



On-site Solar and Wind Energy in Portfolio Manager August 2009

Frequently Asked Questions

On August 31, 2009, EPA added two new fuels to Portfolio Manager: on-site solar and on-site wind. The addition of these fuels will help you track and manage energy associated with renewable energy installations you may have at your facility. This enhancement enables a superior assessment of building efficiency, provides a clearer connection between building energy use and associated greenhouse gas emissions, and adds tracking for renewable energy certificate (REC) transactions. This document provides some background information on the changes.

How have on-site solar and wind energy been incorporated into Portfolio Manager?

When you enter an electricity meter into Portfolio Manager, you will now be asked to document whether the electricity is purchased from a utility or generated from wind or solar energy on site. If your electricity comes from a solar photovoltaic array or wind turbine located at your building, you should designate it as such. In some cases, a facility will produce more electricity than it needs during certain hours, and therefore can sell this back to the grid or to a neighboring facility. Therefore, you will also be asked if you sell any portion of the electricity you generate from your solar or wind installation.

Starting on August 31, 2009, in order to get an accurate performance rating you are **required** to enter:

- Energy that is generated and used on site
- Energy that is generated on site and sold back to the grid
- Traditional grid-supplied electricity purchased from a utility

Why did EPA make these enhancements?

On-site solar and wind energy have been added to Portfolio Manager to enable a more comprehensive assessment of the true energy performance of a building. The addition of these fuels will help you understand the full energy requirements of your building. With this knowledge, you can pursue improvements and work towards a truly high performance building that is energy efficient and produces low (or no) carbon emissions. Accounting for these resources is important for the commercial building market as on-site renewable solar and wind projects become more common. Similarly, the addition of tracking for Renewable Energy Certificates (RECs) will help you track off-site green power purchases in your building portfolio. This type of accounting is critical for organizations interested in tracking progress towards their greenhouse gas reduction goals.

How do on-site solar and wind energy impact my energy performance metrics?

On-site solar and wind energy will now be incorporated in the calculation of your site energy and source energy, and by extension all other metrics such as weather-normalized values and energy performance ratings.

The calculation of site energy will include all kWh associated with the on-site solar or wind system. The inclusion of this energy will enable a more complete assessment of the energy efficiency of your building. For example, consider two buildings, both operating with 100% on-site solar power, but with differing amounts of energy use. The inclusion of the solar power in your site EUI will enable you to determine which of your two solar powered buildings is operating more efficiently.

The calculation of source energy use will also include all purchased energy and all energy consumed from your on-site solar and wind energy. As with site energy, the inclusion of on-site renewable energy will enable a more complete assessment of



a building. From a site perspective, on-site solar and wind electricity are comparable to grid purchase. However, from a source energy perspective, they differ because on-site renewable energy is not subject to traditional generation and transmission losses. To account for this benefit, on-site solar and wind energy will be assigned a source conversion factor of 1.0 rather than the 3.34 value that is used for grid based electricity. This factor means that a building with on-site renewable electricity will be expected to rate better than a building with grid electricity. For more on site and source energy visit: http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_benchmark_comm_bldgs.

What if I sell excess renewable energy?

Some buildings may generate more electricity from wind and solar energy than they can use, and they may sell this excess to their utility company or to a neighboring building. Portfolio Manager will allow tracking of these renewable electricity sales. However, these sales will not change a building's energy consumption or rating. The energy performance ratings assess the total energy requirement to operate your building. Selling energy back to the grid does not reduce the total amount of energy the building requires. For example, if your building requires 100 units of electricity to operate, it will require 100 units whether your on-site generation is capable of producing 90 units or 110 units. Producing more energy than you need does not make the inherent operation of your building any more efficient.

Selling energy to the grid does not impact the calculation of your building's greenhouse gas emissions. When you sell energy generated from renewable resources you have the option of either selling or retaining the environmental attributes of the renewable energy, these attributes are quantified according to RECs. If you sell the RECs, then the electric sale does not have any impact on your emissions inventory. If you retain the environmental benefit, then you can track the REC under a separate tracking module (see the following question). Either way, the sale of renewable energy does not affect the emissions associated with the energy that the building does consume.

Can I account for the purchase of renewable energy certificates (RECs)?

Yes. You can track the purchase of environmental attributes associated with green power purchases, specifically Renewable Energy Credits (RECs). A REC represents the environmental, social, and other non-power qualities associated with a unit of renewable electricity. You may purchase RECs whether or not you have on-site renewable energy. When you purchase a REC you own the environmental benefit associated with a specific amount of renewable electricity. Purchases may be made at a corporate level or a building level and they typically apply to renewable energy for a specific time period (e.g. first quarter 2009). Portfolio Manager allows you to track REC purchases at the building level, for all buildings in your portfolio. You can combine these RECs as part of your organization's greenhouse gas emissions inventory.

The purchase of RECs can be an important part of your organization's greenhouse gas reduction strategy. However, the purchase of a REC in and of itself does not make your building more efficient. To have the greatest impact on mitigating climate change, EPA recommends that you make your building as efficient as possible and then seek the cleanest sources of energy. The use of green power (or, the purchase of a REC) is not a substitute for building energy efficiency. As such, the addition of RECs to your Portfolio Manager account will not change your energy performance rating. To learn more about green power, visit the website for EPA's Green Power Partnership: <http://www.epa.gov/grnpower>.

What about other on-site sources of renewable energy?

The only types of renewable energy included in Portfolio Manager are on-site solar and wind. These two forms of energy were selected for the first renewable energy enhancement in Portfolio Manager because they are the most common in commercial building applications. In the interest of providing the best assessment of energy and associated greenhouse gas emissions, EPA plans to expand the on-site renewable reporting options to include other forms of on-site renewable energy, such as biomass combustion and landfill gas purchases. EPA is performing an investigation of other on-site sources of renewable energy to determine the most appropriate way to incorporate them in the future.