



MAINE REVENUE SERVICES PROPERTY TAX DIVISION BULLETIN NO. 29

SOLAR ENERGY EQUIPMENT EXEMPTION

REFERENCE: 36 M.R.S. §§ 655(1)(U), 656(1)(K)
July 26, 2021

1. General

For assessments made on or after April 1, 2020, solar and wind energy equipment that generates heat or electricity is exempt from property tax if all the energy generated is either used on the site where the equipment is located, or is connected to the electrical grid and the customer receives a net energy billing credit. This bulletin explains how the exemption applies to solar energy equipment.

To be eligible for the exemption, a taxpayer must file a completed application on or before April 1 of the year for which the exemption is first claimed. The application must be submitted to the assessor in the municipality where the equipment is located. The assessor will determine the value that the eligible solar equipment contributes to the total just value of the property within that parcel and will designate that contributory value as exempt. If an assessor determines that solar equipment does not increase the value of a particular property, then the contributory value of that equipment, and therefore the exemption amount, is zero.

2. Definitions

- A. Assessor. “Assessor” means a sworn municipal assessing authority, whether an individual assessor, a board of assessors, or a chief assessor of a primary assessing area. With respect to the unorganized territory, “assessor” means the State Tax Assessor.
- B. Discounted cash flow. “Discounted cash flow” or “DCF” means a property valuation technique that calculates the present value of property using a projected uneven stream of income over multiple years.
- C. Electrical grid. “Electrical grid” or “the grid” generally means the system that receives or generates electricity and delivers it to consumers. Electrical grids include generating stations, transmission lines, and distribution lines. Generating stations produce the electrical power, which is carried over high-voltage transmission lines to demand centers. Distribution lines then move the electricity from the demand centers to individual customers.
- D. Inverter. “Inverter” means a mechanical unit that converts direct current (“DC”) power produced by solar panels to alternating current (“AC”) electricity so it can be used in household appliances.
- E. Kilowatt. “Kilowatt” means 1,000 watts, measured in AC.

- F. Kilowatt-hour. “Kilowatt-hour” or “kWh” means one kilowatt of power sustained for one hour.
- G. Megawatt. “Megawatt” or “MW” means 1,000 kilowatts, measured in AC.
- H. Nameplate capacity. “Nameplate capacity,” also referred to as rated power, means the maximum AC output for a solar panel or a solar array, measured in watts, kilowatts, or megawatts under optimal circumstances such as peak sunlight and ideal outside temperature.
- I. Net energy billing. “Net energy billing,” as defined under 35-A M.R.S. §§ 3209-A and 3209-B, is a billing practice that allows customers with a solar array to send excess or unused solar electricity to the grid and receive credits for the excess electricity produced. These credits can then be used to lower the cost of energy drawn from the grid during times when the solar array does not produce sufficient energy to meet the needs of the customers. Net energy billing includes both the kWh credit program and the tariff rate program administered by the Maine Public Utilities Commission.
- J. Solar array. “Solar array” means one or more solar panels connected to create a desired energy output and generally providing energy for one residence or business.
- K. Solar cell. A “solar cell” is the basic component of a solar panel. When sunlight hits the cell’s surface, the cell produces electricity. A solar cell is typically made of a thin silicon wafer. A large bundle of solar cells can be combined into a solar panel.
- L. Solar farm. A “solar farm” is a collection of solar panels, which are usually freestanding, that allows more than one customer to benefit from solar power without purchasing, installing, or maintaining individual solar arrays.
- M. Solar panel. A “solar panel” is a bundle of solar cells incorporated into either a solar array or solar farm. Solar panels are often referred to as photovoltaic (“PV”) panels. Solar panels are offered with a wide selection of capacity, efficiency, quality, and life expectancy.

3. Eligible Equipment

Residential solar equipment installations usually include a single array mounted on a rooftop or anchored to land adjacent to a single-family residence. Commercial installations are usually ground-mounted on land near access to the grid. Both types of installations will also include a variety of equipment in addition to the panels. The exemption applies only to that equipment that either generates the electricity or is necessary for the generation or the conversion of the electricity into usable form. The eligible equipment will generally include the equipment connecting solar panels to the inverter but not equipment connecting the inverter to the grid.

Examples of eligible equipment include, but are not limited to: solar panels; racks and mechanical equipment that hold the panels and/or position the panels to track the sun; inverters; batteries for storing electricity generated by the panels; charge controllers; and wiring and other items directly related to these types of equipment. Examples of equipment that is not necessary for the generation of electricity, and therefore ineligible for the exemption, include but are not limited to: meters; control panels; similar equipment that is connected after the inverter; and transmission lines that run between

the inverter and the grid. Land, regardless of residential or commercial status, is not eligible for this exemption.

