

## Solar Energy Farms in DWSMAs

Types of solar energy farms:

- 1) Photo-voltaic (PV) solar cells
- 2) Concentrating solar thermal plants (parabolic troughs, central tower systems)



Yes, there are environmental issues associated with placing a solar energy farm in a DWSMA, and there could be drinking water-related issues, depending on vulnerability. From the Union of Concerned Scientists:

*“The potential environmental impacts associated with solar power — land use and habitat loss, water use, and the use of hazardous materials in manufacturing — can vary greatly depending on the technology.”*

### Specific DWSMA Concerns:

- 1) Construction of solar facilities on large areas of land requires clearing and grading, and results in soil compaction, potential alteration of drainage channels, and increased runoff and erosion. Engineering methods can be used to help mitigate these impacts.
- 2) A transformer leak can cause land and/or (ground)water contamination and other safety risks.
- 3) Parabolic trough and concentrating solar power systems typically use conventional steam plants to generate electricity, which commonly consume water for cooling. In arid settings, any increase in water demand can strain available water resources. Many of the regions in the United States that have the highest potential for solar energy also tend to be those with the driest climates, so careful consideration of these water tradeoffs is essential. The largest solar plant in the world, a 392 MW concentrated solar power tower in California’s Mojave Desert, began generating electricity from all three of its power towers the day before Valentine’s Day, 2016.
- 4) Interference with rainfall and drainage.
- 5) Photovoltaic panels may contain hazardous materials, and although they are sealed under normal operating conditions, there is the potential for environmental contamination if they were damaged or improperly disposed upon decommissioning. Concentrating solar power systems may employ materials such as oils or molten salts, hydraulic fluids, coolants, and lubricants that may be hazardous and present spill risks.
- 6) Use of, or spills of chemicals at solar facilities (for example, dust suppressants, dielectric fluids, herbicides) could result in contamination of surface or groundwater.
- 7) According to a 2015 report from the Solar Foundation, the number of Minnesotans employed in the solar energy industry is projected to grow 20.5% from the 1,995 jobs reported in 2015.

Selected websites for additional information:

- [http://www.altenergymag.com/content.php?post\\_type=1948](http://www.altenergymag.com/content.php?post_type=1948)
- <http://www.solareis.anl.gov/guide/environment/>
- [http://www.ucsusa.org/clean\\_energy/our-energy-choices/renewable-energy/environmental-impacts-solar-power.html](http://www.ucsusa.org/clean_energy/our-energy-choices/renewable-energy/environmental-impacts-solar-power.html)