

Clean Energy: Indicators point to geothermal cluster growth in Northern Nevada



Written by

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When Ormat Technologies Inc. first set up shop in Northern Nevada in 1984, geothermal development activity was about as hot as a lukewarm glass of tap water.

"I think we maybe had one or two more geothermal developers back then," said Paul Thomsen, Ormat's director of policy and business development. "Today, the number is something like 11 operators and developers in the area. It's the largest concentration in the nation by far."

Incidentally, having a concentration of businesses in one location is the first prerequisite in the formation of the prized business cluster.

Advantages from clusters include faster sector growth due to the easier exchange of information, expertise and talent. Many

geothermal companies in the area, for example, count former Ormat employees among their executive ranks and resource teams. Clusters also lead to the creation of a strong support system that includes suppliers, vendors, trade associations and even academia -- further accelerating growth.

With international geothermal players such as Ormat and Geothermal Development Associates calling the area home -- along with the arrival of aspiring up-and-comers such as Gradient Resources -- Northern Nevada is now ground zero for arguably the most dynamic geothermal cluster in the nation. In addition to major developers, Northern Nevada also has a diverse supporting cast that includes equipment manufacturers, material suppliers, surveyors and researchers.

Northern Nevada's geothermal cluster was highlighted by the Geothermal Energy Association's (GEA) selection of Reno as the site for its first ever National Geothermal Summit, which occurs later this month.

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Add the University of Nevada, Reno's selection as the host of the first-ever National Geothermal Academy program in the country this summer and Northern Nevada's steamy clout appears even more impressive.

Meanwhile, a study by the Brookings Metropolitan Policy Program found that the Reno-Sparks metro area had more than 101 times the economic geothermal activity than the national average.

"I'm sure you'll get objections from places like San Diego or Salt Lake City, but the reason we picked Reno is because the area is the center of geothermal activity in the U. S.," said Karl Gawell, executive director of the Washington, D.C.-based GEA. "You have large developers like Geothermal Development Associates and Ormat doing business around the world, and companies like ElectraTherm building smaller units. Reno is also centrally located and provides easy access to other geothermal areas like California, Idaho and Oregon."

With renewables and energy independence gaining more prominence in the national discussion, Northern Nevada is in great position to give its economy a much needed shot in the arm by leveraging its geothermal assets. In 2008 alone, Nevada collected about \$30 million from geothermal lease sales and royalties, the GEA found.

At the same time, challenges remain that could scuttle the area's budding geothermal industry.

"There are huge expectations and we need to be cautious as well," Thomsen said. "If you look at our surrounding states, for example, they have put in very aggressive tax incentives. We have to make sure that we don't get too arrogant and lose sight of what we need to do to keep the developers here. It's a balancing act."

Building a cluster

Although an ideal location and plentiful resources were key reasons for the rise of geothermal in the area, other factors are also responsible for Northern Nevada's booming geothermal industry.

One is the area's ability to leverage its expertise in mining and earth science and translate that into geothermal know-how and technology advancements. This has been especially helpful given the recent graying of the nation's leading minds for geothermal.

"There aren't that many experts (left in the field) but a good number of them are at

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the University of Nevada, Reno," Gawell said. "They're pretty much at the cutting edge over there on what we know about geothermal science. Just the work done at UNR's Great Basic Center for Geothermal Energy has been uniquely important in the development of geothermal energy in the state."

Policies enacted by lawmakers have also given Nevada a reputation as a geothermal-friendly state. It doesn't hurt that the state has the U.S. Senate's majority leader on its side, Gawell said.

Sen. Harry Reid, D-Nev, is known to be a strong supporter of geothermal development and is credited by the industry for securing funding for geothermal-related research and development for the state.

Add the arrival of several geothermal developers to the area and the result is a snowball effect, experts said. Just like Silicon Valley nourished itself on the increasing number of tech companies that sprouted in the area and the support services that grew to support them, Northern Nevada's geothermal cluster has the potential to keep building on itself.

"For a geothermal developer, there's nothing better than having other developers in the market," Ormat's Thomsen said. "Some may see that as competition. But we need a lot more people to share the risk and spend the capital needed to develop the state's full geothermal potential."

Meanwhile, two key factors are poised to boost geothermal momentum in Nevada even more in the next few years.

One is the adoption of a renewable portfolio standard by both Nevada and California, which requires that a certain percentage of the energy used comes from renewable sources.

