



Green California to Vie With Texas as U.S. Oil Heartland: Energy

By Bradley Olson
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California, even as it seeks to be the greenest of U.S. states, stands a good chance of emerging as America's top oil producer in the next decade, helping the nation toward what once seemed an unlikely goal of energy independence.

The catalyst is the U.S. Bureau of Land Management's sale last week of 15 leases covering about 18,000 acres of the Monterey Shale, a geologic formation whose sweet spots stretch from east of San Francisco more than 200 miles south to Monterey County. The auction was dominated by Los Angeles-based Occidental Petroleum Corp. (OXY) and smaller companies betting on a coming boom. Yesterday California regulators issued a draft of new rules to sharpen their oversight of the surge in fracking.

While shale developments have been most associated with natural gas, the ribbed-shaped Monterey could hold 15.4 billion barrels of oil, according to the federal Energy Information Administration. That amounts to 64 percent of all estimated U.S. shale oil reserves and double the combined reserves of North Dakota's Bakken Shale and Texas' Eagle Ford Shale, where energy companies are spending billions to ramp up output.

The leap in technology known as hydraulic fracturing, or fracking, has already found trillions of cubic feet

of gas and billions of barrels of oil around the nation. The Monterey's prospects coupled with a favorable oil price means "that renaissance is coming to California," says Phil McPherson, a former energy analyst who is now chief financial officer of Citadel Exploration Inc. (COIL), a California-focused oil company.

Occidental declined to comment about its interests in the Monterey shale.

Chevron's Birthplace

The economic lure is obvious. The Golden State's unemployment rate sits at 10.1 percent, third highest in the nation. It faces enormous underfunded public employee pension obligations and has racked up state budget shortfalls of \$500 billion in the past four years.

It also has history on its side. California, where oil was first drilled in 1865, was once an oil and gas powerhouse and its largest oil company, Chevron Corp. (CVX), was carved out of the 1911 breakup of John D. Rockefeller's Standard Oil. California is still the nation's No. 3 ranked oil producer though production has declined steadily since peaking in 1985.

Yet California also has a strong environmental lobby that tends to view oil and gas development with suspicion amid the state's recent efforts to reshape itself into a green energy leader. The state has adopted its own low-carbon fuel

standards and laid out a program to have renewables -- wind, solar, hydroelectric and geothermal power -- provide a third of the state's energy needs by 2020. Last month it started the nation's largest cap-and-trade program when it auctioned its first emission allowances for greenhouse gases.

Environmental Pushback

"There's a strident environmental community that's always very concerned about the possibility of ecological damage," says Amy Myers Jaffe, executive director for energy and sustainability at the University of California-Davis. "It's going to be a much more intense operating environment" for companies drilling in sensitive areas.

The pushback has already begun. In August, the Center for Biological Diversity notified the Bureau of Land Management by letter, as required by federal law, that it intends to sue under the federal Endangered Species act to stop further lease sales unless BLM agrees to consult with federal wildlife managers on potential fracking impacts.

The Tucson, Arizona-based environmental group argues that BLM isn't taking into account how the evolution of newer fracking methods pose threats to species such as the California condor and the San Joaquin kit fox.

Long History

“A fracking boom could push some of California’s most beloved endangered species over the edge,” Brendan Cummings, the Center’s public lands director said in a statement at the time.

BLM, in a letter to the Center in October, said consultation isn’t necessary because fracking has been “occurring under existing regulations on public lands in California for decades” and impacts to endangered species “are lower in California than in other areas of the country.”

A form of fracking has been used in California for 60 years with no allegations of fouled water or environmental harm, said Tupper Hull, spokesman for the Western States Petroleum Association, an industry trade group.

“The potential economic benefits are enormous,” he said. “If you look at what has happened nationally, it is one of the most encouraging trends that we’ve seen of late.”

Fertile Region

The recently leased acreage also cuts through scenic southern Monterey County and across lands in San Benito and Fresno counties that hold vineyards and fertile vegetable farms. Monterey County alone grows \$8 billion in produce annually.

Fracking, which mixes small amounts of chemical lubricants and biocides into a high-pressure water stream to break apart dense rock, has been linked to ground water contamination in some states. It is also a water-intensive process that can consume up to 6 million gallons per completed well. Both issues worry

landowners and environmentalists in a state where water resources are jealously coveted.

