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Revival Of Iconic California Condor Threatens State's Wind Farm Boom

By Todd Wood
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Drive out of California's smoggy San Joaquin Valley, past the oil rigs planted helter-skelter in citrus groves, climb into the Tehachapi Mountains, and the future suddenly comes into view. Hundreds of gleaming white wind turbines generating carbon-free electricity carpet chaparral-covered ridges and march down into the valleys of Joshua trees that lead to the Mojave Desert.

Here in Kern County, a bastion of Big Oil and Big Agriculture, green energy has become big business. In the past 36 months the wind industry has attracted $3.2 billion in investment to a region with an unemployment rate 64% higher than the U.S. average. A multibillion-dollar transmission line under construction in the Tehachapi will carry as much as 4,500 megawatts of renewable energy, most of it from wind farms, to coastal cities. At peak output that's the equivalent of four or five big nuclear power plants and a linchpin of California's mandate to obtain a third of its electricity from renewable sources by 2020. With a crucial federal tax credit set to expire at the end of 2012, developers are racing to put steel into the ground and secure a spot on the wire.

"The hotels are now full, the people who work in the restaurants now have someone to wait on," says Lorelei Oviatt, Kern County's planning director in Bakersfield, the honky-tonk hometown of Buck Owens and Merle Haggard. "If you were laying concrete for a house, now you're laying concrete for a turbine."

A shadow, however, is falling on the Tehachapi, cast by the nine-and-a-half-foot wingspan of a Pleistocene-born bird of uncommon intelligence and longevity. With the investment of tens of millions of dollars and extraordinary effort by scientists, North America's largest bird, the California condor, is staging a spectacular comeback after verging on extinction 25 years ago. The 200 birds in the wild today (out of 400 total) are rapidly reinhabiting their historic range in one of the nation's great achievements of conservation biology. Naturalists can once again marvel at a bird that manipulates hot winds to soar hundreds of miles without flapping its wings.

It's a flight path that is taking the condor perilously closer to the spinning blades of Tehachapi wind turbines that depend on those same thermal currents to generate power; biologists fear it's only a matter of time before the condor begins hitting the 500-foot-high machines. A single death could be catastrophic for the wind industry, the regional economy and, not least, the condor. The loss of an alpha bird could disrupt breeding patterns and an intricate avian hierarchy, according to biologists. "It would be a major disaster," says Mark Tholke, an executive with wind developer enXco, which is building several projects in the Tehachapi.

Under the federal and California endangered species acts, it's illegal

for anyone to kill a condor without first securing a permit to do so. Given that the government has not issued such an "incidental take" permit and has no intention of doing so, if a turbine kills a condor, the operator could be charged criminally. Environmentalists could also ask a judge to shut down a wind farm where a condor died. "If we as an industry don't come up with a plan that is clear and reliable," says Tholke, "the uncertainty is going to drive some investors away and drive up the cost of renewable energy."

Already, state regulators have scuttled a huge Pacific Gas & Electric wind project in part because of the financial risks of a potential condor-caused cut to electricity production. Last June the Tehachapi's biggest developer, Terra-Gen Power, abruptly pulled a planned 411-megawatt farm after Oviatt says she told executives that condor concerns and opposition from local residents would likely doom the project. Then in October the Sierra Club and two other environmental groups sued Kern County over its approval of a 300-megawatt NextEra Energy Resources wind farm that state and federal officials warn poses a high risk to condors.

U.S. Fish & Wildlife Service biologists, meanwhile, have told county officials and developers that most of the multibillion-dollar projects on the drawing board as well as at least one existing wind farm threaten the condor, according to agency records FORBES obtained under a Freedom of Information Act request. "The service requests that the county of Kern exercise extreme caution in developing wind energy within the Tehachapi area because it falls within the range of the California condor," Raymond Bransfield, a senior biologist, wrote Oviatt in November 2009. "Until we have a better understanding of the behavior and flight patterns of California condors within the Tehachapi area we strongly recommend that the county of Kern not permit any action that may result in take of California condors."

Conflicts between renewable energy and wildlife are nothing new. But the condor presents a conundrum that will force some hard choices about the balance we're willing to strike between obtaining clean energy and preserving the wild things. There are no black-and-white answers here, just shades of green. As the condor begins to go where no condor has gone in decades, developers, environmentalists and government biologists have formed a task force and are scrambling to meld conservation science with a Silicon Valley-style technological solution to wind and wildlife. "The stakes are high for both sides," says Ashleigh Blackford, senior wildlife biologist for renewable energy at the Fish & Wildlife Service in Sacramento, Calif. "The question is, how quickly can we come up with answers given the pace of wind farm development?"

