

# Program Guidelines for the 2017-2019

**UPDATED: 4/5/2019** 

# **Energy Efficiency and Solar Grant Program**

for Higher Education, Local
Governments, State Agencies and
Washington K-12 Public School Districts

The following updates have been made as of 4/5/2019 *Changes in the document are highlighted in blue.* 

## 1. Award Announcement Postponed:

Successful Applicants will be notified by close of business May 31, 2019.

The following updates have been made as of 1/29/2019 *Changes in the document are highlighted in green.* 

# 2. Award Announcement Postponed:

Successful Applicants will be notified by close of business April 15, 2019.

The following updates have been made as of 10/5/2018 Changes in the document are highlighted in yellow.

#### 3. Deadline Extended:

Applications must be received by 5:00 PM (PST) on Monday, December 31, 2018. Successful Applicants will be notified by close of business March 1, 2019.

## 4. Contracting Requirements:

#### Updated to:

Projects must not enter into a contract for construction prior to award.

#### Previously:

Projects must not enter into a contract for construction prior to January 1, 2019.

#### 5. Program Eligibility:

The link to the Office of Financial Management April 1, 2018 Population Determination was updated:

#### The new link is:

https://www.ofm.wa.gov/sites/default/files/public/dataresearch/pop/april1/ofm\_april1\_population\_final.pdf

#### 6. Energy Efficiency Grants:

The link to the Transportation Improvement Board was updated:

## The new link is:

http://www.tib.wa.gov/grants/grants.cfm

#### 7. Leverage Ratio Scoring:

Commerce corrected the required match percentages. Specifically, small towns and cities need to provide 33%, not 66% of the project funding. The Energy Efficiency Leverage Goal is 75% not 25%.

#### Corrected to:

Minimum match requirements:

- Small Cities and Towns, 33% of the total project cost (leverage ratio of 1:2)
- All others, 50% of the total project cost (leverage ratio of 1:1)

**Energy Efficiency Leverage Goals** 

Energy Efficiency projects will be scored on the leverage ratio of non-state funding sources to state grant. Projects will be scored based on a goal of 75% (leverage ratio of 3:1).

Please note: Updates were also made to the NOFO for this program.

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# **Program Website**

http://www.commerce.wa.gov/growing-the-economy/energy/energy-efficiency-and-solar-grants/

# 2017-2019 Energy Efficiency and Solar Grants for Higher Education, Local Governments, State Agencies and Washington K-12 Public School Districts

# **Program Guidelines**

# **Purpose**

<u>Substitute Senate Bill 6090, Chapter 2, Laws of 2018, Section 1014</u> passed by the 2018 Legislature includes appropriations of \$11,000,000 million to the Washington State Department of Commerce for the energy efficiency and solar cost saving grants programs.

The appropriation provides:

# **Energy Efficiency**

\$7,129,500.00 for projects to be awarded in competitive rounds to local agencies, public higher education institutions, school districts, and state agencies for operational cost savings improvements to facilities and related projects that result in energy and operational cost savings.

- It directs Commerce to award at least twenty percent to small cities or towns with a population of five thousand or fewer residents.
- In each competitive round, the higher the leverage ratio of non-state funding sources to state grant and the higher the energy savings, the higher the project ranking.
- For school district applicants, priority consideration must be given to school districts that demonstrate improved health and safety through:
  - Reduced exposure to polychlorinated biphenyl,
  - Replacing outdated heating systems that use oil or propane as fuel sources,
  - Priority consideration must be given to applicants that have not received grant awards for this purpose in prior biennia.

Awardees will be subject to the applicable requirements. Federal Funding is from the American Recovery and Reinvestment Act (ARRA). These funds are subject to federal requirements as outlined below. Awards that are a combination of state and federal funds will be subject to the more restrictive requirements.