In addition, equipment that is under construction and not yet operational on April 1 (construction in progress) is not eligible for the exemption for that tax year because it is not yet generating heat or electricity.

4. Residential Solar Arrays

A residential solar array qualifies for the exemption if either: 1) the customer receives a net energy billing credit; or 2) the solar array is not connected to the grid, but all energy from the solar array is consumed at the location of the solar array.

- A. Valuation approaches. An assessor must consider each of the three approaches to determining value (market, cost, and income) when valuing property. If there is insufficient sales data available to extract the contributory value of a typical eligible system, application of the market approach to value solar energy equipment may not be possible.

The cost approach, therefore, may be the most appropriate method to calculate value. The system owner or the installer should have information on the cost to install the solar system and the estimated value of any tax credits or incentives. The assessor may use the installation cost less tax credits, incentives, depreciation, and obsolescence to determine value.

The income approach, while usually not applied to residential property, may use projected electricity cost savings from a residential solar array as income to calculate a value under that approach. For this calculation, the online PV Value tool, supported by the Appraisal Institute, can be helpful. This tool is available at: www.pvvalue.com. Municipal assessors may use the PV Value tool to support values determined through the cost or market approach.

- B. Additional considerations. When considering the three approaches to determining value, an assessor may determine any appropriate method of calculating value, provided there is adequate data to support the result. Alternate valuation methods may include a standard dollar value per kilowatt of nameplate capacity, or a modified value based on the contributory value similar to a more traditional heating system. Assessors should avoid applying a standard dollar amount per panel as a value without sufficient supporting data as panel efficiency, longevity, age, or capacity may vary greatly.

In addition, Maine Revenue Services accepts a general method of valuation for residential solar arrays based on the capacity of a solar array and its relative importance as a source of electricity and/or hot water for the residence to which it is attached. This method was developed by a committee including municipal assessors, members of the solar industry, and representatives of Maine State government. The method contains four classes of systems, distinguished by size and relative importance in contributing to a residence's electricity consumption.

The values applicable to the following classes of solar arrays are acceptable substitutes to individual cost approach, market approach, or income approach calculations for residential systems, subject to adjustment if the assessor determines they do not reflect just value.

Class I – Minimal relative importance. This class is typified by simple systems having a basic installation design and/or having a minimal anticipated cost savings. Value: \$4,000.

Class II – Moderate relative importance. This class is typified by adequate systems, whether larger installations for less insulated homes or smaller installations for highly insulated homes. Value: \$9,000.

Class III – Significant relative importance. This class is typified by extensive systems, covering all or most of the electrical needs of a residence and may be a primary influence in the contributory value to the property. Value: \$15,000.

Class IV – Custom system. This class is for systems that do not fall under one of the other three classes and may be a nontraditional system exceeding the typical capacity and efficiency of a Class III system. Systems in this class may have sufficient capacity to be a material contribution to the overall value of a property in excess of that in Class III. Values in this class should be individually calculated by the assessor and may incorporate a DCF analysis.

5. Commercial Installations

Pursuant to 36 M.R.S. § 691(1), any property that is eligible for the solar energy equipment exemption is not eligible for the Business Equipment Tax Exemption program, even if the solar energy equipment exemption is not claimed.

Two types of commercial solar installations are eligible for the solar energy equipment exemption:

- A. Solar farms receiving a net energy billing credit. A solar farm with a nameplate capacity of less than 5 MW qualifies for the solar equipment exemption if it is receiving a net metering credit pursuant to 35-A M.R.S. § 3209-A.
- B. Solar arrays not receiving a net energy billing credit. A solar array of any size qualifies for the solar equipment exemption if all the energy generated is used on the site where the system is located. Solar arrays that do not receive a net energy billing credit, but that are connected to the grid, are not eligible for the credit even if the entity benefitting from the solar array uses as much or more power than the solar array generates.

As with residential solar arrays, an assessor must consider each of the three approaches to value (market, cost, and income) when valuing this property. As a result of insufficient sales data, application of the market approach to value may not be possible. Commercial property is ordinarily income-producing, so the income approach may be the most useful method of valuation. The most accurate method of applying the income approach to commercial solar equipment will generally be the DCF method. Examination of the cost approach will often be used to support the value calculated with the income approach for commercial equipment.

NOTE: This bulletin is intended solely as advice to assist persons in determining, exercising, or complying with their legal rights, duties, or privileges. If further information is needed, please contact the Property Tax Division of Maine Revenue Services.

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