Please refer to Guidelines for additional information.

2 Program Goal

The goal of the GHG Grant Program is:

To fund projects that reduce, avoid, or capture greenhouse gas emissions.

Projects that are eligible for funding under the GHG Grant Program are described in Section 5. The eligible projects meet the program goal by:

- Reducing GHG emissions by reducing energy or fuel use;
- Avoiding GHG emissions by generating clean energy from renewable resources; or
- Capturing and storing GHG emissions by planting and maintaining trees.

3 Funding Exclusions

The GHG emissions reduced as a result of projects executed under the GHG Grant Program must be "surplus" emission reductions. In other words, the reductions cannot otherwise be required of or accounted for by the grant applicant. No project will be considered for funding, pursuant to this Guidelines document, unless the following criteria are met:

1. Funding may not be used for (a) any mitigation measure specified in an environmental impact report or mitigated negative declaration prepared pursuant to the California Environmental

Quality Act for a proposed project, or (b) projects to achieve GHG reductions that are required by any law, regulation, permit, court order, order issued by an administrative agency, memorandum of understanding or other legally binding document.

2. Funding shall be used for activities that (a) reduce GHG emissions beyond what would have occurred in the absence of the funding, and (b) need funding to occur in a timely and successful manner (taking into account any available rebates, incentives or tax credits).
3. Funding recipients shall agree that they will not seek credit toward any obligations imposed pursuant to the California Global Warming Solutions Act of 2006 (California Health and Safety Code Section 38500 and following), or seek any credit or offset under any emissions averaging, banking, marketing or trading program.

4 Eligible Applicants

Grant recipients will be responsible for the full implementation of the project, and must have the authority and capability to complete the project. Eligible applicants may be:

- Port of Long Beach tenants;
- Government agencies; and
- Charities and nonprofit organizations with current 501 (c)(3) tax-exempt status.

For projects that make physical improvements to a facility, the applicant must demonstrate control of the facility throughout the implementation of the proposed project.

5 Eligible Projects

Eligible projects have been selected because they cost-effectively reduce, avoid, or capture GHG emissions, and because they are accepted by a variety of federal and state agencies and building trade groups. No other project types will be considered for funding at this time.

A total of 14 projects, grouped into 4 categories, are available for funding. An applicant may request grant funding for one or more projects in any category of eligible projects. With the exception of the Energy Efficiency Projects (see Section 5.1), separate applications will be required for multiple project types even if projects would occur at the same facility. Some Energy Efficiency Projects may need to be combined in order to reach the minimum funding request, particularly for an applicant with a small building.

The minimum funding request for each application is $2,000. No more than $1,000,000 in grant funding will be awarded to a single organization.

5.1 Energy Efficiency Projects

Energy efficiency projects seek to reduce the overall demand for energy by improving performance through increased use of high-efficiency products. These projects reduce energy consumption, thereby

reducing GHG emissions associated with energy production and energy use. Energy efficiency projects also reduce other pollutants associated with energy production and use.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
LED or induction street, parking lot, or outdoor lighting installation or upgrade	Funding can be used to replace existing lights or to install new lights. The entire lighting unit (luminaire or ballast) must be replaced with a fixture designed specifically for the LED or induction lights. Lights designed for retrofit in existing fixtures will not be considered for funding. **Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Variable frequency drives for pumps conveying potable water, storm water, or wastewater	This equipment replaces a single-speed drive as a retrofit to an existing pump. **Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
High-efficiency HVAC or boiler/chiller replacement	HVAC equipment must be ENERGY STAR® qualified. Associated duct work (installed or replaced) must be insulated with an R4 value or greater product. Replacement boilers must be ENERGY STAR® qualified. No ENERGY STAR® qualified replacement chillers are currently available. However, the United States Environmental Protection Agency (USEPA) lists guidelines for chiller replacement and retrofit; these guidelines (or equivalent) should be followed: http://www.energystar.gov/index.cfm?c=business.EPA_BUM_CH9_HVAC#S_9_2 HVAC and energy-efficient boiler and/or chiller components, including furnaces, blowers, fans, pumps, pipe insulation, compressors, variable speed drives, and air filters, are eligible for grant funding. 10 bonus points will be awarded to applicants who conduct an energy audit of their facility prior to applying for funding. The energy audit must be

	conducted by a certified professional to ensure that the equipment is correctly sized and building insulation and/or sealing is appropriate. A copy of the audit should be appended to the grant application and the project should reflect the findings of the audit. Acceptable energy auditor certifying agencies include: • Association of Energy Engineers, Certified Energy Auditor (CEA) • Building Performance Institute, Building Analyst Energy Auditor • American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Commissioning Process Management Professional Certification The California Energy Commission has published a handbook about how to hire an energy auditor; it can be found here: http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001C.PDF **Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Energy-efficient door or window replacements	Funding must be used to replace existing doors and/or windows. Doors and windows must be ENERGY STAR® qualified. Windows must be double glazed and have a U-Factor of ≤0.35. Doors must have a U-Factor appropriate to Southern California, based on the door type: http://www.energystar.gov/index.cfm?c=windows_doors.pr_anat_window 10 bonus points will be awarded to applicants who conduct an energy audit of their facility prior to applying for funding. The energy audit must be conducted by a certified professional to ensure that the equipment is correctly sized and building insulation and/or sealing is appropriate. A copy of the audit should be appended to the grant application and the project should reflect the findings of the audit. Acceptable energy auditor certifying agencies include: • Association of Energy Engineers, Certified Energy Auditor (CEA) • Building Performance Institute, Building Analyst Energy Auditor

	• American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Commissioning Process Management Professional Certification The California Energy Commission has published a handbook about how to hire an energy auditor; it can be found here: http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001C.PDF **Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Insulation and air sealing	Insulation levels must comply with ENERGY STAR® recommendations found here: http://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_insulation_table 10 bonus points will be awarded to applicants who conduct an energy audit of their facility prior to applying for funding. The energy audit must be conducted by a certified professional to ensure that the equipment is correctly sized and building insulation and/or sealing is appropriate. A copy of the audit should be appended to the grant application and the project should reflect the findings of the audit. Acceptable energy auditor certifying agencies include: • Association of Energy Engineers, Certified Energy Auditor (CEA) • Building Performance Institute, Building Analyst Energy Auditor • American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Commissioning Process Management Professional Certification The California Energy Commission has published a handbook about how to hire an energy auditor; it can be found here: http://www.energy.ca.gov/reports/efficiency_handbooks/400-00-001C.PDF **Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Room occupancy sensors	**Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Motion-sensor outdoor lighting	"Dark sky" compliant light fixtures are recommended. **Project can be combined with any other Energy Efficiency Project listed in this section.**

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Programmable thermostats	**Project can be combined with any other Energy Efficiency Project listed in this section.**

5.2 Transportation Projects

According to USEPA estimates, a typical passenger vehicle emits over 5 metric tons of GHGs each year. Transportation projects seek to reduce these emissions through the replacement of older, gas- or diesel-powered vehicles with electric vehicles and the installation of charging stations to support electric vehicles.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Electric fleet vehicles	Vehicle(s) must be in the service of the grant recipient for at least 5 years. Conversions from traditional to electric vehicles are eligible for funding. Hybrid electric vehicles, or any other vehicle with a combustion engine, are not eligible. Applicants must apply for any eligible rebate under the California Vehicle Rebate Program; the rebate amount will be refunded to the Port.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Public electric vehicle charging stations, including integrated	Chargers must comply with SAE-J1772 Level 2, 2009 standards or newer. Charging stations must be free and accessible to the public.

solar electric vehicle charging stations	Integrated solar charging station projects must be eligible for – and the applicant must apply for – a rebate from its electric power provider under the California Solar Initiative (CSI) Program. The rebate amount will be refunded to the Port. More information about the CSI Program can be found at: http://www.gosolarcalifornia.ca.gov/csi/index.php The solar power generation part of the project must be designed and installed by a CSI Program eligible contractor. For a list of eligible contractors, see: http://www.gosolarcalifornia.ca.gov/database/search-new.php The system must be sized to produce no more than 80% of the applicant's projected electricity use. No surplus electricity may be generated by the solar system. No third-party ownership of the project, such as a Power Purchase Agreement, will be allowed. The project must be warranted to perform as specified in the grant application for at least 10 years.

5.3 Renewable Energy Projects

Renewable energy projects generate heat or electricity from naturally replenished sources such as sunlight and wind. While many renewable energy projects are large-scale projects, renewable technologies are also suited to smaller, building-scale applications.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Solar power generation	The solar power generation project must be eligible for – and the applicant must apply for – a rebate from its electric power provider under the California Solar Initiative (CSI) Program. The rebate amount will be refunded to the Port. More information about the CSI Program can be found here: http://www.gosolarcalifornia.ca.gov/csi/index.php The solar power generation system must be designed and installed by a CSI Program eligible contractor. For a list of eligible contractors, see: http://www.gosolarcalifornia.ca.gov/database/search-new.php

	The system must be sized to produce no more than 80% of the applicant's current electricity use. No surplus electricity may be generated by the solar system. No third-party ownership of the project, such as a Power Purchase Agreement, will be allowed. The project must be warranted to perform as specified in the grant application for at least 10 years.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Solar water heating	Funding applies toward all equipment, including tanks, necessary for the installation of a solar water heating system. The solar water heater must be ENERGY STAR® qualified. The solar water heating project must be eligible for – and the applicant must apply for – a rebate from its electric power provider or gas utility under the CSI-Thermal Program. More information about the CSI-Thermal Program can be found here: http://www.cpuc.ca.gov/NR/rdonlyres/528DD03E-4D07-4D76-ACB2-B671EF33137A/0/CSIThermalHandbook_Jan_022811.pdf The solar water heating system must be designed and installed by a CSI-Thermal Program eligible contractor. For a list of eligible contractors, see: http://www.gosolarcalifornia.org/solarwater/contractors.php No third-party ownership of the project, such as a Power Purchase Agreement, will be allowed. The project must be warranted to perform as specified in the grant application for at least 20 years.

5.4 Landscaping Projects

Landscaping is important for recreation, fire protection, erosion control, and the preservation of natural ecosystems. However, water purveyance uses almost 20% of the electricity consumed in California. In addition, gas-driven landscaping equipment emits air pollutants, including GHGs.

Water-efficient, natural landscaping uses drought-tolerant plants, irrigation controls to prevent overwatering, minimizes cut-grass (turf) areas, and uses mulch to prevent water evaporation. Xeriscaping is a subset of this, where slow-growing, no- or low-water plants are used to minimize the need for water, fertilizer, and maintenance.

Trees capture and store atmospheric CO_2. This is known as biological sequestration. In general, tall trees with thick trunks and branches store more CO_2 than thinner, shorter trees. However, the storage process is reversible; that is, the sequestered carbon will be released back into the atmosphere when the trees are pruned or removed. Urban forests are tree populations living in urban settings. The trees enhance the lives of city dwellers by capturing air pollutants (including GHGs), cooling living spaces through shading, and providing habitat for local species.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Water-efficient or xeriscaped public gardens	Funding is restricted to garden areas with public access. Garden projects should include appropriate signage to identify species, design, and benefits of water-efficient gardens. Funding may include first-year maintenance costs.

ELIGIBLE PROJECT	PROJECT REQUIREMENTS
Urban forests	For projects within a 20-mile radius of the Port, only trees listed in Appendix A will be approved for funding. For all other locations, trees suitable to the project location that are drought tolerant (if applicable), have high carbon storage properties and low biogenic volatile organic compound (BVOC) emissions can be proposed. The rationale for tree selection must be provided in the application. Funding may include first-year maintenance costs.

6 Allowable Expenses

All project costs must be identified in the original grant application in order to be eligible for reimbursement. The applicant will be responsible for all aspects of the implementation and maintenance of the project. The Port of Long Beach will not be responsible for constructing or maintaining any part of the project throughout its useful life.

The following is a list of the types of expenses that will be allowed for funding under the GHG Grant Program. All expenses must be identified in the application.

- Project equipment and supplies, including sales tax;
- Project installation costs, including design, labor, and permit fees;
- Staff training for long-term maintenance of the project;

- Educational materials relating to the benefits of the project; and
- Administrative overhead for the first year of the project, capped at 15% of the total funding, not to exceed $30,000. These charges can include direct labor (procurement and maintenance), indirect labor (accounting), and insurance.

Any application costs (such as energy audits or project design) incurred before a grant is awarded are the sole responsibility of the applicant. The Port cannot reimburse costs incurred before the GHG Grant Program contracts have been executed.

Applicants should be aware that the grant program is designed to provide one-time only funding and that there is no guarantee of any funding in future years. Applicants also should be aware that they may be awarded only partial funding for the project and will be required to find other funding sources for project costs beyond the grant award.

The Port retains the right to reject applications for projects found to be ineligible under the GHG Grant Guidelines.