# **Federal Fund Requirements:**

For funds awarded from ARRA, the following federal requirements will apply to your project. If the requirements are contradictory to the state requirements, the most stringent requirements apply. It is the applicant's responsibility to ensure understanding and compliance, with all utility, local, state and federal requirements. It is the applicant's responsibility to ensure that all subcontractors and consultants understand and comply with all requirements which include, but are not limited to:

- Active Registration through SAM.gov
- Buy American Provisions of the Recovery Act
- Davis Bacon
- Historic Preservation (Section 106)
- National Environmental Policy Act (NEPA) https://www.epa.gov/laws-regulations/summarynational-environmental-policy-act

#### Solar

\$1,697,500.00 provided solely for grants to be awarded in competitive rounds to local agencies, public higher education institutions, school districts, and state agencies for projects that involve the purchase and installation of solar energy systems, including solar modules and inverters, with a preference for Washington-manufactured products.

The solar allocation is from state funds only. No federal funds will be awarded for solar projects.

## **All Grants**

Will be awarded through a competitive process and may be used solely for energy cost savings improvements. Related work that is directly necessary to implement energy efficiency improvements may also be considered for funding.

Grants will be awarded for projects using Energy Savings Performance Contracting (ESPC) or equivalent <a href="http://www.des.wa.gov/services/facilities/Energy/ESPC/Pages/default.aspx.">http://www.des.wa.gov/services/facilities/Energy/ESPC/Pages/default.aspx.</a> In order to be considered, applicants must demonstrate they have the expertise to manage their own projects or are working with DES on the project and all applicants must follow the ESPC guidelines.

# **Applicants:**

- Must be one of the following:
  - Local Agency

Local Agencies includes city and any town, county, special purpose district, municipal corporation, agency, port district or authority, tribal government, or political subdivision of any type, or any other entity or authority of local government in corporate form or otherwise.

- Public Higher Education Institution
- School District
- State Agency
- Must have current registration with the state's Department of Revenue and Secretary of State, as applicable.
- Cannot request grant funding to replace or duplicate previous, current, or future funding.
   Commerce may award less than requested to ensure the project is not funded beyond 100% of the cost.

#### All Projects must:

- Be located in the State of Washington.
- Benefit and be owned by the applicant.
- Leased and community solar projects are not eligible.
- Be completed within 18 months of execution of the grant agreement. Extensions may be considered on a case-by-case basis.
- Not enter into a contract for construction prior to award.
- Be retrofits of existing buildings and structures.
- Comply with utility, local, state, and federal laws, regulations, and policies as applicable.
- Demonstrate benefit to Washington State and its citizens.
- Result in energy and operational cost savings.

# **Program Eligibility**

Public higher education institutions, local agencies, public school districts and state agencies are eligible to apply.

Commerce defines local agencies as any city, town, county, special purpose district, municipal corporation, agency, port district or authority, or political subdivision of any type, or any other entity or authority of local government in corporate form or otherwise.

Commerce will be using the list of small cities and towns determined annually by the Office of Financial Management (OFM) *April 1, 2018 Population Determination*, through the following website: <a href="https://www.ofm.wa.gov/sites/default/files/public/dataresearch/pop/april1/ofm\_april1\_population\_final.pdf">https://www.ofm.wa.gov/sites/default/files/public/dataresearch/pop/april1/ofm\_april1\_population\_final.pdf</a>.

State agencies may not submit applications for leased facilities. Local agencies and higher educational facilities may submit applications for leased facilities as long as there is a minimum 10-year lease from the time of the final Commerce grant payment.

The program is **not** open to new construction projects.

# **Application Categories and Grant Amounts**

The Commerce 2017 - 2019 Energy Efficiency and Solar Grant program has two grant categories available:

- Energy Efficiency
- Solar

Separate applications must be submitted for Energy Efficiency and Solar projects. If an Energy Efficiency project includes a solar installation, the solar costs and energy data must be removed from the Energy Efficiency application and submitted on the Solar application. Solar and Energy Efficiency grant applications will be scored separately.

