

Is Solar Farming Good for the Horse Industry?

by Kimberly K. Egan, MHC Co-President

The Maryland Horse Council conducted a solar power survey in March, and several of our members expressed concern about the prospect of large-scale solar generation facilities on agricultural land, known as “solar farming.” Our Government Relations report in the April issue discussed the issue briefly, but now we take a deeper look at the policy reasons behind solar-farming, and how solar-farming can benefit horse farms and horse owners.

Why Solar in Maryland?

It will be news to no one that Maryland must curb its greenhouse gas emissions and reduce nutrient run-off into the Chesapeake Bay. It may be news, however, that Maryland is under strict legal obligations to increase its solar power generation substantially in the next 10 years.

In 2019, the General Assembly enacted a new Renewable Energy Portfolio Standard designed to reach a “50 by 30” target, i.e., sourcing 50% of Maryland’s electricity from renewable sources by 2030. The standard requires that a certain amount of the State’s electricity be generated from solar specifically, and that requirement increases each year between now and 2030. By 2030, Maryland must generate 14.5% of its electricity from solar power (see MD Code, Pub. Util. § 7-703). In 2020, Maryland generated only 4.3% of its electricity from solar power.

Renewable energy is the rare topic that is not a partisan issue in Maryland. Governor Hogan, a Republican, permitted the 2019 legislation to become law but said he thought the Democrat-controlled General Assembly had set the standard too low. He told former Senate President Mike Miller that the bill “wasn’t clean enough” and expressed support for “100 by 40” instead, meaning 100% renewable energy by 2040.

Why Does Maryland Need Solar on Agricultural Land?

The survey respondents who expressed concerns did not take issue with solar energy itself, they just questioned why new solar installations need to be on open land as opposed to on rooftops, over parking lots, in power line rights of way, on landfills, and the like. The answer is at least two-fold.

First, investment in rooftop arrays is already well underway. According to the Maryland Energy Administration, rooftop solar has accounted for the majority of the State’s solar investment so far. The solar industry has installed more than \$212 million in projects on over 6,000 residential rooftops, and over \$44 million across 342 commercial rooftop projects. The General Assembly took steps this past session to encourage more rooftop solar by raising the net metering limit, which allows more Marylanders to sell more power back to the grid (see April 2021 *Equiery* column for details). In addition, Governor Hogan is considering requiring rooftop solar on all government buildings and State-owned property.

Second, in 2017 the Sierra Club¹ concluded that “there isn’t enough

room on rooftops, landfills, and brownfields” to meet requirements. Not all roofs can support the weight of a solar array, especially older roofs. Not all landfills, brownfields, and parking lots have suitable terrain, and some industrial and urban settings may be unsuitable for other reasons related to public safety. In addition, it is more expensive to site solar arrays on roofs and parking lots because the engineering requirements are more complex, and because the work needed to prepare the site and mitigate collateral property disturbance is more extensive.

How Much Agricultural Land Is at Stake?

The amount of agricultural land needed to meet the State’s legal obligations on solar power is not large. Maryland has approximately 2 million acres of farmland, 800,000 of which are reserved in perpetuity for agricultural use under the Maryland Agricultural Land Preservation Foundation program.² Governor Hogan’s Task Force on Renewable Energy Development and Siting reported that “between 7,750 and 33,000 acres of farmland could be devoted to utility-scale solar,” which accounts for, at most, 1.65% of the available, non-MALF acreage.³

This calculation holds true outside of Maryland as well. At the national level, research published in *Sustainability* magazine showed that U.S. farmers could generate 20% of the country’s total energy needs by devoting just 1% of farmland to solar arrays.⁴ On a global level, the Yale School of the Environment reported on a 2019 study that showed farmers could generate 100% of global electricity demand by devoting just 1% of their farmland to solar arrays.⁵

Where Is Solar Farming Happening in Maryland?

According to the Maryland Energy Administration, the solar industry has already invested almost \$10 million across 89 solar farms on agricultural land. In addition, and as we reported in April, the Maryland Department of Natural Resources (DNR) had 6 solar-farming petitions in review as of February: a 286-acre site on a reclaimed surface coal mine in Allegany County; a 286-acre site on agricultural land in Dorchester County; a 255-acre site on agricultural land in Harford County; a 232-acre site on Farmland of Statewide Importance in Kent County; a 70-acre site on agricultural land in Washington County; and a 25-acre site on agricultural land in Wicomico County.

Since February, DNR has opened review on a 140-acre site on agricultural land in Harford County.

Can the Horse Industry Benefit from Solar Farming?

