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Solar Energy on Farmland

Eden Martin

University of Southern Maine, eden.martin@maine.edu

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MEMORANDUM

To: Commissioner Whitecomb and Ellen Griswold at Maine Farmland Trust
From: Eden Martin, University of Southern Maine
RE: Solar energy on farmland
Date: March 8, 2018

Introduction:

The large-scale use of agriculture and land alteration has caused the concentrations of greenhouse gases in our atmosphere to rise in the last 250 years (Janke, 2010). The majority of greenhouse gas emissions is caused by the burning of fossil fuels. Fossil fuels are a threat when it comes to the health of our planet but they are also abundant and affordable (Janke, 2010). This threat has caused many to start exploring the use of alternative energy sources that are renewable; solar technology, wind power, geothermal, and ocean energy (Janke, 2010). According to Rebecca Hernandez, “solar energy has one of the greatest climate change mitigation potentials with life cycle emissions as low as 14g CO₂”. Solar energy is able to take the thermal energy from the sun, concentrating it into usable energy and it is one of the most diverse forms of renewable energy (Hernandez, 2015). Solar energy modules can range from small-scale modules that can reside on rooftops to larger scaled modules that can be installed over acres of land (Hernandez, 2015).

Policy proposal:

The growing concern towards our environment has caused an interest in renewable energy sources. In Vermont, many farmers have been turning acres of their undeveloped farmland over to the state to build solar arrays (Hewitt, 2016). A use value appraisal program was created in 1978. It was created to lower property taxes for undeveloped agricultural land (Hewitt). This allowed the farmers to lease their land for use of solar arrays. Which has the potential to be a source of revenue for the farmers (Hewitt, 2016). But this policy has posed the question: what place does renewable energy have on agricultural land? In response to this question the Public Service Department of Vermont, the Agency of Agriculture, and a representative from the solar industry developed Technical Bulletin 69. This document states that solar energy is allowed on the farmland as long as it is considered part of the farm operation and at least half of the energy is contributed to the farmer (Hewitt, 2016).

The farmers in Vermont are not happy with this policy. Farmers do not feel that being given energy is sufficient enough for them. Greg Beldock, a farmer in Vermont, says that his farm only uses a small portion of the 150 kilowatts generated by the panels (Hewitt, 2016). But there are benefits to having solar panels on agricultural land. The land being used for solar panels is being leased by the farmers, therefore they are able to make a small profit from the state (Hewitt, 2016). If the solar panels are built high enough, then the farmland can still be put to use as graze, say, sheep or heifer land (Hewitt, 2016). If farmers agree to be a part of this program, then being paid for the use of their land and still allowing the land to be used for farming is the acceptable way to go.

The issue around solar energy can differ from state to state based on the type of environment within that state. That is why there needs to be more consideration for the use of solar panels based on that state. In Vermont, farmers are concerned about using prime farmland for solar panels. In California, farmers are feeling a different way. The environment in California has become drier every year. This has caused farmers' federal water deliveries to become nonexistent, a situation Nick Rajkovich has had to deal with. Rajkovich purchased 1,200 acres of farmland in California to grow almonds. Because of the environmental issues surrounding water in California, all of his almonds have died, and now he is not able to farm food from that land (Nunez, 2015). But solar energy does not need water to produce energy, it needs sun. That is why having a solar farm is the perfect choice for Rajkovich. California is seeing the direct hit of climate change in the way of droughts. This is causing California to put new policies in place, such as, requiring half of the state's electricity to come from renewable sources by 2030 (Nunez, 2015).

At the current moment, California is not agriculturally viable. But they are able to put that farmland to good use by farming energy. For example, 24,000 acres of land in Fresno and Kings Counties previously produced lettuce, beans, garlic, and other crops (Nunez, 2015). That land is now completely unfarmable, but with solar panels on the land, it could produce 5 gigawatts of energy (Nunez, 2015). That is a quarter of the whole country's needed capacity (Nunez, 2015). Cropland that cannot be used for farming is a good site for solar panels because the land has already been disturbed for farming. Therefore, there are no risks disturbing habitats or eliminating endangered species (Nunez, 2015).

Conclusion:

Policies towards using agricultural land for solar farms should be based on what type of environment that area is dealing with. Solar farming has environmental benefits and economic benefits for the farmers involved. The health of our environment is declining because of the large use of fossil fuels (Janke, 2010). Using alternative methods, like solar farming, allows for us to produce energy without negatively affecting our environment. Solar farming is very diverse, this means that farmers can have a small-scale solar farm along with their agricultural farm, or they can make money off of a whole solar farm practice.

Al Solis is a real estate developer in Fresno, California. He states, "People think that a solar facility means somehow the ground underneath it disappears. Solar is not forcing them out, it is actually a benefit to keep them in agriculture on the rest of their land" (Nunez, 2015). Many farmers think that having a solar farm on their agricultural land is going to deter them from farming, but the reality is that it is not. Having a small section of land that is specifically for solar panels can bring economic value to the farmer without them having to give up their agricultural practices. In order for these policies to be successful, policy makers have to put the farmer first and think about what type of environment they are looking at. In places like Vermont and Maine, where the environment is extremely good for farming, solar panels might not be the best answer. But in areas like California, who are experiencing drought and are not able to farm, solar panels might be the exact solution they need to keep their economy alive.

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