

PSE: a leader in solar-powered generation

Puget Sound Energy currently is the Pacific Northwest's second largest utility producer of renewable electricity. PSE owns and operates two large wind farms in Washington state: Wild Horse, near Ellensburg, Kittitas County; and Hopkins Ridge, near Dayton, Columbia County. In addition, PSE is constructing another wind-power facility near Pomeroy, Garfield County -- the Lower Snake River Wind Project-Phase 1. Together, the three wind farms will produce enough renewable energy to serve nearly a quarter-million homes. In its pursuit of additional supplies of renewable power, PSE also has constructed one of the Northwest's largest solar-powered generating facilities.



Description

- Solar-powered electricity generating facility, co-located at PSE's Wild Horse Wind and Solar Facility
- Fixed-angle, multicrystalline photovoltaic solar-panel technology
- The largest solar facility in Washington state.

Location / Climate

- Eastern Kittitas County, 125 miles southeast of Seattle
- Semi-arid shrub-steppe—an average of 8 inches of precipitation annually
- 300 days of sunshine a year—same as Houston, Texas

Development Cost

- Approximately \$4.5 million
- Lead contractor: EI Solutions, San Rafael, California

Solar Panels

- 2,408 made in Memphis, Tennessee, by Sharp Electronics; 315 made in Arlington, Washington, by Silicon Energy, LLC (Silicon's Wild Horse panels were the first made-in-Washington panels)
- Panel size: Sharp = 58 inches by 39 inches; Silicon = 47 inches by 47 inches
- Power output: Sharp = 0.187 kilowatt (kW) per panel; Silicon = 0.165 kW per panel

Completion Date

- Sharp-panel arrays: October 2007; Silicon-panel arrays: November 2008

Generating Capacity

- Peak-rated generation (full-sun): 500 kW—enough to serve the power needs of 300 households
- Partial-sun generation: 50-70 percent of peak-rated generation capacity with bright overcast and 5-10 percent of peak-rated generation capacity 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 a current through an external electrical circuit

Reasons for Wild Horse Solar 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-facility land and infrastructure (substation, transmission lines)
- Help promote development of a renewable power source that is still in relative infancy
- Ability to jump-start manufacture of made-in-Washington solar panels, thereby boosting financial incentives for consumers who have their own home-based or office-based renewable energy generation systems
- Under PSE's Renewable Energy Advantage Program, consumers earn much larger incentive payments for systems employing Washington-made components