# **Energy Efficiency Grants**

The maximum energy efficiency grant amount any one applicant can receive (combination of applications if more than one) is \$500,000.00 **per biennium**.

Commerce will accept applications for two types of lighting only projects:

- Municipal street lighting projects are for lights served by utility street lighting tariff and/or light the public right of way. Outdoor lighting served by a facility utility meter is not street lighting. Municipal streetlights owned and maintained by an investor owned utility are eligible for a Commerce grant. The investor owned utility must have a specific tariff for LED street lights. Commerce will not be funding street lighting projects in small cities and towns. The Transportation Improvement Board has funding for these local governments: <a href="http://www.tib.wa.gov/grants/grants.cfm">http://www.tib.wa.gov/grants/grants.cfm</a>
- School polychlorinated biphenyl (PCB) mitigation: We will accept projects at schools that include only the removal of ballasts with PCBs. These are commonly found in old systems with T-12 lamps.

#### **Solar Grants**

The maximum solar grant amount any applicant can receive (combination of applications if more than one) is \$350,000.00 **per biennium**.

The minimum solar grant amount, regardless if it is a solar photovoltaic (PV) or a non-PV system - solar thermal, is based on the project providing a minimum of 20,000 kilowatt hour (kWh) or equivalent Btu/year of generation.

For small cities and towns with populations of 5,000 or less, the minimum solar grant amount is based on the project providing a minimum of 10,000 kWh or equivalent Btu/year of generation.

# **Funding Availability and Timing**

Applications are due by 5:00PM on December 31, 2018.

Applications must be submitted by email to energy\_policy@commerce.wa.gov. We will <u>NOT</u> accept applications that are mailed, faxed, or hand delivered in to our offices.

Qualified applicants may submit more than one grant application per round – provided the applications are for different measures. However, Commerce will not consider applications that seek funding for more than one project in the same building in the same round. We encourage applicants to aggregate energy measures and submit them as a single project whenever possible.

A minimum of 20% is for Energy Efficiency grants to small cities and towns with populations of 5,000 or less.

Projects cannot have a construction contract in place prior to award.

Commerce reserves the right to modify grant request amounts based on application demand levels, scoring, and funding analysis. Final awards may take into account fair and equitable geographical distribution, the applicant's access to other sources of funds necessary to complete the project, and the applicant's past performance on Commerce contracts.

To calculate funding awards, Commerce will use which ever amount is higher between the total incentives and rebates or the funding provided by the applicant. If post-completion incentives or rebates exceed the amount of funding provided at a cost to the awardee, Commerce will adjust the award to ensure the project is not funded beyond 100%. Incentives and rebates will not be considered match funds.

#### **Scoring Basics**

All Commerce energy efficiency and solar project applications will be awarded through a competitive process. Applications will be scored on energy savings and leverage ratio, per Substitute Senate Bill 6090, Chapter 2, Laws of 2018, Section 1014.

Small cities and towns with populations of 5,000 or less will be scored in their own category. Once 20% has been awarded to small cities and towns, the remaining applications will be added to the primary application review.

All energy efficiency grant applications from higher education, local governments, state agencies and school districts will be scored collectively. Any remaining small cities and towns without an award from the initial 20% will be included.

School district applicants will receive three additional scoring criteria listed in the authorizing legislation:

- Reduced exposure to PCBs
- Replacing outdated heating systems that use oil or propane as fuel sources as identified by the Washington State University Extension Energy Program

• Priority consideration must be given to school district applicants that did not receive grant awards from appropriations prior biennium.

# **Energy Savings Scoring**

Commerce will use a simple payback calculation to score projects. Simple payback is defined as total project costs divided by the annual energy, water, and/or sewer savings or generation for solar projects.

Total project costs include all costs required to implement the project.