7 Evaluation Criteria and Project Proposal Scoring

Each eligible application will be ranked on a 100-point scale, as shown in Table 1. Descriptions of the scoring criteria are set forth below. In addition, in order to encourage a diversity of projects for grant awards, factors beyond the numerical ranking may be considered in making the final recommendations to the Board of Harbor Commissioners.

Projects not selected for award may be placed on a wait list according to their numeric ranking.

7.1 Primary Scoring Criteria

Project description: A thorough project description should include, at a minimum:

- A description of how the project meets the GHG Grant Program goal;
- The rationale for selection of the project;
- A detailed scope of work or work plan;
- The proposed project schedule or timeline;
- Any studies, plans, drawings, or photos that aid the reviewers in understanding the project;
- Any project benefits other than GHG emission reductions; and
- Letters of support (maximum of 3) that support the applicant's case for grant funding.

Applicable secondary scoring criteria (see Section 7.2) should be included in the project description.

Resources and capability of applicant: Applicants should demonstrate that resources (labor, administration, and, if necessary, supplemental funding) and expertise are available to complete – and maintain – the proposed project. The following information should be provided:

- Number of years organization has been in business;

- Financial sustainability of the organization (can be demonstrated by a financial statement or audit);
- Similar accomplishments, by either the applicant or its contractor; and
- Qualifications of project personnel, including contractors, to implement and maintain the project.

Cost effectiveness: Cost effectiveness is the benefit received for the cost of the project. Cost effectiveness can be calculated as the amount of grant funding requested per quantity of GHG emissions reduced, avoided, or captured. Alternately, cost effectiveness can be calculated as the amount of grant funding requested to reduce one metric ton of GHG emissions or to save 1,000 kilowatts of electricity. Where applicable, project proponents can provide documentation in their applications showing calculations of cost effectiveness for their proposed projects. Appendix B provides examples of cost effectiveness for each project type. Some examples show simple calculations; others show qualitative cost benefit descriptions.

The following information, at a minimum, should be included in the application:

- Itemized project costs, detailing equipment, materials, labor, fees and permits;
- Contractor bids/estimates used to formulate the grant funding request; and
- The titles and job descriptions of any applicant staff that are part of any administration or maintenance activities for which grant funding is requested.

Project partnerships can be used to increase cost effectiveness and are encouraged.

Additional Information about cost effectiveness can be found in the introduction to Appendix B.

Proximity to Port: Eligible projects may generate reductions of other, non-GHG pollutants that are deleterious to human health. Projects closest to the Port and its associated activities will be given additional points toward the total score.

Table 1 describes the point allocations for proximity. Facilities within 1 mile of the Port or these transportation routes are in Zone 1; facilities within 2 miles are in Zone 2; facilities within 3 miles are in Zone 3; and facilities within 4 miles are in Zone 4. Projects located within the City of Long Beach boundaries will score higher than those outside of the city boundaries.

Preferential eligibility zones are shown in Appendix C.

Project permanence: Applicants must provide appropriate assurances of the permanence of GHG reductions estimated to result from projects funded by these grants. Appropriate assurances may include, but are not limited to, demonstrations that:

- The eligible applicant has the resources to operate and maintain the project during its useful life.
- The useful life of the building or structure containing the project is greater than or equal to the project's useful life.

- For landscaping projects, plants and trees will be installed in locations that will minimize the necessity for pruning or disturbance.

Resource conservation and/or reduced fuel combustion: Although this is a key component of all energy-efficiency and renewable energy projects, additional points will be allocated to projects that can demonstrate conservation measures that go beyond the simple purchase and installation of equipment. For example, projects that use local sourcing to reduce vehicle miles traveled, or projects that promote the reuse or recycling of materials will be allocated points in this scoring category.

Performance measures: The Port is interested in tracking the outcomes of GHG Grant Program-funded projects, to the extent possible. Examples of performance measures that can help demonstrate the success of the program include:

- Kilowatt-hours per year produced by a renewable energy project;
- Gallons of fuel per year reduced by a transportation project;
- Number of vehicles per year using a charging station; and
- Survival rate of trees planted, reported each year.

These and any other relevant performance measures can be proposed by the applicant, as well as the frequency of long-term project performance reporting by the applicant to the Port.

Some performance measures are well suited to classroom exercises and student projects; partnerships with local schools and universities are encouraged. Prior to contacting schools or universities about project partnerships, be sure to review the requirements in the Pro Forma Contract (Appendix D) related to compliance with California Labor Code Section 1770.

7.2 Secondary Scoring Criteria

The secondary scoring criteria will be evaluated as part of the applicant's project description. These are project enhancements that can result in benefits outside of project-related GHG reductions or contribute to goals or objectives by entities or organizations other than the Port. However, grant funding may not be used for any required mitigation, regulatory obligation, or offsets for another project, as described in Section 2.

Community education: Some eligible projects provide opportunities to educate the community about the project's benefits for GHG reduction. Signage that explains how a solar facility works and how trees sequester carbon are two examples of the community education component. Please note that community education on its own does not qualify as an eligible project.

Advancement of local GHG reduction goals: The Long Beach Sustainable City Action Plan contains goals and initiatives that will result in reduced GHG emissions. Projects eligible for GHG Grant Program funding can assist the City in meeting these goals or the goals of other Long Beach entities or organizations.

7.3 Bonus Points for Energy Efficiency Projects

Applicants seeking funding for the certain energy-efficiency projects will receive 10 bonus points if an energy audit is conducted prior to applying for a grant AND the project reflects the findings of the energy audit. The following projects qualify for these bonus points:

- High-efficiency HVAC or boiler/chiller replacement;
- Energy efficient door or window replacements; and
- Insulation and air sealing.

7.4 Matching funds

Projects that have or will receive funding from other sources are encouraged. Although such projects will not be allocated additional points, it is anticipated that such projects would score higher in the "cost effectiveness" category. Applicants should identify the source(s) of matching funds, particularly if they have or will be received from another government agency.

Table 1. Project Scoring Criteria and Point Allocation

Scoring Criteria	**Points**
Project description[1]	0-25
Resources and capability of applicant	0-20
Cost effectiveness	0-15
Proximity to Port [2]	0-20
Project permanence	0-10
Resource conservation and/or reduced fuel combustion	0-5
Performance measures	0-5
Total Points Possible	**100**
Bonus points for pre-application energy audit for qualifying projects[3]	**10**

Notes:

[1] Secondary scoring criteria are considered in the project description

[2] Zone 1a = 20 points Zone 2a = 16 points Zone 3a = 12 points Zone 4a = 8 points
Zone 1b = 10 points Zone 2b = 8 points Zone 3b = 6 points Zone 4b = 4 points
All other locations = 0 points in this scoring category

[3] Qualifying projects include: high-efficiency HVAC or boiler/chiller replacement; energy efficient door or window replacements; and Insulation and air sealing

8 Application Format and Content

Online application forms will be available concurrent with the release of this RFP. All applications must be completed and submitted electronically. The application links can be found at the Port's GHG Grant Program page: http://www.polb.com/environment/grants/ggr.asp.

An applicant may apply for one or more projects in any category of eligible projects. Except for Energy Efficiency Projects, separate applications are required for each project type, even if projects would occur at the same facility. Energy Efficiency Projects can be combined in a single application, as described in Section 5.1.; however, a separate application is required for each facility if an applicant is applying for funding for more than one facility.

Supporting documentation, such as project description, cost-effectiveness calculations, and other narrative information can be appended to the electronic application by uploading documents in the following formats: Microsoft Word, Microsoft Excel, PDF, and JPEG. The application form provides specific data fields for this information.

The application content follows the scoring criteria described in Section 7 of this RFP. It is incumbent upon the applicant to determine whether any of the eligible projects described in Section 5 are appropriate for their organization's facility and whether the organization has the resources and capabilities to undertake all aspects of the project, including the follow-up documentation, reporting, and maintenance.

All applications must identify the officer of the organization with authority to enter into contracts on behalf of the project facility. Applicants will also be required to certify that their project meets the requirements set forth in Section 3 of this RFP.

Supplemental project information, including examples of how to calculate project cost effectiveness, can be found in Appendix B of this RFP. Applicants are encouraged to read the appropriate pages in Appendix B before filling out their application form(s).

9 Application Due Date

All applications must be submitted electronically. There are four separate application forms, one for each category of eligible project. The links to these forms can be found on the Port's website at:

http://www.polb.com/environment/grants/ggr.asp

The due date for submittal is:

4:00 p.m.
Thursday
February 16, 2012

No late applications will be accepted under any circumstances.

10 Board Approval and Contracting

Funds will be awarded by the Board of Harbor Commissioners following review by the Mitigation Grant Advisory Committee and recommendations by Port staff. Up to $5,000,000 will be awarded during this round of funding. No more than $1,000,000 will be awarded to a single organization.

All grant awardees will be required to execute a contract with the Port that lays out the terms and conditions of the grant award. A *pro forma* contract is provided in Appendix D. This contract must be executed within one year of award. Awardees unable or unwilling to execute a contract within that timeframe forfeit their rights to the funds. The funds may be reallocated to other projects on the wait list or reserved for future rounds of GHG Grant Program funding.

The contract requires grant awardees to commence their projects no later than six months following execution of the contract. For purposes of this requirement, "commence" means to place an order for the equipment required for the project or to award a construction contract. Project components must be completed as specified in the contract between the grant recipient and the City of Long Beach. In addition, the contract contains the Port's standard indemnification clause and requires satisfactory evidence of insurance for certain projects and compliance with California Labor Code Section 1770 regarding the payment of prevailing wages for all "public works" as defined in California Labor Code Section 1720.

Upon presentation of appropriate supporting documentation, funds will be disbursed to recipients for costs actually incurred or as reimbursements. Grant recipients also will be required to submit documents demonstrating completion of the proposed project. In addition, all requests for disbursements must be received within the time period and in the manner required by the contract between the grant recipient and the City of Long Beach.

The Port retains the right to conduct site visits prior to awarding grant funds.

11 Monitoring, Recordkeeping, and Audit Provisions

Grant fund recipients will be required to submit documentation that may include, but is not limited to, the following:

- Receipts or invoices illustrating the capital and installation costs for the project;
- Photos of the unit or site before mitigation measures were employed and after retrofitting/installation/landscaping etc. as a demonstration that the project has been completed;
- For projects requiring ongoing maintenance, 5 years worth of maintenance records (or more, depending upon the type and warranted life of a project); and

- Ongoing project performance information.

Quarterly progress reports – due 30 days after the end of each calendar quarter – will be required during any construction or installation phase, culminating in a final report when the project is finished. Applicants that identify long-term performance measures will be required to submit annual reports on the performance metrics. Additional documentation may be required in accordance with the grant recipient's specific contract.

The Port retains the right to audit the grant recipient's project records through the warranted life of the project.

12 Assistance and Contact Information

Port Staff are available to answer questions during the application period. Applicants are encouraged to attend the grant workshops identified at the beginning of this RFP and to periodically review the General Project Checklist found in Appendix E. All requests for information should go to:

Ms. Lora Granovsky

Grant Program Coordinator

grants@polb.com

888-789-GRANT (888-789-4726)

APPENDIX A
LIST OF APPROVED TREE SPECIES – PORT OF LONG BEACH GHG GRANT PROGRAM

Botanical Name	Common Name	Approved for Street?	California Native? (UFEI)	i-Tree Carbon Storage Rating	i-Tree Air Pollutant Removal	i-Tree BVOC Emissions Rating	Isoprene/Monoterpene Emissions (µg/g dry leaf wt)	Biogenic Emissions (UFEI)	Mature Height	Water Requirement
Acer macrophyllum	Bigleaf Maple		Y	1	1	6	2.8	M	65’	Med
Arbutus menziesii	Madrone		Y	2	2	2	0.0	L	65’	Low-Med
Araucaria heterophylla	Norfolk Island Pine		N	1	2	5	N/A	N/A	100’	Med
Brachychiton populneus	Bottle Tree		N	1	1	5	N/A	N/A	50’	Low-Med
Calocedrus decurrens	Incense Cedar		Y	5	1	4	0.8	L	65'	Low-Med
Cedrus deodara	Deodar Cedar		N	4	1	5	0.6	L	80’	Low-Med
Celtis laevigata	Sugar Hackberry		N	1	1	2	N/A	N/A	65’	Low-Med
Celtis occidentalis	Common Hackberry		N	1	1	2	N/A	N/A	65’	Low
Celtis sinensis	Chinese Hackberry	Y	N	N/A	N/A	N/A	0.0	L	65’	Low-Med
Cinnamomum camphora	Camphor	Y	N	1	1	1	0.0	L	50'	Low-Med
Cupressus sempervirens	Italian Cypress		N	5	2	2	0.1	L	50’	Low-Med
Fraxinus dipetala	Footill Ash/California Ash		Y	2	1	1	0.0	L	20’	Low-Med
Fraxinus latifolia	Oregon Ash		Y	2	1	1	0.0	L	65'	Low-Med
Fraxinus uhdei	Evergreen Ash		N	2	1	1	0.0	L	80’	Low-Med
Fraxinus velutina coriacea	Montebello Ash		Y	4	1	1	0.0	L	50’	Low-Med
Heteromeles arbutifolia	Toyon		Y	N/A	N/A	N/A	0.1	L	25'	Low-Med
Hymenosporum flavum	Sweet Shade	Y	N	N/A	N/A	N/A	0.0	L	40'	Med
Jacaranda mimosifolia	Jacaranda	Y	N	3	2	1	0.0	L	40'	Med
Juniperus californica	California Juniper		Y	N/A	NA	N/A	0.6	L	35'	Low-Med
Juniperus Chinesis	Chinese Juniper		N	4	2	4	0.6	N/A	25’	Low-Med
Juniperus occidentalis	Western Juniper		Y	N/A	N/A	N/A	0.6	L	65'	Low-Med