“We’re concerned that not enough regulation is in place to provide for the security of our water supply,” said Paula Getzelman, whose family owns Tre Gatti Vineyards in southern Monterey County. Beyond fears of fouling the water, landowners are concerned about how fracking might deplete water needed for irrigation. Getzelman said she wants to ensure the safety of the region’s water, “whatever that requires.”

Geologic Sensitivities

Another issue is the formation’s complex geology, which oil analysts say will challenge drillers because it isn’t as homogeneous as the Bakken or the Eagle Ford.

“The ground moves around a lot, unlike in South Texas or North Dakota,” says Jaffe. “So you have these breaks in the geology that make it harder to drill” while raising costs.

Also resonant in California is the issue of whether deep underground wells used by the industry to dispose of fracking waste water leads to earthquakes. Some scientists believe swarms of small tremors in Ohio, Texas and elsewhere are linked to waste-water fracking activities, including 12 earthquakes centered within a mile (1.6 kilometers) of an injection well in Youngstown, Ohio, according to a state report that prompted new regulations.

Tremor Troubles

A report this year from the National Research Council concluded that “fracturing has a low risk for inducing earthquakes that can be felt by people, but underground

injection of wastewater produced by hydraulic fracturing and other energy technologies has a higher risk of causing such earthquakes.” California is among the nation’s most seismically active states. San Francisco was struck by a destructive earthquake in 1989 and Los Angeles suffered one five years later.

To address some of these concerns, California regulators yesterday released a draft of new fracking regulations that require producers to disclose their plans for drilling, post information about chemicals used and regularly test wells for safety compliance. The approval process for the regulations will continue in 2013.

While the Monterey’s economic lift to California will ultimately depend on what oil and gas companies find and produce, a look at the experience of North Dakota’s development of the Bakken Shale is indicative. In 2005, North Dakota produced about 3,000 barrels of oil a day. Since drilling in the Bakken began in 2007 that has climbed to more than 728,000 barrels a day, moving North Dakota ahead of California and Alaska as the No. 2 producer in the U.S. (Texas is first.) Unemployment at 3.1 percent is the lowest in the nation.

Revenue Potential

The Bakken boom has created 18,000 direct jobs and 46,000 indirect jobs in the oil and gas support industry, according to the North Dakota Energy Forum, an industry-sponsored tracking group. Petroleum production and extraction revenues exceed \$750 million a year and have given the state treasury a \$1 billion surplus.

California doesn't have an oil and gas severance tax, though for years it has contemplated a 10 percent levy. With state output of about 535,000 barrels a day, and based on historical average oil prices, such a tax would raise about \$1.4 billion in annual revenues according to the Center for Labor Research and Education at the University of California-Berkeley. A huge find in the Monterey could boost that number significantly.

Jobs Engine

As has been demonstrated by North Dakota, where the average oil worker earns about \$90,000 a year, the jobs engine is undeniable.

"The number one way to create jobs in the United States is in the oil industry," says McPherson. "That applies to California the same as anywhere else."

California has another imperative. No out-of-state pipelines serve the state, making it critical that it produce enough oil to feed the 14 refineries that blend the state's mandated lower-emission gasoline.

As a result, California is uniquely vulnerable to high gasoline prices, and more security of supply may provide Californians with some relief, according to Severin Borenstein, Director of the Energy Institute at the University of California-Berkeley's Haas School of Business. State prices reached an all-time peak of \$4.67 a gallon on October 9, according to data from AAA, after a refinery fire and other outages pushed prices up.

Slowing Production

In years past, oil and gas companies operating in California have complained of regulatory foot-dragging that they said was aimed at slowing fossil-fuel production.

In perhaps a sign of the economic times, Gov. Jerry Brown, a Democrat, dismissed the state's top two oil regulators last year after permits for new drilling and wastewater wells had slowed to a trickle. Producers including Occidental say approvals have quickened, allowing them to continue their drilling programs after a slowdown. Also buoying the Monterey's prospects: a bill in the California legislature that would have put a moratorium on fracking failed to gain traction this year.

"You certainly won't see enthusiasm in Napa and Sonoma, some of the bluer parts of the state," says Berkeley's Borenstein. "But many areas have been more depressed economically, so I think many people would welcome it."