

Solar PV Options for Your Farm: An Overview



In 2018, the Massachusetts Department of Energy Resources established the Solar Massachusetts Renewable Target (SMART) program, which regulates incentives associated with new solar photovoltaic (PV) development in the state. This document is part of a series of fact sheets designed to help farmers navigate the program. Additional fact sheets and information are available on the UMass Clean Energy Extension (CEE) website, <https://ag.umass.edu/clean-energy>.

When identifying the right solar PV system for your property, it is important to consider the best fit for your land and needs – but also to take into account the requirements and potential financial compensation associated with the **SMART** program. For projects on farms, compensation rates are structured to encourage systems installed on farm structures, systems sized to meet on-farm loads, and development of ground-mounted dual-use arrays with continued agriculture beneath panels.

Major factors to consider in assessing potential financial compensation include:

- **Agricultural Land Status:** Your land will be considered as Agricultural land under the SMART program if 1) the land qualifies as land in agricultural or horticultural use as defined by [M.G.L. Chapter 61A](#), 2) the land has been in the Chapter 61A program in the past 5 years, or 3) the land is defined as prime farmland, unique farmland, or land of statewide importance by NRCS. All other land is considered Non-Agricultural.
- **Installed Capacity:** Capacity (in kW) defines the size of a solar system in terms of its electrical power production. *(As a rough estimate, panels will produce about 1200 kWh annually per kW capacity installed. A 6-8 kW system will power a typical home.)*
- **Type of System:** A solar PV array can be mounted on a building, mounted on a canopy which allows vehicles to park beneath it, or ground-mounted on a racking system.
- **Off-takers:** The electricity generated by the solar array may be primarily used to meet on-farm demand. Alternatively, larger systems might supply off-farm use through a mechanism called *net metering*, or sell electricity directly to the grid. If net metering, the “off-takers” - those who receive the electricity output – could be low-income residents, members of a community-shared solar project, or a public entity. Available compensation will vary depending on who the off-takers are.

- **Previous Land Development:** Has your land been previously developed (e.g., building construction, pavement) so that it is now unlikely to provide open-space, agricultural or forestry use, or natural habitat? If the land has not been developed and is being converted to a large, traditional, ground-mounted solar array, it may be subject to greenfield subtractors, which reduce incentives for solar arrays built on undeveloped land or, if mapped as providing priority habitat for wildlife, it may be ineligible for incentives for certain types of projects.

Projects on Agricultural Land

If your land is considered **Agricultural** under the SMART program, the following solar PV systems receive higher compensation rates:

- Building-mounted solar PV systems
- Canopy or ground-mounted solar PV systems, sized to meet no greater than 200% of annual electricity consumption of the farm
- Ground-mounted “dual-use” systems, in which elevated racking and wider panel spacing allows for continued use of the land for agriculture.

The SMART program refers to these systems as *Agricultural Solar Tariff Generation Units* or *ASTGUs*. For more information, see *Dual-Use: Agriculture and Solar Photovoltaics*:

(<https://ag.umass.edu/clean-energy/fact-sheets/dual-use-agriculture-solar-photovoltaics>)

***Important Note:** Your town tax assessor's office has the discretion to remove your property from Chapter 61A if solar PV electricity production exceeds 125% of on-farm use. It is important to check with your local assessor to determine whether the property will remain under Chapter 61A in the event of solar development or whether it would be subject to taxes and penalties associated with conversion of the land out of agriculture.*

Projects on Non-Agricultural Land

If your land is considered **Non-Agricultural** under the SMART program, the following types of systems receive higher compensation rates:

- Building or canopy-mounted solar PV systems
- Ground-mounted solar PV systems sited on brownfields or landfills
- Ground-mounted solar PV systems, with capacity no more than 500 kW AC.
- Ground-mounted solar PV systems of 500 kW - 5000 kW AC capacity that are on land that has been previously developed or that supply electricity to a public entity

Large Ground-Mounted Systems

Large capacity (500-5000 kW AC) ground-mounted systems on previously undeveloped land (including farm and forest land) may also qualify for financial compensation through the SMART program.

However, these systems may be subject to subtractors (i.e., reductions from the base SMART compensation rate) based on the total acreage developed, as well as land use restrictions.

More Information

For more information, visit our website: <https://ag.umass.edu/clean-energy/solarag>.

After reviewing website materials, you can contact Zara Dowling (zdowling@umass.edu, 413-545-8516) with any additional questions related to solar PV use on your farm.