Botanical Name	Common Name	Approved for Street?	California Native? (UFEI)	i-Tree Carbon Storage Rating	i-Tree Air Pollutant Removal	i-Tree BVOC Emissions Rating	Isoprene/Monoterpene Emissions (µg/g dry leaf wt)	Biogenic Emissions (UFEI)	Mature Height	Water Requirement
Lagerstroemia indica	Crape Myrtle	Y	N	N/A	NA	N/A	0.0	L	25'	Low
Laurus nobilis	Bay Laurel, Grecian Laurel		N	5	2	2	0.4	L	35’	Los-Med
Lyonothanmus floribundus asplenifolius	Catalina Ironwood		Y	N/A	NA	N/A	0.1	L	50'	Low-Med
Persea sp.	Avocado		N	3	1	1	0.0	L	50'	Med
Pinus canariensis	Canary Island Pine	Y	N	1	2	6	2.1	M	70’	Low-Med
Pinus halepensis	Aleppo Pine		N	5	2	3	0.3	L	65’	Low-Med
Pinus sabiniana	Foothill Pine, Gray Pine		Y	3	3	3	0.6	L	65’	Low-Med
Pittosporum undulatum	Victorian Box	Y	N	N/A	N/A	N/A	0.0	L	30'	Med
Podocarpus macrophyllus	Yew Pine	Y	N	N/A	N/A	N/A	0.0	L	40'	Med
Tabebuia avellanedae	Trumpet Tree (ipe)	Y	N	5	2	1	N/A	N/A	30'	Low
Ulmus parvifolia	Chinese Elm	Y	N	2	1	1	0.0	L	60'	Med

Notes:

N/A = not available

Grant recipients should plant trees in locations suitable for mature height and taking into consideration potential structure damage due to root spread. Trees requiring minimal maintenance should be considered to reduce emissions related to landscape equipment.

i-Tree ratings range from 1 to 10, with "1" being the most favorable. i-Tree is a suite of software assessment tools provided by the USDA Forest Service that provides urban forestry analysis and benefits assessment tools. Their website is http://www.itreetools.org.

The Urban Forest Ecosystems Institute (UFEI) is based at the California Polytechnic State University, San Luis Obispo, and provides applied research, technology transfer, and community outreach for the purpose of improving urban forests in California. Their database, found at http://www.ufei.org/?-session=selectree:C7E79811057ee1BBDFgMN11AE51B, provides attributes for over 1,000 trees found in California and beyond.

Isoprene/monoterpene emission data from: Benjamin, M.T., Sudol, M., Bloch, L., and Winer, A., 1995, Low-emitting urban forests: a taxonomic methodology for assigning isoprene and monoterpene emission rates, *Atmospheric Environment*, v.30, p. 1437-1452.

APPENDIX B
Supplemental Project Information and Cost Effectiveness Examples

Purpose:

This appendix provides additional information about eligible GHG Grant Projects and gives examples to potential applicants about how the cost effectiveness of a project can be demonstrated. The examples shown will not be relevant to each applicant's situation and are not intended show the only – or "best" – way to write a grant application. They are intended solely as a starting point in consideration of project selection and formulation of project proposal.

Applicants are strongly encouraged to obtain one or more cost proposals from appropriate vendors or contractors before applying for grant funding. Funding requests, once submitted, cannot be supplemented. Therefore, it is essential that installation and/or construction costs are accurate.

How to Provide Information in Your Application about Cost Effectiveness:

The fundamental metric for determining cost effectiveness for GHG emissions reduction projects is "the project cost per amount of GHGs reduced (or captured or avoided)." This is often expressed as "dollars per metric ton of GHG emissions reduced."

However, for a grant applicant to make an accurate calculation of cost per GHGs reduced, data related to GHG emissions in the applicant's current situation, plus estimated data related to future GHG emissions after the grant project has been implemented, is required. For example, if the GHG reductions relate to reduced electricity or natural gas use, it would be necessary to know the amount of GHG emissions released per unit of energy produced. If the project's GHG reductions are related to carbon absorption (sequestration) by trees, it would be necessary to use a model for the typical growth pattern of a tree species, accounting for average mortality rates, and subtracting any carbon release through pruning and GHGs emitted via water use and fertilizer production. In other words, these calculations can be very complicated and beyond the scope of most applicants.

Due to the complexity in quantifying GHG emissions, the Port will use comparative analyses to determine project cost effectiveness; that is, how does your project compare with another applicant's request for the same type of project? All things being equal, the Port will favor the less expensive project. For example, if the Port receives seven similar applications for Urban Forest projects and the cost per installed tree ranges from $400 to more than $700, and all other project aspects (type/size/age of trees, irrigation requirements, etc.) are comparable, the less expensive "per tree" funding request will score higher in the cost effectiveness category than the most expensive project.

An application will not be rejected if no information relating to cost effectiveness is provided, but zero points – out of a possible 15 – may be assigned to the project in that scoring category. Itemized funding requests, must accompany every application.

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B-1 LED or Induction Street, Parking Lot, or Outdoor Lighting Installation or Upgrade

What is this project?

Light emitting diodes (LEDs) use semiconductors to produce light. Induction lights use magnetic fields to produce light. Traditional street, parking lot, and commercial outdoor lamps often use metal halide, fluorescent, or sodium bulbs for illumination. LED and induction systems intrinsically provide more light per unit of power; therefore, fewer watts of electricity are required for an equivalent amount of illumination.

How does this project meet the GHG Grant Program Goal?

By using less power to provide the equivalent illumination of traditional lights, LEDs and induction lights conserve electricity. Conserving electricity reduces GHG emissions from power plants. Also, LED and induction lights have a long life-span which reduces maintenance. Fewer maintenance trips can result in reduced GHG and other air emissions.

How can project cost effectiveness be determined?

For this project, cost effectiveness can be determined by:

1. Purchase ENERGY STAR® qualified lights and light fixtures (if available); or

2. Calculate the estimated energy use reductions. This can be done by following these steps. Alternative calculations can be made in consultation with the equipment manufacturers; be sure to include any calculations in the application materials:

   a. (Avg. hours/year light used) × (Light-fixture energy consumption[1]) = Energy used (watt-hours)/year

   b. (*Old light* energy used/year) – (*New light* energy used/year) = Energy reduced (watt-hours)/year

   c. (Energy reduced (watt-hours)/year) × (1 kilowatt/1000 watts) = Energy reduced (kilowatt-hours)/year

   d. (Grant funding requested) ÷ (Energy reduced) = Grant dollars/Energy reduced per year

   e. Grant dollars/Energy reduced per year ÷ number of years the equipment can be used (warranted life)

3. Any combination of 1) and 2) using your best estimates.

[1]Use manufacturer's specifications

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

ENERGY STAR® information and recommendations:
http://www.energystar.gov/index.cfm?c=ssl.pr_commercial

Example Cost-Effectiveness Calculation

LED or Induction Street, Parking Lot, or Outdoor Lighting Installation or Upgrade

In this example, an applicant, an educational facility, is proposing to purchase 10 LED parking lot replacement light fixtures at a cost of $880/fixture (including tax). Additional materials cost $72. The applicant's staff will install the lighting fixtures and the labor estimate is $2,000.

The total grant funding request is $10,872.

The manufacturer warrants the fixtures for 50,000 hours of useful life, which the applicant calculated to be about 14 years. Therefore, the financial benefit of the project can be spread out over 14 years.

The rated energy use of the old fixtures is 185 watts; the manufacturer's spec sheet states that the new LED fixtures will use only 125 watts.

a. Energy used (watt-hours)/year

Energy used/year for Old Light Fixture	Energy used/year for New (replacement) Light Fixture
9.5 hours/day × 365 days/year = 3,467.5 hours/year 3,467 hours/year × 185 watts = 641,487 watt-hours/year	9.5 hours/day × 365 days/year = 3,467.5 hours/year 3,467.5 hours/year × 125 watts = 433,437 watt-hours/year

b. Energy reduced (watt-hours)/year

641,487 watt-hours/year – 433,437 watt-hours/year = 208,050 watt-hours/year

c. Energy reduced (kilowatt-hours)/year

208,050 watt-hours/year × 1 kilowatt/1000 watts = 208 kilowatt-hours/year

d. Grant dollars/Energy reduced

$10,872 grant funding requested ÷ 208 kilowatt-hours/year x 10 units

$10,872 grant funding requested ÷ 2,080 kilowatt-hours/year = $5.23/kilowatt-hour per year

e. Grant dollars/Energy reduced per year ÷ number of years the equipment can be used (warranted life)

$5.23/kilowatt-hour per year ÷ 14 years (warranted life of LED fixtures) = $0.37/kilowatt-hour

The project cost effectiveness is $0.37/kilowatt-hour energy reduced.

B-2 Variable Frequency Drives for Pumps Conveying Potable Water, Storm Water, or Wastewater

What is this project?

Many water conveyance systems experience fluctuations in the volume of water conveyed. A variable-frequency drive is an electronic controller that adjusts the speed of an electric motor to match the volume by modulating the power being delivered. Variable-frequency drives provide continuous control, matching motor speed to the specific demands of the work being performed. Variable frequency drives can be retrofitted to existing, single-speed pumps.

How does this project meet the GHG Grant Program Goal?

Variable-frequency drives enable pumps to accommodate fluctuating demand, running pumps at lower speeds and drawing less energy while still meeting pumping needs. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

As with the example in Appendix B-1, cost effectiveness can be demonstrated by calculating the difference in energy use, pre- and post-project implementation. Alternative calculations can be made in consultation with the equipment manufacturers; be sure to include any calculations in the application materials:

a. (Ave. hours/year pump used) × (pump energy consumption[1]) = Energy used (watt-hours)/year

b. (*Old pump* energy used/year) – (*Retrofitted pump* energy used/year) = Energy reduced (watt-hours)/year

c. (Energy saved (watt-hours)/year) × (1 kilowatt/1000 watts) = Energy reduced (kilowatt-hours)/year

d. (Grant funding requested) ÷ (Energy reduced) = Grant dollars/Energy reduced

e. Grant dollars/Energy reduced per year ÷ number of years the equipment can be used (warranted life)

[1] Use manufacturer's specifications, applying manufacturer load and/or efficiency factors

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

California Energy Commission, Process Energy - Water/Wastewater Efficiency, Variable-Frequency Drives
http://www.energy.ca.gov/process/pubs/vfds.pdf

Variable Frequency Drives for Pumps Conveying Potable Water, Storm Water, or Wastewater

In this example, an applicant, a department of a government agency, is proposing to purchase six variable speed drives to retrofit old pumps. The drives cost $2620/each (including tax). The applicant will hire a contractor to retrofit the pumps on-site; labor costs are a total of $6,230. The applicant also wishes to train existing pump maintenance staff and estimates those costs to be $1455

A total of $23,405 in grant funding is requested.

The manufacturer warrants the drives for 80,000 hours of useful life, which the applicant calculated to be about 9 years. Therefore, the financial benefit of the project can be spread out over 14 years.

The estimated, averaged energy use of the old, single speed pumps is 2630 watts (after an efficiency factor is applied); the manufacturer of the variable speed drive runs a load profile calculation and estimates that with retrofitted variable speed drives, the pumps will use an average of 1580 watts.

a. Energy used (watt-hours)/year

Energy used/year for Old Pump	Energy used/year for New Pump
24 hours/day × 365 days/year = 8,760 hours/year 8760 hours/year × 2630 watts = 23,038,800 watt-hours/year	24 hours/day × 365 days/year = 8,760 hours/year 8760 hours/year × 1580 watts = 13,840,800 watt-hours/year

b. Energy Saved (watt-hours)/year

23,038,800 watt-hours/year – 13,840,800 watt-hours/year = 9,198,000 watt-hours/year

c. Energy saved (kilowatt-hours)/year

9,198,000 watt-hours/year × 1 kilowatt/1000 watts = 9,198 kilowatt-hours/year

d. Grant dollars/Energy reduced

$23,405 grant funding requested ÷ 9,198 kilowatt-hours/year x 6 units

$23,405 grant funding requested ÷ 55,188 kilowatt-hours/year = $0.42/ kilowatt-hour per year

e. Grant dollars/Energy reduced per year ÷ number of years the equipment can be used (warranted life)

$0.42/kilowatt-hour per year ÷ 9 years (warranted life of equipment) = $0.05/kilowatt-hour

The project cost effectiveness is $0.05/kilowatt-hour energy reduced.

