

# OM-02: Electrical Energy Efficiency and Use

1-15 points

**Goal:** Reduce the consumption of fossil fuels during operation and maintenance of agency owned and/or operated facilities through improvements in efficiency and the use and/or generation of renewable energy sources.



Affected Triple Bottom Line Principles

## Sustainability Linkage

Reducing energy consumption and converting to renewable energy sources contributes to the environmental and economic principles by reducing fossil fuel usage and associated emissions and reducing long-term energy costs.

## Background and Scoring Requirements

### Background

Renewable energy is generated from natural processes that are continuously replenished as opposed to fossil fuels which are depleting resources. Some sources of renewable electrical energy include sunlight, geothermal heat, wind, tides, and flowing water.

### Renewable Energy Certificates (RECs)

The [Green Power Partnership website](#)<sup>1</sup> by the Environmental Protection Agency (EPA) explains that “REC represents the property rights to the environmental, social, and other non-power qualities of renewable electricity generation. A REC, and its associated attributes and benefits, can be sold separately from the underlying physical electricity associated with a renewable-based generation source and offers buyers flexibility:

- In procuring green power across a diverse geographical area.
- In applying the renewable attributes to the electricity use at a facility of choice.

This flexibility allows organizations to support renewable energy development and protect the environment when green power products are not locally available.”

Note that purchasing RECs is typically more expensive than purchasing unsourced electricity.

### How to Buy Renewable Electrical Power

The EPA’s [Green Power Partnership website](#)<sup>1</sup> further explains that “all grid-tied renewable-based electricity generators produce two distinct products, physical electricity and RECs. At the point of generation, both product components can be sold together or separately, as a bundled or unbundled product. In either case, the renewable generator feeds the physical electricity onto the electricity grid, where it mixes with electricity from other generation sources. Since electrons from all generation sources are indistinguishable, it is impossible to track the physical electrons from a specific point of generation to a specific point of use.

As renewable generators produce electricity, they create one REC for every 1000 kilowatt-hours (or 1 megawatt-hour) of electricity placed on the grid. If the physical electricity and the associated RECs are sold to separate buyers, the electricity is no longer considered “renewable” or “green.” The REC product is what conveys the attributes and benefits of the renewable electricity, not the electricity itself.

RECs serve the role of laying claim to and accounting for the associated attributes of renewable-based generation. The REC and the associated underlying physical electricity take separate pathways to the point of end use (see diagram). As renewable generators produce electricity, they have a positive impact, reducing the need for fossil fuel-based generation sources to meet consumer demand. RECs embody these positive environmental impacts and convey these benefits to the REC owner. “

### **Certifying and Tracking RECs**

Renewable resources shall be as defined by the [Green-e Energy National Standard<sup>2</sup>](#) or an equivalent source and shall be tracked per one of the certificate tracking systems, such as WREGIS, ERCOT, NARR, PJM GATS, M-RETS, NEPOOLGIS, MIRECS, or NC-RETS. The EPA has more information on tracking systems on their [Green Power Partnership website<sup>1</sup>](#).

## **Scoring Requirements**

### **Requirement OM-02.1**

#### **2 or 4 points. Set Energy Reduction and Renewable Energy Usage Goals**

Scoring is based on the following, cumulative requirements:

##### **Requirement OM-02.1a**

##### **2 points. Set Energy Reduction Goal**

Set an energy reduction goal to be obtained (usually a percentage reduction as compared to current usage).

##### **Requirement OM-02.1.b**

##### **2 points. Set Goal for Buying RECs**

Set a goal for buying RECs (in addition to energy reduction goals) that is at least equivalent to one of the following options:

- Your current state’s Renewable Portfolio Standard (RPS). Currently 24 states and the District of Columbia have RPSs in place representing more than half of the energy consumed in the United States.
- Your state’s non-binding renewable energy goal. Five other states (as of July 2011) have non-binding goals for renewable energy.
- If your state does not have a RPS or a non-binding goal, 20 percent of operational energy use should be used as the goal.

