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Water Use by Solar Projects Intensifies

By *TODD WOODY*

[California Energy Commission](#) Two proposed projects in the California desert will require millions of gallons of water to operate.

The West's water wars are likely to intensify with Pacific Gas and Electric's announcement on Monday that it would buy 500 megawatts of electricity from two solar power plant projects to be built in the California desert.

The [Genesis Solar Energy Project](#) would consume an estimated 536 million gallons of water a year, while the [Mojave Solar Project](#) would pump 705 million gallons annually for power-plant cooling, according to [applications](#) filed with the [California Energy Commission](#).

With 35 big solar farm projects undergoing licensing or planned for arid regions of California alone, [water is emerging as a contentious issue](#).

The Genesis and Mojave projects will use solar trough technology that deploys long rows of parabolic mirrors to heat a fluid to create steam that drives an electricity-generating turbine. The steam must be condensed back into water and cooled for re-use.

Solar trough developers prefer to use so-called wet cooling in which water must be constantly be replenished to make up for evaporation. Regulators, meanwhile, are pushing developers to use dry cooling, which takes about 90 percent less water but is more expensive and reduces the efficiency -- and profitability -- of a power plant.

NextEra Energy Resources, a subsidiary of the utility giant FPL Group, is developing the Genesis project in the Chuckwalla Valley in the Sonoran Desert. The twin solar farms would tap about 5 percent of the valley's available water.

"Substantial depletion of water resources is not anticipated," NextEra wrote in its [application](#).

State energy regulators are already tangling with NextEra over its request to pump drinking-water-quality groundwater to cool another solar farm it plans to build near Bakersfield, Calif.

"Staff will be carefully reviewing water aspects of this proposal," officials at the

California Energy Commission wrote in a memorandum about the Genesis project.

The Mojave Solar Project will be built northeast of Los Angeles by the Spanish developer Abengoa Solar. The site is near two older-style wet-cooled solar trough plants that have been operating for nearly two decades. Abengoa will pump groundwater previously used to grow alfalfa in the desert.

“The proposed use of the land for electrical power generation is a more sustainable use and has fewer environmental impacts than if the project were not to go forward and the agricultural use were to continue,” according to [Abengoa’s application](#).

But at least one big solar trough power plant developer, Solar Millennium of Germany, has waived the white flag in the water wars. After local water officials refused to turn on the taps for its planned solar farm in Ridgecrest Calif., Solar Millennium decided to dry cool all of its power plants projects in California.