California steaming: Geyser's show geothermal potential

By Jim Borg

GEOYSVille, Calif. - Along Sonoma County's Big Sulfur Creek, wafts of steam against the green hillside offer the first hint of human activity.

A closer look reveals the characteristic cooling towers and a network of pipes that resemble the legs of a huge spider.

Farther down the winding road, more pipes and plants emerge from the mountainous terrain.

Straddling the border of Sonoma and Lake counties in northern California, the once-famous resort area known as the Geyser Valley encompasses the world's largest and most successful geothermal energy field.

Nestled above California wine country, the rock-encased reservoir of 350-degree steam feeds plants engineered to pump out 1,900 megawatts of electricity. That's a little shy of generating capacity in the entire state of Hawaii.

But after a decade of heavy development, the reservoir is literally running out of steam, with power production dropping dramatically and future plant construction halted.

"Geothermal is not a renewable resource," remarks Harry Bain, a spokesman for the principal steam developer at the Geysers, Unocal Oil Co. of California. "We recognized that it would deplete. I think that what caught everyone by surprise is the depletion acceleration... at first we thought it would be a little slower development that we've had here," says Myron Bell, a resource engineer with Unocal's Geothermal Division in Santa Rosa.

At this end of the Mayacamas Mountains underground steam forms from water heated by molten rock or magma. If the product of immensu...