### **Requirement OM-02.2**

#### **2 or 4 points. Develop a Plan**

Develop a documented plan that outlines how the energy reduction and renewable energy goals set above will be accomplished. The plan (could be multiple documents) should state what energy-efficiency measures are planned and how renewable energy will be procured for operations and maintenance of facilities, including roadway lighting, traffic control, rest areas, maintenance & operations facilities, and other agency-operated administration facilities. This should include current energy usage and projected energy usage for the next two years as a minimum. Owned renewable energy sources may be factored into these calculations.

One of the following scores applies:

- **0 points.** No plan is created.
- **2 points.** A plan is developed to meet either the energy reduction or renewable energy usage goals.
- **4 points.** A plan is developed to meet both the energy reduction and renewable energy usage goals.

### **Requirement OM-02.3**

#### **2 points. Measure Progress and Monitor Performance**

Develop and maintain an electricity monitoring system for operations and maintenance that tracks electricity usage for all highway facilities that require electricity including, but not limited to: lighting, ITS, signals, signage, maintenance and operations sites and buildings, and rest area building and sites. This database should help to monitor any issues or inefficiencies that may exist or develop over time.

### **Requirement OM-02.4**

#### **1-2 points. Employee Awareness Program**

Scoring is based on the following, cumulative requirements:

- **Requirement OM-02.4a**

##### **1 point. Employee Awareness Program**

Develop and implement an employee awareness program that educates employees about the sources and costs of energy usage in agency-owned/operated facilities and what they could do to reduce energy usage and how that links to sustainability.

- **Requirement OM-02.4b**

##### **1 point. Employee Energy Reduction Representative or Committee**

Employ a representative or create and maintain an employee committee focused on the reduction of energy consumption. This committee could have a larger focus but must have reduction of energy usage as one of their goals.

### **Requirement OM-02.5**

#### **2-3 points. Demonstrate Sustainable Outcomes**

Scoring is based on the following, cumulative requirements:

- **Requirement OM-02.5a**

##### **2 points. Execute Renewable Energy Contract**

Execute a contract for a minimum of two years of renewable energy or create and operate renewable energy facilities within the agency-owned properties to meet the selected goal.

- **Requirement OM-02.5b**

##### **Additional 1 point. Monitor Performance and Demonstrate Sustainable Outcomes**

Monitor performance and demonstrate attainment of the agency's energy reduction goal over at least a one-year period.

## **Resources**

### **Above-Referenced Resources**

The following resources are referenced in this criterion and consolidated here:

1. EPA's Green Power Partnership website, <https://www.epa.gov/greenpower>
2. Green-e, Green-e Energy National Standard, [http://www.green-e.org/getcert\\_re\\_stan.shtml#standard](http://www.green-e.org/getcert_re_stan.shtml#standard)

### **Additional Resources**

The following resources provide information on this criterion topic in addition to the sources directly referenced:

3. EPA's *Guide to Purchasing Green Power* (2010), [https://www.epa.gov/sites/production/files/2016-01/documents/purchasing\\_guide\\_for\\_web.pdf](https://www.epa.gov/sites/production/files/2016-01/documents/purchasing_guide_for_web.pdf)
4. US Department of Energy's website, <https://www.energy.gov/>

5. U.S. Department of Energy Office of Energy Efficiency & Renewable Energy's website, <http://energy.gov/eere/office-energy-efficiency-renewable-energy>.
6. EPA's Green Power Partnership's *Renewable Energy Certificates (RECs)*, <https://www.epa.gov/greenpower/renewable-energy-certificates-recs>

## Scoring Sources

The program is considered to have met this criterion if the requirements above can be reasonably substantiated through the existence of one or more of the following documentation sources (or equal where not available):

1. Energy efficiency and renewable energy plan(s) with current energy usage and projected energy usage for the next two years.
2. Copy of the electricity monitoring system.
3. Documentation of employee awareness program and/or employee committee focused on reduction of energy usage.
4. Statement of renewable energy goal and documentation of Green-e contract or equivalent meeting that goal, according to energy projections, for two years. If a Green-e equivalent source is used, documentation to show that the source is indeed equivalent.
5. Documentation showing reduction in energy consumption over the prior year meets goals set.