

Plumas-Sierra Rural Electric Cooperative's High Sierra Cogeneration Power Plant On Line



The High Sierra Cogeneration Power Plant in Susanville provides power to the Plumas-Sierra REC system and uses the waste heat from its engines to heat water for the High Desert State Prison and the California Correctional Center.

Photo by Charlie Sciuolo.

Final testing and commissioning of Plumas-Sierra Rural Electric Cooperative's (PSREC) High Sierra Cogeneration Power Plant at the High Desert State Prison and California Correctional Center (CCC), east of Susanville, was completed in March. Completion of the power plant is a step toward independence from the volatile and expensive California power market for PSREC members.

The 6-megawatt (MW) High Sierra Cogeneration installation will supply up to 20 percent of PSREC's energy needs and is PSREC's first solely owned electrical generation venture. In addition, the facility will reduce transmission losses, provide voltage support, allow for additional load growth, and increase the stability and reliability of PSREC's entire system.

PSREC's High Sierra Cogeneration installation is the first utility-owned cogeneration facility in California.

PSREC gets most of its power from the California power market. PSREC's primary point of connection to the power grid is in Quincy, where Pacific Gas and Electric (PG&E) delivers power from the California Independent System Operator to the PSREC system.

The PG&E system is in rough terrain and subject to outages. The PSREC system is 120 miles long, with a significant portion of its load at the end of the lines. This configuration strained the system and could have prevented additional growth, which would have resulted in higher rates without the High Sierra Cogeneration facility.

PSREC worked with EMCOR Energy Services to design and build the project. Construction began in January 2009. The expertise of local contractors—such as Joy Engineering, Kunsman Fence, White Cap Ready Mix, Cretecraft Construction, Miller's Custom Work, Almanor Energy, NST Engineering and Pee Wee Enterprises—was also employed for this project.

PSREC is dedicated to improving the quality of life and vitality of our communities and strived to use local contractors to help retain local jobs. In addition to the revenue these contractors and their crews spent at Susanville businesses while on the job, the project has continuing economic

benefits for the entire region. Lassen County will see an increased tax base from the facility.

The new facility consists of two 3-MW natural gas engines and is a cogeneration system because it generates electricity and uses the otherwise wasted heat from the engines to supply hot water to the CCC and High Desert prisons, replacing their older, less efficient boilers.

By taking advantage of the excess thermal energy to heat the domestic water supplies for the institutions, the combined heat and power facility is not only more efficient, but provides overall reductions in local greenhouse gas emissions. This allows PSREC to receive credit for the emissions reductions, which will help reduce the cost of compliance with pending state and federal climate change regulations.

The High Sierra Cogeneration Power Plant is not PSREC's first groundbreaking endeavor. PSREC is the smallest transmission utility in the United States serving between control areas. With its Marble Substation, it can switch from the PG&E system to the Sierra Pacific Power Co. system during outages, and import power from less expensive markets to the east.

PSREC has reliably delivered electricity to northeastern California since 1937. It prides itself on being an innovative provider of electric and telecommunication services and an active member of the communities it serves. The High Sierra Cogeneration facility is part of its continuing efforts to prepare for the future, while providing dependable and affordable electricity to its members.

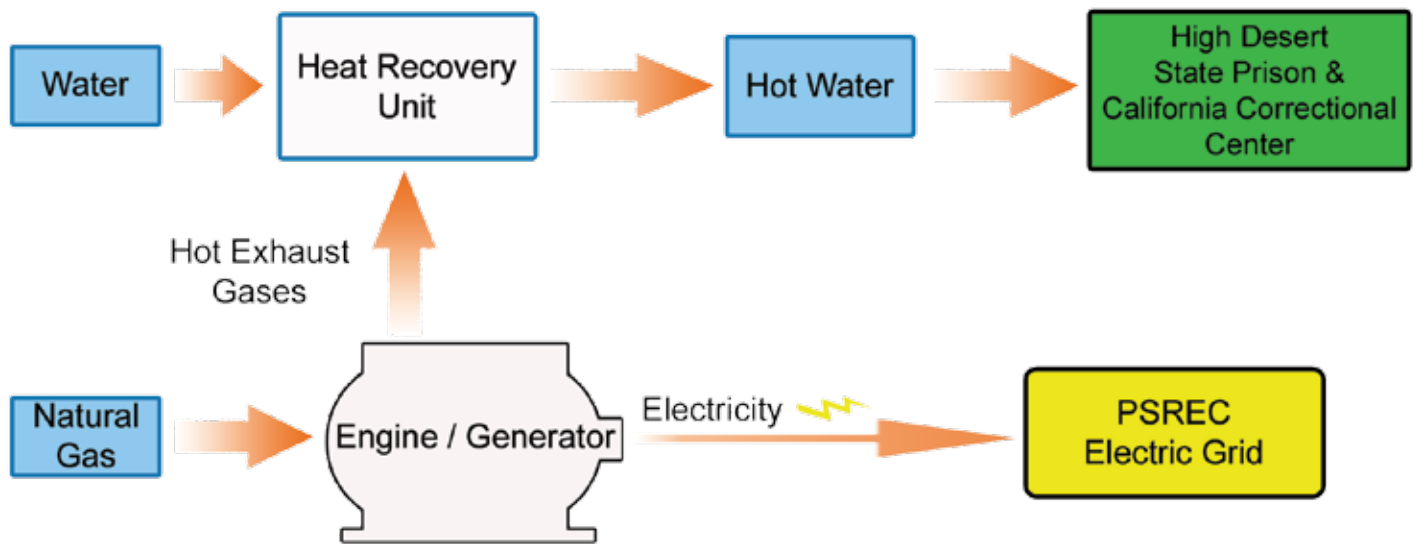
PSREC would like to thank the following cooperating agencies for making the High Sierra Cogeneration Power Plant possible:

City of Susanville, Department of Public Works - Gas Division

Lassen County Board of Supervisors and Air Pollution Control District

California Department of Corrections and Rehabilitation

How Does Combined Heat and Power Cogeneration Work?



In the case of Plumas-Sierra REC's High Sierra Cogeneration Power Plant, natural gas fires the engines that power the generators, creating electricity that is put into the electric grid. The waste heat from the engine exhaust is captured by a heat recovery unit that heats the water for the High Desert State Prison and California Correctional Center.



One of the two 3-megawatt Jenbacher natural gas engines that power the High Sierra Cogeneration Power Plant.

Photo by Greg Lohn.

Below, Plumas-Sierra REC Board of Directors, General Manager and consultants in front of the substation at the cogeneration facility.

Photo by Greg Lohn.

