



Solar power

PSE: a leader in solar-powered generation

Puget Sound Energy is the Pacific Northwest's largest utility producer of renewable electricity, and America's second-largest utility generator of wind power. While wind power makes up the largest share, by far, of PSE's renewable-energy portfolio, the utility also owns and operates Washington's largest solar-power generating facility. In addition, more than 2,100 PSE customers, with the utility's involvement, have installed their own solar-power generating systems.

Description of PSE's solar facility

- Solar-powered electricity generating facility, co-located at PSE's Wild Horse Wind and Solar Facility
- Fixed-angle, multicrystalline photovoltaic (PV) solar-panel technology

Location / climate

- Eastern Kittitas County, about 125 miles southeast of Seattle
- Largely undeveloped, semi-arid shrub-steppe; about 8 inches average annual precipitation
- Approximately 300 days of sunshine per year, about the same as Houston, Texas
- Solar panels located at elevations of 3,400 to 3,800 feet

Development cost

- Approximately \$4.5 million

Solar panels

- More than 2,700 total panels: 2,408 made in Tennessee by Sharp Electronics; 315 made in Arlington, Wash., by Silicon Energy; PSE's Wild Horse facility was the Washington panel maker's launch customer
- Panel size: Sharp = 58 inches by 39 inches; Outback = 47 inches by 47 inches
- Power output: Sharp = 0.187 kilowatt (kW) per panel; Silicon Energy = 0.165 kW per panel

Installation Date

- Sharp panel arrays: 2007; Silicon Energy panel arrays: 2009

Generating capacity

- 500 kW at peak-rated (full-sun) generation, enough to serve the power needs of 300 households
- Panels have the ability to produce power under cloudy skies (e.g., 50-70 percent with bright overcast; 5-10 percent with dark overcast)

How it works

- Sunlight falls on two layers of semiconductor material, produces difference in electrical potential, or voltage, between layers; voltage drives current through an external electrical circuit

PSE's reasons for development

- Explore synergies of large-scale solar-power and wind-power generation at a shared site
- Increase understanding of solar power's capabilities in Washington state
- Ability to make use of wind-farm land and infrastructure (substation, power transmission lines)
- Help promote development of a renewable power resource still in its relative infancy
- Ability to jump-start manufacture of made-in-Washington solar panels, thereby boosting financial incentives for PSE customers to have their own home- or office-based renewable generating systems



▲ Wild Horse Wind and Solar Facility