



Solar Energy in Maryland

Residents count on their State departments of transportation for many things, including road maintenance and repairs, plowing roads, and mowing roadsides. But, often overlooked is how much energy these departments require to perform these services.

The solar solution

As part of its mission, the Maryland Department of Transportation (MDOT) strives to protect human health and natural resources by using environmentally responsible business practices. MDOT is committed to environmental compliance and performance, as well as effective interaction with its employees, other government agencies, and the community. This commitment helps ensure MDOT delivers safe, sustainable, and intelligent transportation solutions.

Because MDOT needs electricity to power things like roadway signs and lights, maintenance buildings, rest areas and other facilities, MDOT has chosen to install solar energy projects in highway rights-of-way (ROW) and other MDOT facilities to help meet a portion of their electricity needs, with no capital investment. MDOT will lease this land to the developer, who will construct, own, operate and maintain the infrastructure without impacting existing parking or administrative functions of MDOT facilities.

This decision can help reduce the amount of resources imported and the use of fossil fuels, the largest source of U.S. carbon dioxide emissions. The Energy Information Administration projects renewable energy consumption, including solar energy, will continue to increase through 2050.

Solar explained

Solar photovoltaic (PV) devices, or solar cells, change sunlight directly into electricity. Arranging many of these smaller cells into panels and arrays can produce enough electricity for an entire house. Some PV power plants have large arrays that cover many acres to produce electricity for thousands of homes.

Solar energy systems do not produce air pollutants or carbon dioxide and those installed on buildings have minimal effects on the environment. However, solar energy is limited by the amount of sunlight that reaches a certain area over a specific time. This can vary based on location, time of day, season, and weather conditions. Because the amount of sunlight that reaches the earth's surface is relatively small, large surface areas are needed to absorb or collect a useful amount of energy.

Solar with MDOT

MDOT runs several facilities with solar power. Its solar program is one of the first of its kind in the country run by a State transportation agency. It is projected to generate 300 construction and 30 operations and maintenance jobs, with more positions added as solar power expands to other MDOT sites.



MDOT currently has five PV systems installed on its properties:

- MDTA – one system at Francis Scott Key Bridge
- MDOT MAA – one system at BWI on top of the Daily Garage
- MDOT MTA – one system at the Northwest Bus Facility
- MDOT MPA – two systems at Cruise Terminal and Dundalk Shed 10

The initial contract for the construction of these solar facilities is five years, with a two-year renewal option. Once these facilities are in place, MDOT will buy the power at a fixed rate, for 20-25 years, which is a lower rate than what MDOT would pay the utility. MDOT expects these payments will drop to an average of 6-8 cents per kilowatt hour, a potential savings of 30 to 40 percent.

It is projected solar panels could be installed at up to 35 MDOT sites within 18 months, resulting in the generation of 298 construction and 28 operations and maintenance jobs, in addition to more positions when these projects expand to other MDOT sites.

Using 395,000 megawatt hours annually, MDOT estimates these 35 initial sites will generate about 46,000 megawatt hours per year. This energy will either be used by MDOT facilities or by neighboring residents or businesses, which can subscribe as part of Maryland's Community Solar Pilot Program.

The 874 facilities (parking garages, parking lots, MVA branch offices, and park and rides) that MDOT owns or controls can all be considered for PV system development. MDOT recognizes the development of PV systems as an opportunity to further social, environmental, and economic benefits across MDOT and all of Maryland. The projects help to promote:

- Environmental goals – Maryland's greenhouse gas reduction goal of 40 percent by 2030
- Social benefits – increased access to clean energy for Maryland residents who may not have space for their own PV systems
- Community space – where MVA customers can be protected from adverse weather
- Economic goals – through reduced energy costs for taxpayers
- Job growth – accommodating the construction, operation, and maintenance of solar panels

To learn more, get information about MDOT's use of PV devices to improve transportation and reduce environmental impact at www.fhwa.gov/URLTBD.



U.S. Department of Transportation
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Sources:

[U.S. Energy Information Administration](#)

[U.S. Department of Energy](#)

[Maryland Department of Transportation Energy Programs](#)

[Climate Central](#)

[U.S. Department of Transportation Federal Highway Administration](#)

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