B-3 High-Efficiency HVAC or Boiler/Chiller Replacement

What is this project?

HVAC stands for "heating, ventilation, and air-conditioning system." The main purposes of HVAC systems are to maintain good indoor air quality through adequate ventilation with filtration and to provide thermal comfort. These systems are designed to heat and cool air. Boilers and chillers use water to heat and cool buildings.

Energy-efficient HVAC, boiler and/or chiller components, including furnaces, blowers, fans, pumps, pipe insulation, compressors, and variable speed drives, are eligible for grant funding.

How does this project meet the GHG Grant Program Goal?

Because these systems are often the largest energy consumers in buildings, equipment and controls to provide energy efficiency can be very cost-effective. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

Funding will only be available to HVAC units and boiler replacements that are ENERGY STAR® qualified. No ENERGY STAR® qualified replacement chillers are currently available. However, USEPA lists guidelines for chiller replacement and retrofit; these guidelines (or equivalent) should be followed:
http://www.energystar.gov/index.cfm?c=business.EPA_BUM_CH9_HVAC#S_9_2

It is important to understand that the efficiency of HVAC, boiler, and chiller systems can be undermined by poor building insulation and leaky windows, doors, and vents. Therefore, these projects can be combined with energy efficient door or window replacements and/or insulation and air sealing as one project. In addition, proper sizing of the equipment must be demonstrated to avoid installing equipment that uses more energy than necessary to heat or cool a building.

Cost-effectiveness calculations for HVAC, boiler and chiller units are complicated by the fact that energy consumption is variable throughout the year; that is, the energy demand on the unit reflects seasonal variations in weather. An equipment manufacturer or vendor may be able to calculate an estimated energy use reduction using mathematical models, adjusted for locale. If so, include these calculations in your application.

In lieu of calculations, cost effectiveness could be described as an estimated percentage improvement in equipment energy-efficiency over the system it is intending to replace or it could be the manufacturer's energy efficiency ratings, such as the "seasonal energy efficiency ratio (SEER)" for the equipment, coupled with the size of the project building. The basis for any estimation should be included in the application.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

ENERGY STAR® information and recommendations:
http://www.energystar.gov/index.cfm?c=products.pr_find_es_products

High-Efficiency HVAC or Boiler/Chiller Replacement

In this example, an applicant, a Port tenant, is proposing to replace a 20-year-old central air conditioning unit – serving offices in an operations building – with a new, ENERGY STAR® qualified unit. The energy engineer who performed an energy audit for the applicant recommended a single package system that includes a new furnace and blower motor. That way, the system will work as efficiently as possible and may be eligible for any potential tax credits offered (at the time of this writing, 2012 tax credit amounts, if any, are unknown).

The audit results showed that a properly sized unit for this 3,000-square-foot building would be a 4-ton cooling system with a 68,000 Btu heater. The cost for the recommended HVAC unit is $4,875. This unit has a SEER rating of 15. The equipment and parts are warranted for 10 years.

Accessories and ancillary equipment, such as roof curbs, dampers, ducting, duct insulation, an additional air filter, and fasteners, costs $3,212. Labor, which includes the acquisition of a permit from the city, electrical upgrades, and system installation, costs $3,750. The applicant's maintenance crew (2 people) will need approximately 3 hours of training to maintain the system and there were additional costs to administer this project; these costs are reimbursable under the GHG Grant Program guidelines. These administrative costs total $890.

The total project cost is $12,727.

Not enough information is available to the applicant for a calculation of cost effectiveness that would represent known energy savings. However, the applicant chose an ENERGY STAR® qualified unit with a high SEER rating and described the size of the building that will be served by the HVAC unit. Therefore, the project cost-effectiveness is represented by the grant request: $12,727. This cost will be compared with similar proposed projects as an evaluation of cost-effectiveness.

The project cost effectiveness is represented by the grant request of $12,727.
The unit will heat/cool a 3,000-sf building with an HVAC system SEER rating of 15.

B-4 Energy-Efficient Door or Window Replacements

What is this project?

Changing out drafty, ill-fitting old windows and doors with well-insulated/installed replacements can stop hot and cold outside air from entering a building and make your HVAC equipment run more efficiently.

Windows and doors eligible for GHG Grant Program funding must be ENERGY STAR® qualified and have the appropriate U-Factors (a factor that indicates the rate of heat loss from a door or window assembly) for Southern California. Also, it is important to maintain adequate indoor air quality by ensuring that proper ventilation to outside air is provided by the building's HVAC or other system.

How does this project meet the GHG Grant Program Goal?

By minimizing drafts or "leakage" in gaps and cracks between windows, doors, and the walls of a building, less warm or cool air is lost to the outside, which means that less energy is used for heating and cooling the building. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

It would be difficult to measure actual heat or cold losses through drafty windows and doors and translate that to energy savings after the doors and windows have been replaced. However, a general description of the condition of the doors and/or windows to be replaced, perhaps even some photographs, could be used to make your case for grant funding.

If you conduct an energy audit, it is likely that the energy engineer will measure heat loss from doors and windows with an infrared detector. This information should be included in the application.

Remember that new windows and doors must be ENERGY STAR® qualified and have the appropriate U-Factors for Southern California.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

ENERGY STAR® Performance Criteria (includes U-Factors):
http://www.energystar.gov/index.cfm?c=windows_doors.pr_anat_window

Performance Ratings for windows and doors:
http://www.energystar.gov/index.cfm?c=windows_doors.pr_ind_tested

Energy-Efficient Door or Window Replacements

In this example, an applicant, an education-focused nonprofit organization, conducted an energy audit. While the applicant's existing building insulation and HVAC system were found to be appropriate and provide for the ventilation needed for acceptable indoor air quality, the windows and outside doors – diagnosed by the energy engineer using an infrared camera – were found to be very "leaky." The energy audit recommended replacement of all seven windows and both outside doors.

After consulting with three separate contractors and selecting products that complimented the architecture of the building, the applicant chose double-glazed windows with a U-Factor of 0.31 (better than the minimum value of ≤0.35) and steel exterior doors that are ENERGY STAR® qualified for Southern California. These windows and doors may be eligible for any potential tax credits offered (at the time of this writing, 2012 tax credit amounts, if any, are unknown).

Two of the windows cost $350, four cost $280, and one costs $157. The two doors cost $150/each, with an additional $80 for the door knobs, lock sets and keys. The cost of permitting, fees, and installation became quite expensive because four of the windows needed to be repositioned (lowered) to meet California building codes (relating to emergency escape). These installation costs totaled $12,087. The applicant did not include any administrative costs in its grant application.

The total project cost is the same as the grant request: $14,444.

Not enough information is available to the applicant for a calculation of cost effectiveness that would represent known energy savings. However, the applicant chose an ENERGY STAR® qualified windows and doors, with the appropriate U-Factor for the doors. Therefore, the project cost-effectiveness is represented by the grant request: $14,444. This cost will be compared with similar proposed projects as an evaluation of cost-effectiveness.

The project cost effectiveness is represented by the grant request of $14,444.

The doors and windows are all ENERGY STAR® qualified and have appropriate U-Factors.

B-5 Insulation and Air Sealing

What is this project?

Insulation provides a barrier to air movement and minimizes the escape of warm air from a heated building to the outdoors. Similarly, insulation helps keep summer heat from coming into an air conditioned building. Sealing areas where air can leak in or out of a building, such as windows, vents or stacks, is an important part of an insulation strategy.

Appropriate insulation levels are indicated by the use of R-Values (which is the ability of insulation to resist heat flow). For these projects, insulation levels must comply with ENERGY STAR® recommendations: http://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_insulation_table.

To get the biggest savings, the easiest place to add insulation is usually in the attic. A quick way to see if you need more insulation is to look across your uncovered attic floor. If your insulation is level with or below the attic floor joists, you probably need to add more insulation.

Insulation works best when air is not moving through or around it. So it is very important to seal air leaks before installing insulation to ensure that you get the best performance from the insulation.

How does this project meet the GHG Grant Program Goal?

By minimizing heat transfer between the interior of a building and the outside, less energy is used for heating and cooling the building. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

It would be difficult to measure actual heat or cold losses through uninsulated or poorly insulated, drafty buildings and translate that to energy savings. However, cost effectiveness could be estimated by describing the condition (or lack) of insulation in the walls or attic of the windows and how you plan to improve it. Since the R-Value is important for rating insulation, a description of why a particular type of insulation was selected and how it will be more cost-effective than other alternatives could be helpful. The basis for any estimation should be appended to the application.

If you conduct an energy audit, it is likely that the energy engineer will measure heat loss from uninsulated attics and unsealed vents or window frames with an infrared detector. This information should be included in the application.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

ENERGY STAR® Recommendations for Air Sealing and Insulation:
http://www.energystar.gov/index.cfm?c=home_sealing.hm_improvement_sealing

ENERGY STAR® Duct Sealing Brochure:
http://www.energystar.gov/ia/products/heat_cool/ducts/DuctSealingBrochure04.pdf

DOE Insulation Fact Sheet:
http://www.ornl.gov/sci/roofs+walls/insulation/ins_06.html

Insulation and Air Sealing

In this example, an applicant, a department of a government agency, is considering an attic insulation project. The attic of this 1947, 1,500-square-foot building is not currently insulated. Because other improvements are not being contemplated at this time, the applicant did not conduct an energy audit.

The ENERGY STAR® recommendations for attic insulation R-values in the Long Beach area are R-30 to R-60. The applicant's contractor will also seal all openings through the attic, such as vent spaces, with caulking and spray foam prior to installing the insulation.

The applicant has chosen an environmentally-friendly, recycled cellulose type of blown-in insulation. Installed, the cost is $1.20/square foot, for a total of $1,800. Additional costs for air sealing are $400 for materials and labor. The applicant is not requesting any additional administrative costs.

According to the manufacturer's specifications, the thickness of the blown insulation the applicant has chosen will give the attic insulation an R-40 value. This is midway between the R-values recommended by ENERGY STAR® and only $.05/square foot more expensive than insulation with an R-30 rating.

The total project cost is the same as the grant request: $2,200.

Not enough information is available to the applicant for a calculation of cost effectiveness that would represent known energy savings. However, the applicant chose insulation that exceeds the ENERGY STAR®-recommended rating for insulation in this locale. Therefore, the project cost-effectiveness is represented by the grant request: $14,444. This cost will be compared with similar proposed projects as an evaluation of cost-effectiveness.

The project cost effectiveness is represented by the grant request of $2,200 for a 1,500 sf attic.

The attic insulation exceeds the minimum ENERGY STAR® rating of R-30.

B-6 Room Occupancy Sensors

What is this project?

Electricity wasted by leaving lights on in an unoccupied room is one of the easiest energy-efficiency problems to identify. However, absent the diligence of every individual using the lighted room, the only way to guarantee that lights will be turned off when a room is not occupied is by using room occupancy sensors.

Occupancy sensors use heat, sound, or movement to detect human presence in a room. These devices save energy by automatically turning on when a human is in a room, and turning off when a human leaves the room. Most room occupancy sensors can be adjusted for multiple time delays. A NEMA study[1] showed that if various rooms, such as classrooms or conference rooms, used room occupancy sensors with a 5-minute delay, energy savings from those lights could range from 18% to as high as 40%.

How does this project meet the GHG Grant Program Goal?

Room occupancy sensors reduce electricity use by turning off lights when rooms are not in use. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

The ability of room occupancy sensors to reduce electricity use depends on how likely it is that lights will be left on when rooms and not occupied. In a small office, unless light switches are very inconveniently located, behavioral modification is a good way to reduce energy use.

In a large organization with several individuals going in and out of various rooms during working hours, behavioral modification may not be as effective as the installation of room occupancy sensors. Factors that may be considered and translated into cost effectiveness could include the number of rooms that will be upgraded with room occupancy sensors and the number of people – who could potentially be leaving the lights on unnecessarily – who use the room(s).

The basis for any estimation should be appended to the application.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

[1] NEMA: Demand Reduction and Energy Savings Using Occupancy Sensors
http://www.nema.org/energy/demandreduction.pdf

Room Occupancy Sensors

In this example, an applicant is a large educational complex with 33 different rooms throughout 4 buildings. With the exception of three conference rooms, most of the rooms are occupied during the day. However, many of the room occupants forget to turn the lights off before leaving. In addition, custodians come in later in the evening, and also frequently forget to turn the lights off after they have finished cleaning the rooms. In all, more than 800 people go in and out of these rooms on a given day.

The applicant selected infrared room occupancy sensors, with a 180-degree field of view. The sensors can be programmed to turn off from 30 seconds to 30 minutes from the time the room is vacated.

