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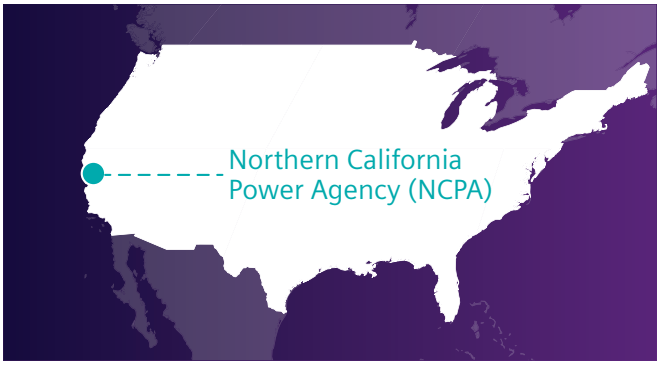
DCS automation solution enhances NCPA's geothermal operations

The Plant

The Northern California Power Agency (NCPA) Geyser is a publicly operated facility, generating power from geothermal wells on site. Since the mid-1980s, NCPA has operated two geothermal power plants in Sonoma and Lake counties, California, that have produced more than 27 million mega-watt-hours of electricity for its 11 members/owners. The plants consist of 77 geothermal wells, two 110-MW power plants (with two 55-MW generating units each) and associated steam pipeline facilities.

The Task

The goal of the modernization was to provide a complete control package using pre-designed integration drawings, with minimal installation challenges. Striving to permit ease of operation and ease of maintenance, Siemens Energy was tasked with updating the first of two plants, focusing on the BoP, generator and turbine control systems to a state-of-the-art DCS system, which can easily be expanded into a plant-wide DCS system in the future. Another goal of the modern-ization was to improve the control of the steam valves with a high pressure oil system and closed loop servo control steam valves.



Our Solution

The solution provided, Omnivise T3000, uses a state-of-the-art object-oriented programming platform, utilizing pre-built functions blocks and templates to maximize programming and configuration efficiencies. The built-in I&C diagnostics require no additional equipment, allowing for optimized maintenance strategies. Omnivise T3000's operator interface allows for structured monitoring and control of the entire generation system through user-specific roles that provide the correct view for operation, maintenance, engineering, optimization or management. Also performed during the modernization was the conversion from a low-pressure lube oil system to a high-pressure DEH system to enable the plant to achieve better performance to meet the demands of today's market. The updated high-pressure hydraulic system for steam valve control utilizes a servo-based closed loop design, one of Siemens Energy's many custom solutions.

The Result

- Omnivise T3000 additionally supports the BoP and related systems unique to this geothermal generation facility.
- Increased operator efficiency and improved maintenance with real-time data and informative system alarms.
- All BoP and generation controls integrated into one DCS package, one supplier, one reliable system.

“The Omnivise T3000 Distributed Control System is a state-of-the-art system that allows for increased operator efficiency through a simple and robust platform.”

Dean Watson, Northern California Power Agency

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Siemens Energy Global GmbH & Co. KG
Otto-Hahn-Ring 6
81739 Munich, Germany
www.siemens-energy.com/omnivise-t3000

Siemens Energy, Inc.
15375 Memorial Drive, Suite 700
Houston, Texas 77079
USA