Energy savings are based on current operating conditions as compared to the proposed operating conditions. Commerce will not allow modified baselines. Commerce will be using the following statewide average energy rates in determining the project's simple payback:

Electricity \$0.0856/kWh
 Gas \$0.818/therm
 Fuel Oil \$2.04/gal
 Propane \$1.05/gal

 Wood Pellets and other fuels, provide documentation of the commercial price available.

Applicants must submit their water and sewer rates to verify savings. If the local government applicant (i.e. city, county, water/sewer district) is a water purveyor, it must submit a sample billing showing the rate(s) it charges itself, other departments or other entities, which buy water from it.

These average Washington rates come from the most recent commercial rates reported by the Energy Information Administration.

The program allows the following maximum simple paybacks:

- 35 years for energy efficiency projects
- 20 years for lighting and municipal street lighting projects
- 100 years for solar projects

This program is to save energy, not to repair buildings or pay for basic operations and maintenance, such as maintaining existing weatherization measures. We understand that in some instances, the building must be repaired before an energy efficiency measure is installed.

Building repairs and operation, maintenance or weatherization measures may only represent a small fraction of the total project cost. When applying for energy efficiency and a solar grant for the same building, a project proposal for weatherization measures, operations, or maintenance is not acceptable.

# **Energy Efficiency Projects**

The total maximum points possible for energy efficiency projects is **40**.

Commerce uses simple payback to score energy savings. The total maximum points possible for energy savings is **30** unless the project receives additional points for significantly exceeding the energy code or utility conservation program requirements. The original legislation specifies deep energy retrofits. Projects with short paybacks are not considered deep energy retrofits and should

be funded through state loans or other public or private funds. Projects with long paybacks indicate the project includes too many elements that do not provide energy savings.

# **Energy Efficiency Additional Points**

As mentioned above, energy efficiency projects may receive additional points for going beyond the energy code. An applicant can receive a maximum of **10** additional points.

To receive the additional points, applicants must demonstrate efficiency improvements by selecting equipment that exceed base requirements of recognized efficiency programs.

The program also recognizes the use of advanced designs and controls that exceed minimum code requirements. Applicants must document how the efficiency element exceeds code and the anticipated savings.

# K-12 Public School District Project Scoring

After school districts have received their energy savings and leverage scores, they will be scored on the three additional criteria listed in the legislation for energy savings:

## **Lighting Projects**

Lighting upgrade projects that include replacement of existing ballasts with PCBs are awarded an additional **10** points. To qualify for these additional points, a minimum of **10** percent of the existing ballasts must have PCBs.

## **Outdated Heating Projects**

Replacing outdated heating systems, which use oil or propane as fuel sources (as identified by WSU-Energy Programs) will be awarded an additional **10** points.

# **Prior Grant Award**

School districts that did not receive a prior award from prior biennia are awarded an additional **5** points.

# **Solar Project Scoring**

The total maximum solar points awarded is **40**.

Commerce uses simple payback to score energy savings (production). The maximum points possible for energy production is **30**. Solar projects may receive additional points for made in Washington components. An applicant can receive a maximum of **10** additional points.

## **Leverage Ratio Scoring**

Leverage ratios are based on the amount of non-state funds an applicant contributes to a project divided by the grant amount. The maximum points possible for leverage is **30**. The higher the leverage ratio the higher the points.

## Minimum match requirements:

- Small Cities and Towns, 33% of the total project cost (leverage ratio of 1:2)
- All others, 50% of the total project cost (leverage ratio of 1:1)

# **Energy Efficiency Leverage Goals**

Energy Efficiency projects will be scored on the leverage ratio of non-state funding sources to state grant. Projects will be scored based on a goal of 75% (leverage ratio of 3:1).