Each sensor costs $60, including all parts and fasteners. While there are 33 rooms, some of the rooms have two light switches, so a total of 37 sensors are needed, bringing the equipment costs to $2,960.

The applicant's staff electrician will install the sensors; her labor is estimated to be $407. The applicant is not requesting any additional administrative costs.

The total project cost is the same as the grant request: $3,367.

Not enough information is available to the applicant for a calculation of cost effectiveness that would represent known energy savings. However, the applicant described the number of rooms considered for this project and how many people use the rooms. Therefore, the project cost effectiveness is represented by the grant request: $3,367. This cost will be compared with similar proposed projects as an evaluation of cost effectiveness.

The project cost effectiveness is represented by the grant request of $3,367.

This will provide room occupancy sensors in 33 rooms used by over 800 people each day.

B-7 Motion Sensor Outdoor Lighting

What is this project?

Motion-activated outdoor lights provide security while minimizing electricity use because they only activate when motion is detected. Most can be adjusted for sensitivity so they are activated when humans or vehicles approach – rather than the neighborhood cat – and they come in different wattages to ensure that only the amount of light necessary is being used. Some are available with LED light bulbs, which save electricity and last longer than other light bulbs. Some motion sensors also contain timers that can be set to keep the lights on for predetermined intervals (30 minutes or an hour), as needed. Some are designed for use in wet areas; others, such as lights appropriate for a porch, must be protected from the weather.

When using these lights, consideration should be made for neighbors that might be disturbed by bright lights in their field of view. For this reason, "dark sky" compliant lighting is recommended because these light fixtures ensure directional "down" lighting.

How does this project meet the GHG Grant Program Goal?

Motion sensors reduce electricity use keeping outdoor lights off when they are not needed. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

It would not be difficult to estimate the energy use of a light fixture that stays illuminated seven days each week for a fixed numbers of hours. But it may be difficult to predict how often a motion sensor outdoor light will be activated each night. Therefore estimating a reduction in energy use using these factors may not be very accurate.

However, cost effectiveness could be estimated by describing the number of lights needed to keep the building and its occupants safe, along with an estimation of how often visitors or occupants might "activate" the outdoor light during a typical night. The basis for any estimation should be appended to the application.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

International Dark Sky Association Residential Lighting Good Neighbor Guide:
http://docs.darksky.org/PG/PG3-residential-lighting.pdf

Motion Sensor Outdoor Lighting

This example, and the example in Appendix B-8, demonstrates how eligible Energy Efficiency Projects can be combined to meet the minimum funding request for these projects (see Section 5.1 of the RFP for more information). Only one application is needed for this combination project.

An applicant, a charitable organization with a small office building in a mix-use neighborhood, is seeking funding for four motion sensor outdoor lights – one over the front and back doors and on the other two sides of the building. The applicant selected 64-watt vandal-proof motion lights that are "dark sky" compliant, each costing $172. The applicant's building is vacated by 6pm and it is rare for employees or visitors to access the building in the evening, so there is little need for "full-time" night lighting.

The applicant also requested three room occupancy sensors (as described in Appendix B-6) – for two offices and a conference room. These room occupancy sensors cost $71 each.

The applicant also requested a single programmable thermostat (as described in Appendix B-8), which costs $66.

The applicant also conducted an energy audit which showed that two outside doors should be replaced. The doors selected are steel exterior doors that are ENERGY STAR® qualified for Southern California. They cost $265 each, including new lock sets and keys.

The total equipment costs are $1,497. The labor to install everything included $450 for an electrician and $280 for a general contractor to install the doors.

The total project cost is the same as the grant request: $2,227.

Not enough information is available to the applicant for a calculation of cost effectiveness that would represent known energy savings for any part of this combined project. Therefore, the project cost-effectiveness is represented by the grant request: $2,227. This cost will be compared with similar proposed projects as an evaluation of cost-effectiveness.

The project cost effectiveness is represented by the grant request of $2,227.

This will provide "dark sky" compliant motion sensor outdoor lights, room occupancy sensors, a programmable thermostat, and ENERGY STAR® qualified exterior doors.

B-8 Programmable Thermostats

What is this project?

Programmable thermostats automatically reduce heating or cooling when it isn't needed. In an office environment, occupants are usually in the building for set periods and the building is vacant the rest of the time. A programmable thermostat can be programmed in advance to turn the heating or cooling off when the building occupants leave and back on again in the morning when occupants arrive. It can keep the heating or cooling off during one or both weekend days.

All programmable thermostats have an override function so that heating or cooling can be turned on and off during periods that people are not usually in a building, such as on an occasional weekend. Many have a "hold" period that will override the "on" periods if the building is going to be unoccupied for a length of time (on weekday holidays, for example). Some programmable thermostats have a function called "adaptive recovery" where they can track temperatures and calculate how early they need to be turned on in order to get to the expected temperature at the time it's programmed to be at that temperature. In other words, when it's colder outside and take longer to heat your building, the adaptive thermostat turns on earlier to make sure the occupants are warm when they arrive.

To work properly and efficiently, thermostats should be located away from any sources of cold or heat. Install your unit on an interior wall, away from heating or cooling vents and other sources of heat or drafts (doorways, windows, A/C vents, radiators/heating vents, skylights, direct sunlight or bright lamps).

NOTE: ENERGY STAR® no longer qualifies programmable thermostats; any product bearing this designation was manufactured before 2010. However, any thermostat that allows for variable programming over the course of a week is eligible for funding under the GHG Grant Program.

How does this project meet the GHG Grant Program Goal?

Programmable thermostats reduce electricity use keeping heaters and air conditioners off when they are not needed. By using less energy, GHG emissions from power plants are reduced.

How can project cost effectiveness be determined?

As with room occupancy sensors, in a small office, behavior modification could be the best way to reduce energy use by heating and cooling rooms only when people are in them. However, there may be reasons that room temperatures should be "conditioned" before someone arrives to adjust a thermostat, or there could be a situation where many people turn the thermostats up and down and often forget to turn them off before leaving.

Cost effectiveness could be estimated by describing how an existing thermostat is used, where the new thermostat will be placed in the building and how it will be programmed to conserve energy. The basis for any estimation should be appended to the application.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

ENERGY STAR® Web Page Describing Programmable Thermostats:
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=TH

Programmable Thermostats

In this example, an applicant is a government agency with a 7-story administration building. Over 50 thermostats are used in this building, but the entire office staff, 433 people, work only Monday through Friday, from approximately 6 am to 5 pm. The existing thermostats are properly placed on interior walls and away from heating/cooling vents, and do not have to be relocated.

The applicant selects 52 programmable thermostats with a "5-2" function; that is, the thermostat will be programmed the same way for five work days, and another way for two weekend days. These cost $61 each.

The applicant also requested 14 room occupancy sensors (as described in Appendix B-6) for the building's conference rooms. These room occupancy sensors cost $62 each.

The total equipment costs are $4,040. The applicant will use staff labor to install everything, for an amount of $1,827. There are additional administrative costs to purchase the supplies, in the amount of $330.

The total project cost is the same as the grant request: $6,197.

Not enough information is available to the applicant for a calculation of cost effectiveness that would represent known energy savings. However, the applicant will describe how the thermostats will be programmed compared with the existing method of setting room temperatures, as well as the number of people using rooms that will be. Therefore, the project cost effectiveness is represented by the grant request: $6.197. This cost will be compared with similar proposed projects as an evaluation of cost-effectiveness.

The project cost effectiveness is represented by the grant request of $6,197.

This will provide 52 programmable thermostats and 14 room occupancy sensors. The new thermostats will be programmed to ensure that rooms are not heated or cooled in the evenings or weekends. Also, 433 people use the conference rooms which will be upgraded.

B-9 Electric Fleet Vehicles

What is this project?

According to USEPA, transportation accounts for almost 30% of the GHG emissions in the United States. The majority of these emissions are from "light duty" vehicles, such as passenger cars, SUV, and light trucks.

A growing electric vehicle fleet can change that trend, and with improvements in drive train and battery technologies, electric vehicles – for passengers and businesses – are becoming increasingly practical. Electric vehicles can be purchased "off-the-lot" from specialty manufacturers as well as major car companies. Conversion kits are also available and many dealers will perform the job needed to convert a traditional-fuel vehicle to battery-powered electric vehicle. Electric vehicles do have limitations in range between charges, and they do cost more to purchase, but many businesses are finding that the much lower operating costs make the investment worthwhile.

How does this project meet the GHG Grant Program Goal?

Electric vehicles eliminate exhaust emissions coming from the combustion of fuel from a vehicle's engine. These emissions are also called "tailpipe" GHG emissions. While electric cars are still linked to GHG emissions that result from the production of electricity at a power plant, these emissions are far lower than the tailpipe GHG emissions.

How can project cost effectiveness be determined?

Because this project replaces traditional-fuel vehicles with electric vehicles, it is possible to calculate the amount of GHG reductions by comparing the GHG emissions of the old vehicle with the electric vehicle. The applicant would need to make an estimation of the amount of electricity that will be used by the new, electric vehicle; this may be difficult, particularly if the applicant has no experience with electric vehicles.

To alleviate this difficulty, cost effectiveness for this project will be demonstrated by reporting the estimated annual CO_2 emissions of the vehicle(s) to be replaced and the total cost of the vehicle(s). The carbon calculator on the FuelEconomy.gov website[1] should be used to estimate the annual CO_2 emissions.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

[1] To calculate annual tons of CO_2 emitted by the vehicle(s) to be replaced, use the "find a car" function at: http://www.fueleconomy.gov/

Plug In America's Plug-in Vehicle Tracker: http://www.pluginamerica.org/vehicles

Plug In America's Guide to Vehicle Chargers: http://www.pluginamerica.org/accessories

Information about the California Vehicle Rebate Program: http://energycenter.org/index.php/incentive-programs/clean-vehicle-rebate-project/cvrp-eligible-vehicles

Electric Fleet Vehicles

In this example, an applicant, a Port tenant, is proposing to replace three light-duty trucks (out of their 15-truck fleet) with electric equivalents. The trucks are only run on the tenant's property, a marine terminal, for approximately 50 miles each day.

The applicant considered several vehicles, finally deciding on the Firefly® electric three-wheel utility vehicle. The Firefly® has a top speed of 40 miles an hour and a range of 60 miles per charge. It has a covered truck bed with a 1,050-pound capacity, including the driver. It meets all the needs of the applicant and can be charged at night on a 110-volt outlet, precluding the need to purchase an additional charging system.

One of the factors in the applicant's decision to request funding for the Firefly® is that it's available through the ABC Company of Long Beach, which will provide local service. (Note: this is not an endorsement for the Good Earth Energy Conservation Company, the manufacturer of the Firefly®; the Port of Long Beach has no experience or affiliation with the entity or the vehicle.)

The base price for the Firefly® is $29,500; all three will cost $88,500. The applicant will customize the vehicles slightly, with bright yellow shell color and roof-mounted LED lights for safety. Along with taxes and license fees, these additional costs are $11,086. This brings the total cost to $99,586. The applicant, in an effort to improve its chance at obtaining grant funding, proposes to pay for half of the total project cost, bring the grant request to $49,793.

The applicant checked the FuelEconomy.gov website and found the three Ford Ranger 6-cylinder 2WD pickup trucks that will be replaced have a "carbon footprint" of 11.6 tons CO_2/year.

The total project cost is the same as the grant request: $49,793. This cost will be compared with similar proposed projects as an evaluation of cost effectiveness.

The project cost effectiveness is represented by the grant request of $49,793.

This will replace three vehicles that have estimated annual CO_2 emissions of 11.6 tons each.

B-10 Public Electric Vehicle Charging Stations

What is this project?

Because most electric vehicles do not have the driving range (on one charge) that traditional-fuel vehicles do, public acceptance of electric vehicles depends on the availability of a convenient public charging network.

To ensure that electric vehicles and charging station are properly matched, and that users are safe from electrical mishaps, public electric vehicle chargers in the US must comply with the Society of Automotive Engineers (SAE) standard J1772. Most public charging stations are known as Level 2, which is a 240V-AC charger that fully charges a passenger car (such as a Nissan Leaf) in 4 hours. The SAE is working on a standard for a higher amperage DC "fast charger" station, also known as Level 3, which can fully charge most electric passenger vehicles in 15 to 30 minutes.

Solar integrated public electric vehicle charging stations have the added feature of a solar array built into, or connected to, the charging station facility, to provide the power needed to charge the electric vehicles.

How does this project meet the GHG Grant Program Goal?

While traditional public electric vehicle charging stations do not directly reduce GHG emissions, they support the electric vehicles (see Appendix B-9) that do reduce GHGs. Solar-integrated charging stations do reduce GHG emissions related to electricity production.

How can project cost effectiveness be determined?

Traditional electric vehicle charging stations do not reduce GHG emissions. However, electric vehicle charging stations do support electric cars which reduce GHGs. Your grant application may more favorably compete if estimations of charging station use by the public are appended to the application.

