



## Is Solar Energy an Obstacle or Opportunity for Farmers?

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**Abstract.** In the past decade the cost of solar photovoltaic (PV) technology has decreased substantially while the efficiency of PV has increased substantially. This has made PV appealing to energy developers, as evidenced by the exponential growth of installed PV capacity. A notable limitation of PV as a method of generating electricity is that installations require large amounts of land for harvesting sunlight. A primary method of managing this limitation has been to site new PV installations on degraded lands such as superfund sites to limit the negative consequences of development, or alternatively to locate PV installations on existing infrastructure such as roof tops. These methods are generally sound, however with increasing pressure to develop clean energy it is unlikely that they will be enough on their own to account for the volume of PV infrastructure that will be needed in order to transition away from fossil fuels. Consequently, there is increasing demand to develop PV infrastructure on agricultural land due to the desirable characteristics of agricultural land for solar electricity production. Fields get plenty of sun, are usually fairly flat to build on, and are often located fairly close to transmission lines, all qualities that are appealing to solar energy developers. Many farmers and rural communities have expressed concerns about the long-term impacts of such installations however, and there are also concerns regarding equity in partnerships between farmers and energy developers. One potential solution to help ease this dilemma is known as “agrivoltaics”, or the co-location of agricultural activities and solar energy generation in a single location. With appropriate management agrivoltaics would preserve the productive capacity of the soil to ensure sustainability of land use after the lifespan of solar panels has passed. The shade provided by solar panels has also been shown to reduce evaporation and help some types of crops to use water more efficiently which is of vital importance in arid regions with limited supplies of water.