The following sources of funds **cannot be used** as leverage for any applicant:

- Any funds that originated as an appropriation from the Legislature are considered state funds. (These funds cannot be used to supplant other funds obtained through the private sector – e.g. payoff loans).
- o In-house labor (employee time, benefits and overhead).
- Federal funds allocated or awarded through the legislature or any agency of the State of Washington.
- State based incentives, such as the Washington State Renewable Energy System Incentive Program. If the applicant plans to apply for the Washington State Incentive Program, the anticipated lifetime incentive cannot be counted as leverage.

# **Sources of Leverage Funds**

All leveraged funds must be upfront capital investment.

Higher education may use the following funds as leverage:

- Lease/Purchase program through the Office of the State Treasurer at <a href="http://www.tre.wa.gov/government/leasePurchaseProgram.shtml">http://www.tre.wa.gov/government/leasePurchaseProgram.shtml</a>
- Utility incentives
- Student fees
- Private donations
- Private lenders
- Federal funds not awarded through the Washington State Government.
- Non-state appropriated funds

Local governments may use the following funds as leverage:

- Local Option Capital Asset Lending (LOCAL) program through the Office of the State Treasurer http://www.tre.wa.gov/LOCAL/index.shtml
- Private lenders
- Utility incentives
- Local and federal funds not awarded through the Washington State Government.
- Non-state appropriated funds

State agencies may use the following funds as leverage:

- Lease/Purchase program through the Office of the State Treasurer <a href="http://www.tre.wa.gov/government/leasePurchaseProgram.shtml">http://www.tre.wa.gov/government/leasePurchaseProgram.shtml</a>
- Utility incentives
- Federal funds not awarded through the Washington State Government.
- Private donations
- Non-state appropriated funds

School districts may use the following funds as leverage:

 Local Option Capital Asset Lending (LOCAL) program through the Office of the State Treasurer http://www.tre.wa.gov/LOCAL/index.shtml

- Revenues from the sale of bonds
- Revenues from special levies
- Private lenders
- Private donations/grants
- Federal funds not awarded through the Washington State Government.
- Utility incentives

# **Energy Star Portfolio Manager for Energy Efficiency Grants**

All energy efficiency grant applications, except municipal street lighting only projects, are required to:

- Create a Portfolio Manager account for each metered facility or campus.
  - For projects that include a single facility or multiple facilities with independent metering, create a Portfolio Manager account for each of the facilities. http://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager/get-started-benchmarking
  - For projects that include multiple facilities served by campus metering, create a Portfolio Manager account using the campus option. http://www.energystar.gov/buildings/tools-and-resources/how-benchmark-campus campus
- Document the baseline energy use of each facility.
- Set target energy use based on the proposed project.
- Create an ENERGY STAR® Progress & Goals Report (PDF).
- Submit each ENERGY STAR® Progress & Goals Report to Commerce with the application.
- Eighteen months after project completion, submit an updated copy of the ENERGY STAR® Progress & Goals Report (PDF) for each facility or campus. The report should document both the bassline year and most recent year for the facility.

Instructions: http://www.energystar.gov/buildings/facility-owners-and-

managers/existing-buildings/use-portfolio-manager/share-and-request-data

# Measurement and Verification (M&V) of Energy Savings Requirements

All projects must submit M&V reports to Commerce. After the project has been completed and the Notice of the Commencement of Energy Savings has been issued, ongoing M&V begins, in order to verify that energy savings are occurring.

Commerce is now requiring one year of M&V for all internal and external lighting and municipal street lighting projects. All other energy efficiency and solar measures are required to have three years of M&V.

Commerce is no longer making a distinction between projects that use Energy Service Companies and those who do not.

Specific M&V requirements for municipal street lighting and lighting projects are in these guidelines. The contract Commerce has with the grantee also contains specific M&V requirements.

# **Specific Solar Grant Requirements**

Commerce solar grants are open to new solar energy systems and to the expansion of existing systems.