Solar-integrated electric vehicle charging stations do reduce GHGs. Calculation of cost effectiveness – for the solar array and associated construction – should follow the example shown in Appendix B-11.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

Plug In America's Guide to Vehicle Chargers:
http://www.pluginamerica.org/accessories

The EV Project – for Charging Station Grant and Partnership Opportunities:
http://www.theevproject.com/index.php

Public Electric Vehicle Charging Stations

In this example, an applicant is a non-profit medical facility that treats over 7,000 patients each year. With visitors and employees, over 20,000 people use the facility each year. The applicant is interested in providing free electric vehicle charging for its employees, patients, and visitors.

The applicant has obtained partial funding for this project through a Department of Energy grant and will apply for a Port of Long Beach GHG Grant for the balance. The plan is to install three double-pedestal commercial, SAE-1772 compliant, Level 2 charging stations for a charging capacity of six vehicles at any time (this will count as 6 charging stations). The applicant's parking spaces for the electric vehicles will be reconfigured so that 12 vehicles can access the charging stations.

The base cost for each charging unit is $9,800. The costs to provide the infrastructure, including design, permitting, electrical and general contracting, and additional materials and supplies, total $18,750. The applicant has also hired a consultant that will oversee the project through completion; these costs are expected to be approximately $4,880 once the project is underway (note: the Port will not cover any costs accrued prior to grant award).

The total equipment costs are $29,400. Infrastructure and consulting costs are $23,630. The total cost of the project is $53,030. The applicant has already secured a grant for $20,000; the balance, equal to the grant request, is $33,030.

The total project cost is the same as the grant request: $33,030. This cost will be compared with similar proposed projects as an evaluation of cost effectiveness.

The project cost effectiveness is represented by the grant request of $33,030.
This will provide 6 public vehicle electric charging stations with potential to serve 20,000 people/year.

B-11 Solar Power Generation

What is this project?

Traditional solar power generation is the use of photovoltaic (PV) materials that can convert sunlight into electricity. There are other emerging technologies for solar power generation that are used by large utilities, but photovoltaic systems are currently the only technology available to the average consumer.

Solar "cells," which are the individual PV cells, are semiconductors. They can be made from a variety of materials and in all shapes and sizes. Solar cells can be combined into modules, which we often identify as a "solar panel." The modules combine to create a solar "system." The system includes the solar modules, plus all the related wiring, mounting hardware, and "energy conditioning" devices that are need to make a connection to the shared electrical grid.

How well a solar panel works depends on several things: (1) the efficiency of the semiconductor material to convert photons from the sun into electrons that are gathered as energy; (2) the amount of sunny days each year in a particular location; and, (3) the orientation of the solar panel with respect to the sun's movement across the sky each day. Some solar panels are mounted on tracking systems to move with the sun; a couple of these can be found at the Long Beach Airport near the baggage claim area. Fixed mounting systems are less expensive and, therefore, more common.

To get the most sunlight in this part of southern California, a solar panel would be mounted due south, at a 30-degree tilt from horizontal, and would not be shaded at any time of the day.

Solar contractors are trained to estimate solar power production potential and will use instruments to measure the amount of sunlight expected to hit a solar panel mounted at a particular location. They will be able to advise potential buyers whether a location is a good candidate for solar power generation and whether a roof or building is strong enough to support the weight of a solar system.

How does this project meet the GHG Grant Program Goal?

Solar power generation reduces GHGs by producing energy without the combustion of fossil fuels.

How can project cost effectiveness be determined?

For this project, a calculation of kilowatt-hours/year generated by the solar system will be required. The applicant's vendor or contractor can make this calculation. The system must be sized to produce no more than 80% of the applicant's electricity needs at the meter the system will be connected to.

The system must be warranted by the vendor to produce the calculated electricity during the useful life of the system. Grant applicants are required to apply for a California Solar Initiative rebate which will be refunded to the Port of Long Beach. Third party power purchase arrangements will not be considered for funding under the GHG Grant Program.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

California Solar Initiative (includes a database of qualified vendors/installers):
http://www.gosolarcalifornia.org/csi/index.php

Southern California Edison's (SCE's) web page for solar projects (including forms and workshop information):
http://www.sce.com/solarleadership/gosolar/california-solar-initiative/default.htm

Solar Power Generation

In this example, an applicant is a government department that oversees eleven city libraries. One of the library buildings has a south-facing, pitched roof and is well-suited for the installation of solar panels. There are two large trees to the east of the library roof, but these shade the roof only in the very early morning – hours that are often overcast in the area.

The applicant asked three vendors to provide cost estimates. The applicant provided each vendor with a full-year history of electricity usage, as well as the building's construction plans. The vendors physically inspected the roof and made measurements of how much solar radiation was incident to ("hitting" the) roof surface.

The vendors determined that a 5- or 6-kilowatt (the difference relates to the efficiency of the solar panels) roof-mounted system would provide the equivalent power of 60% of the applicant's current usage. This system is the maximum size the roof can accommodate.

One of the three bids was selected as the basis for the grant application. In this bid, the vendor recommends a 5.125 kilowatt array (25 solar panels rated at 205 watts each). At the applicant's location, this system is expected to generate 7,760 kilowatt-hours/year. The system is warranted for 20 years.

The cost for the solar panels, mounting hardware, wiring, inverter, and other accessories is $23,672. Design, permitting, and installation fees, which include the applicant's CSI rebate processing, are an additional $14,900. The applicant's administrative costs for procuring the system are expected to be $820.

The total project cost is the same as the grant request: $39,392.

The total cost per kilowatt-hour is:

7,760 kilowatt-hours/year x 20 years warranted life of project) = 155,200 kilowatt-hours

$39,392 ÷ 155,200 kilowatt-hours = $0.25/kilowatt-hour

Note: The CSI rebate, which will be refunded to the Port, will reduce the actual cost per kilowatt-hour.

The project cost effectiveness is represented by the grant request of $39,392.

The energy generated over 20 years is projected to cost $0.25/kilowatt-hour.

B-12 Solar Water Heating

What is this project?

Anyone who has left a garden hose out on a hot day has experienced solar water heating. Commercially-available solar water heaters expand on that process by using solar energy to heat the water we use out of the tap.

Solar water heaters are generally "active" (a pump is used to move hot water from the heater to storage, such as an existing hot water heater), or "passive" (water pressure, rather than a pump, is used to move the hot water into storage). Active solar water heaters can be "open-loop" (potable water circulates through the solar system) or "closed-loop" (a heat transfer fluid circulates through the solar system and exchanges heat with the water in the hot water heater). Passive systems, also called "batch" systems use one or more tanks placed in a glazed box that faces the sun. These are generally cheaper than active systems, but often less efficient.

How does this project meet the GHG Grant Program Goal?

By using solar energy to heat water, rather than gas or electricity, GHGs are reduced because less fossil fuel is combusted – either at an electrical power plant or as natural gas in your home or office.

How can project cost effectiveness be determined?

All solar water heating projects must be eligible for – and the applicant must apply for – a rebate from its electric power or gas provider under the California Solar Initiative (CSI)-Thermal Program. This will ensure that the project meets minimum cost-effectiveness criteria. Typically, the equipment vendor or installer will complete the rebate application for the client. In addition, solar water heaters must be ENERGY STAR® qualified.

The CSI-Thermal Program rebate application process includes using a calculator to determine estimated annual energy savings, in kilowatt-hours (kWh) or therms, depending upon the backup fuel source. The result of this calculation, combined with the total funding request, must be used to demonstrate project cost effectiveness. The calculation can be printed and appended to the grant application form.

The CSI-Thermal Program Commercial and Multi-Family Residential Incentive Calculator can be found here: https://www.csithermal.com/calculator/commercial/.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

US Department of Energy Solar Water Heating Website:
http://www.energysavers.gov/your_home/water_heating/index.cfm?mytopic=12850
California Solar Initiative-Thermal Program Handbook:
http://www.cpuc.ca.gov/NR/rdonlyres/528DD03E-4D07-4D76-ACB2-B671EF33137A/0/CSIThermalHandbook_Jan_022811.pdf
For a list of eligible contractors and additional information about SCE's rebate program, see:
http://www.sce.com/solarleadership/gosolar/solar-thermal/getting-started-with-solar-thermal.htm
ENERGY STAR® Web Page Describing Solar Water Heaters (with link to ENERGY STAR® qualified equipment):
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=WSE

Solar Water Heating

In this example, an applicant is a medium-sized high school. The applicant's demand for hot water includes bathroom sinks, a cafeteria, and showers in the gym and teacher's lounge. The building housing the gym has a flat roof with no south-facing obstructions, ideal for placing solar water collectors.

After consulting with a number of vendors, the applicant decided on an ENERGY STAR® qualified system that would meet approximately 60% of the hot water needs of the gym building. Because a boiler is currently used to heat the water, a system was designed that includes closed-loop collectors, a pump, and a large heat-transfer water tank that will be used to preheat water before it passes into the boiler. Since most of the building's hot water demand occurs during the day, this was determined to be the most efficient design for the applicant's needs.

The cost for the solar water heating system is $42,090. Design, permitting, and installation costs are an additional $16,120. The vendor will apply for the CSI-Thermal Program rebate on behalf of the applicant. The full rebate amount will be refunded to the Port after the project is complete.

The applicant also requests $1,466 for administrative costs to procure the system and to train the resident maintenance engineer how to operate the system's controller.

The total grant funding requested is $59,676.

Using the CSI-Thermal Program Commercial and Multi-Family Residential Incentive Calculator, the vendor estimates that 2,300 therms/year will be saved using this system.

The project cost effectiveness is represented by the grant request of $59,676.

This will eliminate GHG emissions from the combustion of 2,300 therms of natural gas per year.

B-13 Water-Efficient or Xeriscaped Public Gardens

What is this project?

Water-efficient, natural landscaping uses drought-tolerant plants, irrigation controls to prevent overwatering, minimizes cut-grass (turf) areas, and uses mulch to prevent water evaporation. Xeriscaping is super water-efficient: using slow-growing, no- or low-water plants, soil amendments, and mulch to minimize the need for water, fertilizer, and maintenance.

Native plants are a good solution for water-efficient gardens because the plants are well-suited to local weather and soil conditions. Native plants also provide food for local species of birds and butterflies. However, some drought-tolerant plants from similar climates adapt well to our local conditions and can provide visual and habitat benefits.

In addition to the requirement for water efficiency, these gardens must be public gardens in order to qualify for funding under the GHG Grant Program. Well designed and well "signed" public gardens can provide an impetus to the rest of the community for switching from water-hungry turf to beautiful, low-maintenance, low-water landscapes.

How does this project meet the GHG Grant Program Goal?

Water purveyance accounts for more than 20% of all electricity used in California. Landscaping accounts for the majority of water use in urban areas. By reducing water use, GHGs related to electricity production are also reduced.

How can project cost effectiveness be determined?

While it may be possible to calculate the amount of irrigation used and translate the data into a quantifiable electricity use and GHG emissions, most applicants will not have tracked the historical data of their water use. Likewise, most applicants will not have the resources to estimate future water use.

However, cost effectiveness can be demonstrated by submitting a detailed landscape plan that includes plant species, locations, any existing irrigation or irrigation to be installed as part of the project, the estimated number of people each year who would visit the garden, and plans for long-term maintenance.

> PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

California Department of Water Resources, Water Efficient Landscapes brochure:
http://www.water.ca.gov/wateruseefficiency/docs/water_efficient_landscapes.pdf

California Native Plant Link Exchange:
http://www.cnplx.info/index.html

Theodore Payne Foundation for Wildflowers and Native Plants:
http://www.theodorepayne.org/

Guide to Irrigation Association's Smart Irrigation Controllers:
http://www.irrigation.org/SWAT/control_climate/

Water-Efficient or Xeriscaped Public Gardens

In this example, an applicant is a non-profit medical facility that treats over 7,000 patients each year. With visitors and employees, over 20,000 people use the facility each year. The facility has an 8,000-square foot public garden area; most of it is turf with a few shrubs and trees. The applicant is interested in converting the area into a water-efficient garden for its patients, employees, and visitors.

The applicant found a landscape architect who was willing to develop a landscaping and maintenance plan in exchange for being offered the implementation work if the applicant was awarded the grant (note: funds from the GHG Grant Program cannot be used for any costs incurred prior to award and execution of the contract). The landscaping plan showed a new garden layout: about 1,000 square feet will be retained as turf for visiting children to play on; the remaining 7,000 square feet will be converted into a highly water-efficient garden by using a combination of native and drought-tolerant plants and hardscaping (gravel, viewing rocks, and stepping stones). The hardscaping will be used in shady areas where the selected native plants may not thrive. All plant species will have weather-resistant signs. A pathway, along with seating, has been created to encourage visitors to walk through the entire garden.

A new drip irrigation system will be installed with two "smart" controllers – one for the turf area and one for the native plant area. This will allow the applicant to use water only when necessary, as appropriate to the plants and soils. The landscape architect estimates that the irrigation system will reduce the landscaping water use by 90%.

