



RE-ENERGIZING *California*

MULTIPARAMETER FLOWMETER IMPROVES PROCESS, SAVES MONEY AT WESTERN ENERGY COMPANY

Sierra Instruments is hard at work in the geothermal steam fields of the West where rugged reliability matters. In energy-strapped California, one emerging technology is using the natural geothermal reservoirs in certain areas as a source of steam that is then used to generate electricity.

Caithness Energy Company has partnered with Sierra, and installed Innova-Mass® for this rugged application to replace the failing and corroded differential pressure devices. This switch has saved Caithness countless dollars in maintenance costs and hours of employee time. Now they can measure up to five process parameters with one meter.

Because of high temperatures and varying pressures, measuring steam flow through differential pressure methods was fraught with inconsistencies. Scale deposits created during pressure drop or cooling of dissolved solids in the geothermal steam was consistently resulting in sensor plugging problems. In addition, frequent maintenance and calibration requirements were significantly challenging Caithness' ability to optimize steam turbine performance.

With the introduction of the multiparameter vortex mass flowmeter, improved accuracy, wider turndown, and more reliable performance at a lower installed cost delivered the efficiencies Caithness sought. The technology saved Caithness up to \$500,000 annually in maintenance costs alone.

A major advantage of the multiparameter vortex mass flowmeter is its low permanent pressure loss. The small surface area of the insertion-type sensor eliminates the large pressure drops associated with differential pressure metering devices and ensures that any dissolved solids stay in solution. The meter's sensor's small surface

area also equalizes quickly with the surrounding steam temperature eliminating scaling due to temperature differentials.

According to Richard Hutsell, Operations and Maintenance Supervisor of Caithness Energy Corporation, "The occurrence of scaling has virtually disappeared since we switched to multivariable vortex metering. Previous devices required monthly maintenance to clear plugged orifices, whereas the vortex meters have not required service during their nearly three years of duty in the plant. System reliability is up and maintenance costs are down, which is exactly what we were trying to accomplish."

The vortex transmitter's turndown capability also provided much more accurate and consistent measurement over a wider range of process dynamics.

Sierra Instruments
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