The California connection is especially huge. The state mandated earlier this year that it wants 33 percent of its energy to come from renewables by 2020.

The fact that geothermal is a proven technology that can be operated 24/7 and has lower cost -- about 8-9 cents per kilowatt hour -- than solar and wind is a big advantage, Gawell said.

Federal incentives for geothermal that are set to expire in 2013 are also fueling a rush to get projects up and running nationwide, including Nevada. Projects that come online before the deadline can qualify for 10-year tax credits or

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incentives. Over the next year alone, the GEA expects to see 1,000 megawatts worth of drilling and construction projects in Nevada, Northern California and Oregon.

"We're seeing a lot of projects in the 600-700 megawatt range that will try to get done before that 2013 deadline," Gawell said. "We're talking about full-tilt construction projects."

Cluster bomb

As promising as Northern Nevada's geothermal industry is, it still faces its fair share of serious challenges.

While the technology itself is proven and provides low-cost energy once it is up and running, any new geothermal project comes with high risk and equally high costs at the "front end," or beginning, of the process.

A key reason is that there is no "magic test" right now for finding a geothermal resource without drilling, Gawell said.

"Drilling can cost tens of millions of dollars and it's something that isn't financed by banks or lenders due to the high risk (of not finding anything)," Gawell said. "That means a developer needs to get high-risk venture capital and it's pretty daunting to drill \$10 million dry wells. Try and go explain that to your boss."

The frenzy to meet the 2013 deadline for federal incentives also raises concerns about a potential geothermal bubble in the

area. Given the high risk that comes at the front end of geothermal development, the potential for failure by a company that comes up empty handed can be all too real.

"It's exciting to see all these developers move into the area and developing projects," Thomsen said. "At the same time it also makes you a bit leery. You don't want to see a bubble (form and) pop."

Concerns about higher costs for ratepayers have also led to the recent rejection of some high-profile initiatives related to renewables.

One is the highly controversial Assembly Bill 416, a transmission line measure that also included renewable energy incentives. The bill was vetoed by Gov. Brian Sandoval.

The Public Utilities Commission of Nevada also recently denied power purchase agreements negotiated by NV Energy to meet renewable portfolio standards.

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Meanwhile, some in the geothermal industry lament that geothermal does not get some of the same benefits afforded to solar and wind projects. Although federal incentives for geothermal end in 2013, for example, the same incentives for solar do not end until 2016.

In Nevada, another example involves tax abatements that are available for solar and wind but not for geothermal. The lack of abatements makes it difficult for areas such as Churchill County to work with geothermal developers since the counties stand to lose about 80 percent in revenue from such deals due to the way the regulations are set up.

"It's unfortunate because you have a county that sits on this tremendous (geothermal) resource and current legislation basically prevents them from working with us," said Craig Mataczynski, CEO of Gradient Resources. "It really creates a challenge for tapping the resource."

Ironing out the kinks is crucial given what's at stake, say those in the industry. Although renewable projects typically are criticized for not creating a lot of direct permanent jobs, the economic activity they generate can be substantial, advocates say. Ormat alone spent \$45 million in 2010 with 400 vendors in Northern Nevada.

At the same time, surrounding areas have no compunctions in stealing Nevada's geothermal thunder.

"If we get complacent, then Utah, Colorado,

Idaho, New Mexico and Arizona will absolutely try to attract the same companies," said Tom Clark, a renewable energy lobbyist with Holland & Hart. "All these areas also have (geothermal) resources. So we have got to stay aggressive in bringing companies to the state while making sure we don't lose the ones already here."

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GEO THERMAL SUMMIT

Reno will host the Geothermal Energy Association's first ever National Geothermal Summit from Aug. 16-17 at the Grand Sierra Resort. The event will feature policy makers, companies, researchers and other geothermal experts. Topics on the agenda include renewable energy policy, transmission challenges and permitting issues. Details: www.geo-energy.org

GEO THERMAL developers

A sampling of geothermal developers that have either headquarters or branch offices in Northern Nevada:

Alterra Power Corp. (formerly Magma Energy and Plutonic Power)

Caldera Geothermal

Enel Green Power North America, Inc.

Geothermal Development Associates

Gradient Resources (formerly Vulcan Power)

Nevada Geothermal Power

Ormat Technologies, Inc.

Oski Energy

Ram Power, Inc.

Source: RGJ research

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