The equipment and materials will cost $17,830. The installation will cost an additional $11,022. The installation costs include some electrical work because the old irrigation system was not situated in the ideal place for accessing the controls. The applicant did not request funding for administration or maintenance. The project may also be eligible for a $2,500 rebate from the City Water Department; the applicant will refund any rebate to the GHG Grant Program, as stipulated in the contract.

The total project cost is the same as the grant request: $28,852. This cost will be compared with similar proposed projects as an evaluation of cost effectiveness.

The project cost effectiveness is represented by a total cost of $28,852.
This will provide a 7,000-sf, water-efficient public garden that will serve 20,000 people/year.

B-14 Urban Forests

What is this project?

Urban forests are tree populations living in urban settings. Trees enhance the lives of city dwellers because they capture air pollutants (including GHGs), cool living spaces through shading, and provide habitat for local species.

Tall trees with thick trunks and branches are the most effective at capturing GHGs. Trees that have good carbon capturing-and-storage properties are listed in Appendix A, List of Approved Tree Species. These trees are appropriate for planting in the vicinity of the Port of Long Beach, and most of them are fairly drought tolerant.

Since this storage process is reversible (i.e., the GHGs are released when the whole tree or pruned limbs are burned or buried), it is important that trees are planted in areas where they will be allowed to grow to full maturity.

How does this project meet the GHG Grant Program Goal?

Trees and, to a much lesser extent, shrubs and other plants, absorb carbon dioxide (CO_2) from the atmosphere, release oxygen, and store the carbon. This is called "carbon sequestration." The carbon will be sequestered during the life of the tree. The goals of the GHG Grant Program are met with this project because CO_2, the most prevalent GHG, is removed from atmosphere and stored by trees.

How can project cost effectiveness be determined?

Applicants must select from trees found on the List of Approved Tree Species (Appendix A) if their project is located within a 20-mile radius of the Port of Long Beach. These trees were selected for their suitability to this locale and also for their ability to sequester carbon during their lifetimes. For all other locations, trees suitable to the project location that are drought tolerant (if applicable), have high carbon storage properties and low biogenic volatile organic compound (BVOC) emissions can be proposed. The rationale for tree selection must be provided in the application.

Your grant application may more favorably compete if a detailed landscape plan is submitted with your application. The landscape plan can include tree species, locations, any existing irrigation or irrigation to be installed as part of the project, the locations of buildings in proximity of the trees, and plans for tree care and maintenance.

PLEASE SEE THE FOLLOWING PAGE FOR AN EXAMPLE COST-EFFECTIVENESS CALCULATION. NOTE THAT THE COSTS PRESENTED IN THE EXAMPLE WERE CONTRIVED AND NOT INTENDED TO BE AN ACCURATE REPRESENTATION OF ANY ACTUAL COSTS.

Additional Resources:

Appendix A, List of Approved Tree Species

How to Plant a Tree:
http://howtoplantatree.net/

Guide to Irrigation Association's Smart Irrigation Controllers:
http://www.irrigation.org/SWAT/control_climate/

Urban Forests

In this example, an applicant is a government agency that would like to plant a small urban forest in a green space that used to be a railroad right-of-way. The agency now owns the property.

The applicant will install a total of 26 trees from four species on the List of Approved Tree Species (Appendix A). These trees are accessible to the public and are adjacent to a grassy area, so the applicant has selected larger trees in 24- and 36-inch boxes. The mature trees should be more resilient to use by visitors to the green space.

The cost for the trees and bags of soil amendments is $8,145. The trees will be installed by the nursery's contractor for an additional $1,760. A separate contractor will install a moisture-sensing irrigation system; this will cost $2,240 for equipment, supplies, and labor. The applicant will purchase a one-year service contract for $200 to ensure that the irrigation system is programmed properly. Additional administrative costs for the applicant to procure the trees and equipment are $708.

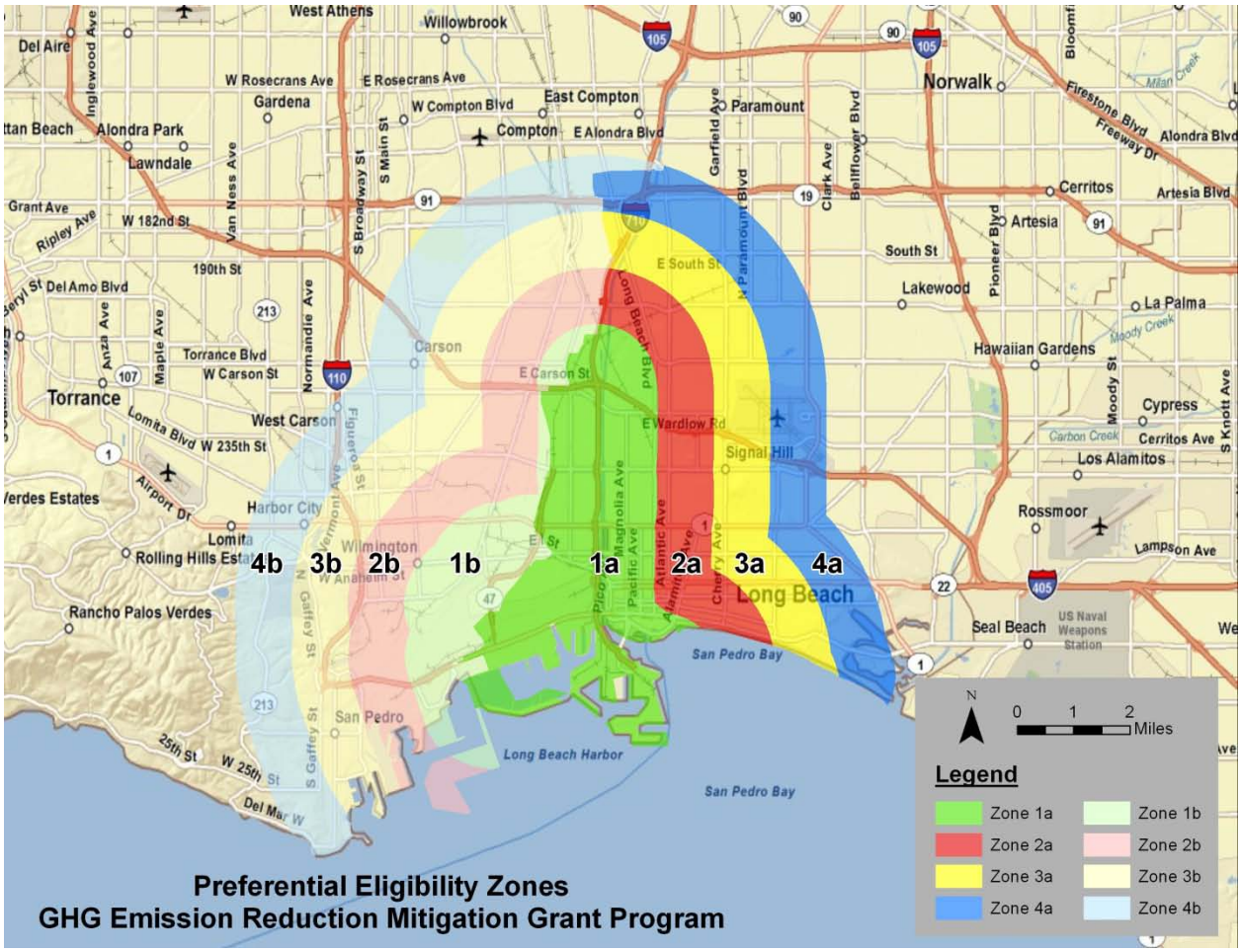
The total project cost is the same as the grant request: $13,053. This cost will be compared with similar proposed projects as an evaluation of cost effectiveness.

The project cost effectiveness is represented by a total cost of $13,053.
This will provide for the installation of 26 trees and associated irrigation.

Appendix C, Preferential Eligibility Zones

This is a small-scale map provided for demonstrational purposes only. An interactive map with zoom functions is available at: http://bit.ly/tTPbJf. Note: this URL is case-sensitive.

The interactive map allows applicants to input their facility's address (upper right corner of the page) after which the map will clearly show which zone the facility is located in. The color coding for the zones is the same as that in the map shown below.



FUNDING CONTRACT

BETWEEN THE CITY OF LONG BEACH AND

NAME
STREET AND P.O. BOX ADDRESS
CITY, STATE, ZIP
TELEPHONE NO.
FAX NO.

THIS CONTRACT is made and entered into, in duplicate, as of the date executed by the Executive Director of the Long Beach Harbor Department ("Executive Director"), by and between the CITY OF LONG BEACH, a municipal corporation, acting by and through its Board of Harbor Commissioners ("City"), pursuant to authority granted by said Board [by its Ordinance No. HD-1818____] [at its meeting of _____, 2011]; and [_____], a [_____] corporation ("Recipient").

1. This contract is made with reference to the following facts and objectives which the parties hereby acknowledge to be true and correct:

(a) City has developed the Port of Long Beach Greenhouse Gas (GHG) Emissions Reduction Mitigation Grant Program ("GHG Grant Program") to provide funding for projects that will mitigate the environmental impacts of development projects associated with the Port of Long Beach.

(b) City has developed the Guidelines for the Port of Long Beach Greenhouse Gas Emissions Reduction Mitigation Grant Program that describe the types of projects for which grant funding will be available from the GHG Grant Program and the criteria that will be applied to determine how grant funds will be awarded.

(c) Recipient submitted a project proposal for which it seeks funding from the GHG Grant Program, and Recipient's proposal was approved for funding by City.

(d) City wishes to fund the Project described in this contract

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under the terms set forth in this contract, and Recipient wishes to use grant funds for such project.

2. No later than six (6) months after the date on which City executes this contract ("Commencement Date"), Recipient shall commence the Project described in the Scope of Work attached to this contract in Exhibit "A" which is incorporated herein by reference as though set forth in full ("Project"). For purposes of this paragraph, "commence" means to place an order for equipment listed on Exhibit "A" or to award a contract for work described in Exhibit "A." No later than one (1) year after the Commencement Date, Recipient shall complete the Project in accordance with Exhibit "A," generally accepted professional and technical standards currently in effect, City's request for proposals, dated _____, and Recipient's proposal dated _____, all of which are incorporated in this contract by reference. If Recipient fails to commence or complete the Project by the dates set forth in this paragraph 2, City shall have the right to terminate this contract in accordance with paragraph 8.

(a) Recipient and its officers, employees, agents and contractors shall obtain and maintain all approvals, permits and licenses necessary for Recipient's performance hereunder, including those required under Title 3 and Title 5 of the Long Beach Municipal Code, and shall pay any fees required therefor. Recipient shall notify City promptly of any suspension, termination, lapse or nonrenewal or restriction of a necessary approval, permit or license. City may withhold any payment to Recipient until Recipient comes into compliance with such licensing and permitting requirements.

(b) Any contractor performing any construction, alteration, demolition, installation or repair work funded pursuant to the contract shall be licensed by the State Contractor's License Board in conformance with the provisions of the California Business and Professions Code.

(c) Any equipment purchased with funds disbursed pursuant to this contract shall be installed as required by the equipment manufacturer.

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Recipient shall maintain all equipment funded pursuant to this contract in accordance with the manufacturer's specifications throughout the useful life of such equipment.

(d) Recipient agrees that all public work (as defined in California Labor Code Section 1720) performed pursuant to this contract (the "work") shall comply with the requirements of California Labor Code Sections 1770 et seq. In all bid specifications, contracts and subcontracts for the work, Recipient (or its general contractor, in the case of subcontracts) shall obtain the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in this locality for each craft, classification or type of worker needed to perform the work, and shall include such rates in the bid specifications, contract or subcontract. Such bid specifications, contract or subcontract must contain the following provision:

> It shall be mandatory for the contractor to pay not less than the said prevailing rate of wages to all workers employed by the contractor in the execution of this contract. The contractor expressly agrees to comply with the penalty provisions of California Labor Code Section 1775 and the payroll record keeping requirements of California Labor Code Section 1771.

Recipient shall indemnify and hold City harmless from and against any and all claims, demands, causes of action, obligations, damages, liabilities, costs and expenses, including reasonable attorneys' fees, that may be asserted against or incurred by City with respect to or in any way arising from Recipient's compliance with or failure to comply with applicable laws, including all applicable federal and state labor standards including, without limitation, the requirements of Labor Code Section 1720.

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3. The term of this contract shall be deemed to have commenced on the date City executes the contract and, subject to the provisions of paragraph 8, shall terminate upon the final disbursement of the funding amount set forth in paragraph 5 or the approval by City of the final report required by Exhibit "A," whichever occurs later, except that the obligations set forth in paragraphs 2(c), 6 and 11 shall survive the termination of this contract.