Commerce solar grants **cannot** be used for:

- Replacing existing solar energy systems
- Community solar projects (as defined by WAC 458.20.273)
- Leased equipment
- Second hand solar equipment
- Solar power purchase agreement projects

Commerce solar grants are available for solar PV electric generation systems and solar thermal water heating systems:

- PV solar electric generation technologies (roof-mounted, ground-mounted and buildingintegrated PV).
- Solar thermal energy displacing systems (solar water heaters, solar space heating, and solar cooling systems)

# **PV Systems**

All PV systems must have a mandatory minimum of 20,000 kWh/year of generation. The exceptions to this are applications from small cities and towns with populations of 5,000 or less, that must have a minimum 10,000 kWh/year of generation.

To receive the Made in Washington points, applicants must provide evidence to support the components made in Washington. Examples include but are not limited to Made in Washington certification or manufacturer documentation.

# **Solar Thermal Systems**

All solar water heaters must have a mandatory minimum of 20,000 kWh or equivalent Btu/year of generation. The exceptions to this are applications from small cities and towns with populations of 5,000 or less, that must have a minimum 10,000 kWh or equivalent Btu/year of generation.

# **Solar Application Submission Requirements**

All solar applicants must submit:

- An application by email to <u>energy\_policy@commerce.wa.gov</u> subject line: <Name of Applicant Entity> EE&S\_Solar APP PKG
- If a solar array will be roof mounted, a stamped structural engineering letter confirming the roof's structural integrity.
- A M&V plan
- A site plan
- A preliminary electrical one-line diagram
- A shade analysis from Solar PathFinder, Solmetric SunEye or an equivalent on-site report.
- Expected annual generation (kWh)
- A list of equipment (modules, inverter(s), and racking for PV)
- A list of Washington-manufactured solar/thermal PV equipment with supporting documentation
- Interconnection agreements with the utility, if the project is not net-metered

- For agencies working with the Department of Enterprise Service (DES), please submit a copy of your current Interagency Agreement with DES
- If your agency is not using a DES project consultant, then a copy of the Request for Proposal (RFP) or Request for Qualifications (RFQ) that was used to select your ESCO or energy consultant is required.
- A written plan and/or documentation addressing compliance with Governor's Executive Order 05-05 and/or Section 106 and NEPA. If the applicant deems that either of these requirements are not applicable, this must be clearly communicated and justified in the submittal.

# **Energy Efficiency Application Submission Requirements**

All energy efficiency applicants must submit:

- An application by email to <a href="mailto:energy\_policy@commerce.wa.gov">energy\_policy@commerce.wa.gov</a> subject line: <Name of Applicant Entity>\_EE&S\_Energy APP PKG
- An investment grade audit (IGA) and/or a final Energy Service Proposal or equivalent, except for lighting. Lighting applications may use lighting spreadsheets developed by utilities for their rebate programs. ASHRAE Level III IGA is the standard for comprehensive facility audits
- Water/sewer rates for projects involving water saving measures. If the local government applicant (i.e. city, county, water/sewer district) is a water purveyor, it must submit a sample billing showing the rate(s) it charges itself, other departments or other entities that buy water from it.
- A letter from the applicant's utility(s) stating the approximate rebate/incentive level
- Energy Star Documentation and Sharing or Street lighting audit forms. The building(s) current EPA ENERGY STAR Portfolio Manager® score and/or energy use intensity (EUI) (except for street lighting-only projects) - Progress & Goals Report (PDF)
- A M&V plan
- For agencies working with the Department of Enterprise Service (DES), please submit a copy of your current Interagency Agreement with DES
- If your project includes water savings, please submit a copy of the water rates used in calculating the savings
- If your agency is not using a DES project consultant, then a copy of the Request for Proposal (RFP) or Request for Qualifications (RFQ) that was used to select your ESCO or energy consultant is required
- A written plan and/or documentation addressing compliance with Governor's Executive Order 05-05 and/or Historic Preservation via Section 106, and NEPA. If the applicant deems that either of these requirements are not applicable, this must be clearly communicated and justified in the submittal.