There is growing acceptance in both the scientific and agricultural communities that farmers and farmland—including horse farmers—can benefit from solar farming.

In Maryland, the Sierra Club demonstrated that using 2017 metrics, a crop farmer in Maryland who converted 10% of their land to solar would

continued...

FOOTNOTES:

1. <https://www.sierraclub.org/sites/www.sierraclub.org/files/sce/maryland-chapter/Solar%20development%20slides%20with%20notes%20%28v1-3Nov17%29.pdf>
2. https://msa.maryland.gov/msa/mdmanual/html/agri_Maryland_Agriculture,_Farming_and_2017_Board_of_Public_Works_statements
3. Final Report, Governor Hogan’s Task Force on Renewable Energy Development and Siting (Aug. 14, 2020), available at https://governor.maryland.gov/wp-content/uploads/2020/10/Final-Report_REDS-Task-Force.pdf
4. Proctor et al. “Agrivoltaics Align with Green New Deal Goals While Supporting Investment in the US Rural Economy,” *Sustainability* (2021).
5. Adeh, E.H., Good, S.P., Calaf, M. et al., Solar PV Power Potential is Greatest Over Croplands, *Sci. Rep.’s* 9, 11442 (2019). See *Yale Environment* 360, available at <https://e360.yale.edu/digest/solar-panels-on-farmland-have-huge-electricity-generating-potential>.

earn as much from the solar array as they did from previous crops. Assuming those metrics remain true today, the crop farmer would be able to use the remaining 90% of their land for environmentally sound uses of particular benefit to the horse industry, such as hay farming, or well-maintained grazing pasture. They could also use the remaining 90% of their land for other uses more environmentally sound than crops, such as organic farming, carbon sequestration, riparian buffers, and pollinator-friendly meadow habitats.

Solar-Grazing and Agrivoltaics

More recently, the Governor's Task Force reported that "agrivoltaics," which it defines as "the co-development of the same area of land for solar power and agriculture," could provide "solar-grazing" opportunities for livestock farmers in Maryland. The Task Force noted that "several kinds of farm animals have been used for grazing in solar arrays, including chickens, sheep, and cows underneath elevated panels," and that the "benefits of grazing on solar lands include the use of manure to enrich the soil and reduced vegetation management costs." Horse farms could similarly benefit from solar-grazing, provided the arrays were mounted sufficiently far above ground. They would also provide shade during our brutal Maryland summers.

According to the Governor's Task Force, several states already permit solar-grazing stating, "Massachusetts has developed financial incentives for farmers who put land into dual-use with solar arrays." The Task Force recommends that Maryland:

- Study the benefits of solar-grazing in other states;
- Obtain further information on the tax incentives provided by Massachusetts for agrivoltaics;
- Develop an agrivoltaics pilot program in Maryland.

This data supports an emerging view that agriculture and solar arrays are not at odds, and that solar arrays can benefit the health of agricultural land; provide additional revenue to farmers; and by reducing the acreage needed for crop farming, create more space for riding trails and for horse farms on agricultural land.

Who Makes the Call?

More than one regulatory agency has authority over solar farms. The State has exclusive authority over solar installations that generate more than 3,000 MW, and it vests that authority in the Public Services Commission, DNR, and assorted other agencies. DNR's role is to review site installation applications to make sure the State is meeting its energy needs in a manner that "protects the state's valuable natural resources."

Individual counties have zoning authority over solar arrays that generate less than 3,000 MW. Each county has its own rules, which can change frequently and which are often the subject of spirited public debate. There have been at least three county-level zoning changes on solar farming this year.

MONTGOMERY COUNTY: On February 23, 2021, the Montgomery County Council enacted a zoning amendment to increase the size of solar arrays permitted on a small percentage of land in the Agricultural Reserve and to require agrivoltaics, such as solar grazing.

HOWARD COUNTY: On May 6, 2021, Howard County enacted a zoning amendment that limits the size of commercial solar installations on agricultural preservation properties and that requires agrivoltaics, such as solar grazing, on agricultural preservation land.

CARROLL COUNTY: On May 14, 2021, the Carroll County Commissioners enacted a zoning amendment that permits solar farming on certain parcels in its Agricultural Zoning District and that requires agrivoltaics, such as solar grazing.

The MHC Government Relations Committee monitors solar farming legislation across the State. We will continue to bring you updates on how solar farming impacts the Maryland horse industry, either positively or negatively, as well as information about resources on how to use solar farming to the benefit of your horse business.

JOIN.MDHORSECOUNCIL.ORG