4. All disbursements of funds pursuant to this contract shall be made in accordance with the schedule set forth in Exhibit "B" to this contract which is incorporated herein by reference as though set forth in full. In connection with each disbursement, Recipient shall submit to City a detailed statement with supporting documentation of all expenses incurred by Recipient in connection with the Project. Before City processes such statement for payment, City shall have the right to verify the amounts requested and that the Project has been constructed and/or is being utilized as provided in this contract.

5. The total amount which shall be payable by City to Recipient for the Project during the term of this contract shall not exceed [$_____].

6. Recipient shall:

(a) provide to City quarterly status reports on the Project in addition to any reports specified in Exhibit "A."

(b) maintain all records related to the Project for at least one (1) year following the expiration or termination of the contract. City or a third party designee shall have the right to conduct an audit of the Project and all records related to the Project. City or a third party designee also shall have the right to perform evaluations of Project equipment during the life of the Project. Recipient, upon receipt of reasonable notice, shall grant City or a third party designee access to the Project equipment at any and all reasonable times in order to conduct such evaluations.

(c) deliver to City any and all rebates that Recipient receives in connection with the Project.

7. Recipient represents and warrants:

(a) The Project is not a mitigation measure specified in an environmental impact report or mitigated negative declaration prepared pursuant to the California Environmental Quality Act, and will not be used to achieve GHG emission reductions that are required by any law, regulation, permit, court order, order issued by an administrative agency, memorandum of understanding or other legally binding document.

(b) The Project will not be used by Recipient to seek credit toward any obligations imposed pursuant to the California Global Warming Solutions Act of 2006 (California Health and Safety Code Section 38500 and following), or under any emissions averaging, banking, marketing or trading program.

(c) The Project will reduce GHG emissions beyond what would have occurred in the absence of the grant funding, and shall require grant funds in order to occur in a timely and successful manner (taking into account any available rebates, incentives or tax credits).

8. If Recipient fails to comply with any term or provision of this contract, including but not limited to the requirements of Exhibits "A" and "B," within the time specified by this contract, City shall have the right to terminate this contract, effective immediately, upon written notice to Recipient. If the contract is so terminated prior to completion of the Project, Recipient shall be reimbursed for Project expenses incurred but not yet reimbursed through the effective date of termination. Recipient agrees to accept such amount, plus all amounts previously paid, as full payment and satisfaction of all obligations of City to Recipient.

9. Any notices to be given under this contract shall be given in writing. Such notices may be served by personal delivery, facsimile transmission or by first class regular mail, postage prepaid. Any such notice, when served by mail, shall be effective two (2) calendar days after the date of mailing of the same, and when served by facsimile transmission or personal delivery shall be effective upon receipt. For the purposes

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hereof, the address of City, and the proper person to receive any such notices on its behalf, is: Executive Director, Long Beach Harbor Department, P.O. Box 570, Long Beach, California 90801, FAX number (562) 901-1733; and the address and FAX number of Recipient are as indicated above.

10. Recipient may not, unless it has first obtained the written permission of City, assign or otherwise alienate any of its rights hereunder, including the right to payment, or delegate, subcontract or otherwise transfer any of its duties hereunder. Any attempted assignment or delegation without such consent shall be void, and any assignee or delegate shall acquire no right or interest by reason of such attempted assignment or delegation.

11 . (a) Recipient shall indemnify, protect and hold harmless City, the Board of Harbor Commissioners, and their officials, employees and agents ("Indemnified Parties"), from and against any and all liability, claims, demands, damage, loss, obligations, causes of action, proceedings, awards, fines, judgments, penalties, costs and expenses, including attorneys' fees, court costs, expert and witness fees, and other costs and fees of litigation, arising or alleged to have arisen, in whole or in part, out of or in connection with (1) Recipient's breach or failure to comply with any of its obligations contained in this contract, or (2) negligent or willful acts, errors, omissions or misrepresentations committed by Recipient, its officers, employees, agents, subcontractors, or anyone under Recipient's control, in connection with or in any way related to the Project or the funds disbursed pursuant to this contract (collectively "Claims" or individually "Claim").

(b) In addition to Recipient's duty to indemnify, Recipient shall have a separate and wholly independent duty to defend Indemnified Parties at Recipient's expense by legal counsel approved by City, from and against all Claims, and shall continue this defense until the Claims are resolved, whether by settlement, judgment or otherwise. No finding or judgment of negligence, fault,

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breach, or the like on the part of Recipient shall be required for the duty to defend to arise. City shall notify Recipient of any Claim, shall tender the defense of the Claim to Recipient, and shall assist Recipient, as may be reasonably requested, in the defense.

(c) If a court of competent jurisdiction determines that a Claim was caused by the sole negligence or willful misconduct of Indemnified Parties, Recipient's costs of defense and indemnity shall be (1) reimbursed in full if the court determines sole negligence by the Indemnified Parties, or (2) reduced by the percentage of willful misconduct attributed by the court to the Indemnified Parties.

(d) The provisions of this paragraph shall survive the expiration or termination of this contract.

12. **[NOTE: THIS PARAGRAPH APPLIES TO PROJECTS ON LONG BEACH HARBOR DEPARTMENT PROPERTY AND TO CERTAIN OTHER PROJECTS. THE INSURANCE AMOUNTS SET FORTH BELOW ARE MINIMUMS ONLY. DEPENDING ON THE TYPE OF PROJECT, HARBOR DEPARTMENT RISK MANAGEMENT MAY REQUIRE ADDITIONAL INSURANCE OR HIGHER COVERAGE LIMITS.]** As a condition precedent to the effectiveness of this contract, Recipient shall procure and maintain in full force and effect during the term of this contract the following types and levels of insurance:

(a) Commercial General Liability Insurance which affords coverage at least as broad as Insurance Services Office "occurrence" form CG 00 01 with minimum limits of at least $1,000,000 per occurrence, and if written with an aggregate, the aggregate shall be double the per occurrence limit. The policy shall contain no provisions or endorsements limiting coverage for (1) products - completed operations; (2) contractual liability; (3) independent contractors; (4) third party action over claims; (5) explosion, collapse or underground hazard (XCU); and (6) defense costs shall be excess limits.

(b) Automobile Liability Insurance with coverage at least as broad

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as Insurance Service Office Form CA 0001 covering "Any Auto" (Symbol 1) with minimum limits of $1,000,000 each accident.

(c) Workers' Compensation Insurance, as required by the State of California and Employer's Liability Insurance with a limit of not less than $1,000,000 per accident for bodily injury and disease, and any required coverage under the U.S. Longshoremen's and Harbor Workers' Act, Federal Employers Liability Act, and Jones Act for employees performing services covered by these Acts.

(d) Such other insurance as City's Director of Risk Management may determine.

Insurance policies will not be in compliance if they include any limiting endorsement that has not been approved in writing by City.

The policy or policies of insurance for Commercial General Liability and Automobile Liability shall contain the following provisions or be endorsed to provide the following:

(1) The Indemnified Parties shall be additional insureds with regard to liability and defense of suits or claims arising out of the performance of the Contract. Additional insured endorsements shall not:

i. Be limited to ongoing operations;

ii. Exclude contractual liability;

iii. Restrict coverage to the sole liability of Recipient;

iv. Contain any other exclusion contrary to the contract.

(2) This insurance shall be primary and any other insurance, deductible, or self-insurance maintained by the Indemnified Parties shall not contribute with this primary insurance.

(3) The policy shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor Department except notice of ten (10) days

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shall be allowed for non-payment of premium.

The policy or policies of insurance for Workers' Compensation shall be endorsed, as follows:

(1) A waiver of subrogation stating that the insurer waives all rights of subrogation against the Indemnified Parties.

(2) The policy or policies shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of City except notice of ten (10) days shall be allowed for non-payment of premium.

Any deductible or self-insured retention must be approved in writing by the Executive Director and shall protect the Indemnified Parties in the same manner and to the same extent as they would have been protected had the policy or policies not contained a deductible or self-insured retention.

Recipient shall deliver either certified copies of the required policies or endorsements on forms approved by the City ("evidence of insurance") to the Executive Director for approval as to sufficiency and as to form. At least fifteen (15) days prior to the expiration of any such policy, evidence of insurance showing that such insurance coverage has been renewed or extended shall be filed with the Executive Director. If such coverage is canceled or reduced, Recipient shall, within ten (10) days after receipt of written notice of such cancellation or reduction of coverage, file with the Executive Director evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies.

The coverage provided shall apply to the obligations assumed by the Recipient under the indemnity provisions of this contract but this insurance provision in no way limits the indemnity provisions and the indemnity provisions in no way limit this insurance provision.

Recipient agrees to suspend and cease all operations hereunder during such period of time as the required insurance coverage is not in effect and evidence of

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insurance has not been approved by City. City has the right to withhold all payments due Recipient until Recipient has complied fully with this insurance provision.

Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A:VII and authorized to do business in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law.

If coverage is written on a claims-made basis, the retroactive date on such insurance and all subsequent insurance shall coincide with or precede the effective date of the contract and continuous coverage shall be maintained or Recipient shall obtain and submit an extended reporting period endorsement of at least three (3) years from termination or expiration of this contract. Upon expiration or termination of coverage of required insurance, Recipient shall procure and submit to City evidence of "tail" coverage or an extended reporting period endorsement of at least three (3) years from termination or expiration of this contract.

13. This contract shall be deemed made in the State of California and shall be governed by the laws of said State (except those provisions of California law dealing with conflicts of law), both as to interpretation and performance.

14. In the event of any conflict or ambiguity between this written contract and any exhibit hereto, the provisions of this contract shall govern, and in the event of any conflict or ambiguity between Exhibit "A" or Exhibit "B" and any other documents incorporated by reference in this contract, the provisions of Exhibit "A" and Exhibit "B" shall govern.

15. This contract shall not be amended, nor any provision or breach hereof waived, except in writing signed by the parties which expressly refers to this contract.

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16. This contract, including all exhibits, constitutes the entire understanding between the parties and supersedes all other agreements, oral or written, with respect to the subject matter herein.

[_____]

_____, 2011 By: _____
Name: _____
Title: _____

_____, 2011 By: _____
Name: _____
Title: _____

RECIPIENT

CITY OF LONG BEACH, a municipal corporation, acting by and through its Board of Harbor Commissioners

_____, 2011 By: _____
Richard D. Steinke
Executive Director
Long Beach Harbor Department

CITY

The foregoing document is hereby approved as to form.

ROBERT E. SHANNON, City Attorney

_____, 2011 By: _____
Deputy

BJM:arh 10/27/11 #A11-02419

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Appendix E, General Project Checklist

The suggestions that follow are intended to be a helpful guide to applicants submitting a grant proposal. This list is not comprehensive nor is it intended to be a substitute for any other information found in the GHG Grant Program Guidelines or the rest of the RFP.

As the Port gets questions about the GHG Grant Program and application forms, the list of Frequently Asked Questions (FAQs) found on the GHG Grant Program website will be updated. The FAQs can be found at: http://www.polb.com/environment/grants/ggr.asp.

- ✓ Did you carefully review the Request for Proposals (RFP) to be sure that you understood the requirements for your project application?
- ✓ Have you included design and permitting costs in your proposal?
- ✓ Will your organization need to consider administrative effort (labor or money) to advance your project, if awarded? If so, have you included these costs?
- ✓ Some projects, such as windows and HVAC systems, may have unforeseen installation costs; make sure you obtain complete bids for the work prior to submitting your application.
- ✓ Is the cost proposal you obtained valid for at least 12 months? This is the maximum duration of the contracting period; any applicants unable to execute a contract within this time will forfeit their rights to the grant funds.
- ✓ Have you reviewed the pro-forma contract? Do you understand and agree to the contract requirements?
- ✓ Several of the Energy Efficiency Projects are eligible for 10 bonus points if an energy audit is conducted (at the expense of the applicant) prior to submitting the application AND the proposed project reflects the findings of the audit. The audit may identify more than one action. For this reason, several of the Energy Efficiency Projects can be combined as one project. Have you considered conducting an energy audit of your facility?
- ✓ The GHG Grant Program is a competitive process for awarding funding to eligible projects. The scoring criteria, described in Section 7 of the RFP, will be used rank projects. Have you made a convincing case for your organization's need for grant funding? How will your project rationale compare with other applicants for the same project type?
- ✓ Does your detailed scope or work, work plan, or landscaping plan accurately reflect your contractor's bid?

- ✓ Does your project require any long-term care or maintenance? If so, have you demonstrated in your application that your organization is capable of maintaining the project throughout its useful life?

- ✓ Have you established a reasonable schedule for completing the project? Your schedule will become part of your contract with the Port.

- ✓ If you are considering a roof-mounted solar power generation or solar water heating project, has a contractor inspected your building to ensure that the roof will hold up under the weight of the system? Will any future repairs or improvements to the building or roof affect the viability of the solar system during its useful life (20 years or more)?

- ✓ Does your application include any costs incurred while preparing the grant application? If so, these costs need to be removed from the funding request. Grant funding can only be used for construction, material purchases, and activities that occur after the contract is executed.

- ✓ Are you aware of the application deadline? No late submittals will be accepted.