# **Lighting Projects**

# **Documentation for Municipal Street Lighting Projects**

Municipal street lighting projects shall be documented using lighting spreadsheets developed to support electric utility rebate programs. The applicant shall use the lighting worksheet used by the serving utility. Commerce will use the energy savings estimates provided in the spreadsheets to determine the energy savings. Municipal street lighting projects may include credit for reduction in fixture watts, decommissioning of fixtures and control strategies that reduce energy use compared to the baseline. Any new lighting fixtures added during the project must be accounted for and will reduce the total project energy savings.

# **Documentation of School Lighting Projects**

Schools in the United States built before 1979 may have PCB-containing fluorescent tube ballasts. WA State Department of Ecology has identified removing PCB ballasts as a priority. Schools may submit an application for lighting only retrofits when existing lighting systems include PCBs. At a minimum, 10 percent of the existing fixtures targeted for retrofit must have ballasts with PCBs. Only the T12 magnetic fluorescent tube ballasts (not T8 or T5) will possibly contain PCBs.

It is anticipated that replacement lighting systems will include electronically ballasted T8 or T5 fluorescent or LED lighting and advanced controls. School lighting projects shall be documented using lighting spreadsheets developed to support electric utility rebate programs. The applicant shall use the lighting worksheet used by the serving utility. Commerce will use the energy savings estimates provided in the spreadsheets to determine the energy savings. Lighting projects may include credit for reduction in fixture watts and control strategies that reduce energy use compared to the baseline. Any new lighting fixtures added during the project must also be accounted for and will reduce the total project energy savings.

Provide an audit of the facility that identifies all lighting fixtures, and all lighting fixtures that contain PCBs. The audit or assessment must indicate all PCB ballasts being removed.

#### For all Lighting Projects

Provide a complete copy of the lighting worksheet reports with the application. The lighting worksheets shall include itemized descriptions of the existing lighting fixtures and controls based on actual fixture counts, not estimates. The proposed replacement fixtures and controls shall be itemized.

Include a separate description of the existing and proposed control strategy. The utility spreadsheets do not always provide good detail on the control strategies. Add a short paragraph describing the change in control strategies and how they will result in energy savings.

Provide documentation that the project will result in energy cost savings to the applicant.

Provide information based on the change in per unit utility rates for non-metered lighting or verify that the lighting system is on a metered rate and will benefit from reduction in energy use. Provide a copy of the utility tariffs applicable to the project baseline and the completed project.

#### Installation M&V:

Fixture Watts: The contactor shall measure the total watts of a sample of the existing fixtures and the replacement fixtures. For each fixture type and size, five percent of the fixtures shall be included in the sample. It is recommended that a third party representing the owner observe some of the testing.

Control Operation: A functional test protocol for the lighting control system which clearly describes the individual systematic test procedures, the expected systems' response or acceptance criteria for each procedure shall be developed and provided to the installing electrician. At a minimum, the contractor shall implement the test protocol on no less than five percent of the controls. It is recommended that a third party representing the owner observe some of the testing.

Energy Use Compared to Proposed Energy Use: Provide documentation of the actual energy use compared to the proposed energy use and cost.

**Street Lighting:** Any street light fixtures being replaced with LED lights must be recycled and disposed of properly. They cannot be reused in other street light fixtures or sold to a third party for reuse.

**School Lighting**: At the completion of the project, a disposal manifest accounting for all the PCB ballasts removed must be submitted to Commerce.

#### Annual M&V:

Fixture performance: Report the annual maintenance required to maintain fixture operation and energy savings, Including fixture failure rates or other required maintenance.

Control changes and performance: Report changes in the control strategies that increase or decrees energy use. Report the annual maintenance required to maintain control operation and the energy savings.

Energy Use Compared to Proposed Energy Use: Provide documentation of the actual energy use compared to the proposed energy use, demand and cost.