Against a backdrop of juniper-and pinon-pine-studded golden hills on a bright November day, two condors soar effortlessly through a canyon, cruising over the San Andreas fault line that runs through the Bitter Creek National Wildlife Refuge two hours north of Los Angeles. We're about 35 miles northwest of the Tehachapi, as the condor flies, and it was here, just on the other side of the canyon, that the last wild condor was captured on Apr. 13, 1987. By then the world population of wild condors had dwindled to 22

as human development, DDT and lead poisoning took their toll. The decision was made to take all the survivors into captivity and breed them in a last-ditch effort to save the species.

Breeding programs proved a success, and in 1992 the first condors were reintroduced into the wild with the goal of eventually establishing self-sustaining populations in California, Arizona and Baja, Mexico. Four of the final 22 wild birds captured in 1987 still survive. "Locked into the cranium of those four birds is 10,000 years of evolution," says Jesse Grantham, the California condor coordinator for the Fish & Wildlife Service, aiming his binoculars at the birds flying in the canyon.

Condor 21 (half of the wild birds are GPS-tagged), one of the final four, was returned to Bitter Creek in 2002 and continues to sire offspring. No surprise there, biologists say, as condors may live 60 years or more. Weighing about 20 pounds, condors resemble supersize turkey vultures, with bald, reddish-pink-and-orange heads and a pattern of distinctive white feathers under their black wings. "Thousands of years of evolution has fine-tuned this bird to be totally dependent on air for survival," adds Grantham, whose deep suntan testifies to the 30 years he has spent tracking condors. "Then you realize how important topography is to air, and then you begin to realize that for the condors air is their habitat."

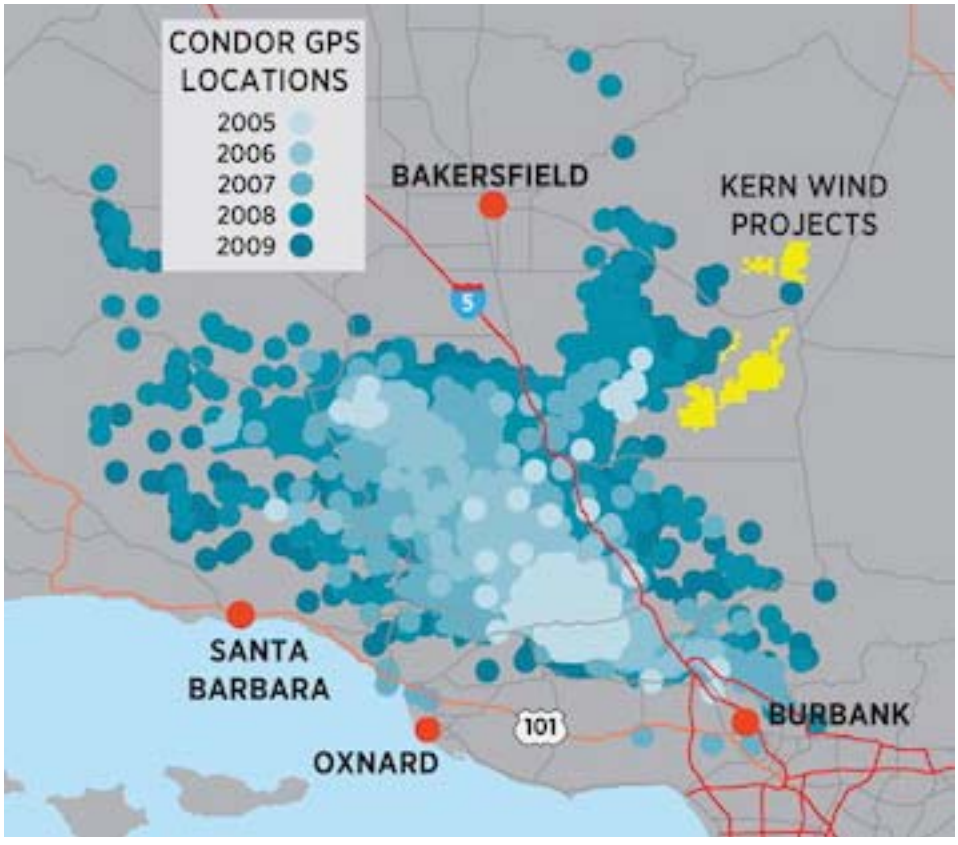
The ideal topography turns out to be like the network of ridges and valleys that make up the Tehachapi range, which connects California's coastal mountains running south from Big Sur to the Sierra Nevadas on the east side. In the summer, as the valley floor several thousand feet below broils, hot air rises through the canyons and condors catch rides on the thermal currents.

On this day condor 368 is doing just that, surfing a thermal shooting through the canyon. At the end of the crevice the heat rises, and the condor catches the column of air as if it were stepping onto an escalator, circling ever higher. When the hot air hits a layer of cold air it dissipates, and the bird flies off on a thermal, heading toward its nesting grounds some 45 miles to the south.

Those hot-air highways can take the condor some 200 miles in a day as the bird forages for food or takes a road trip on a whim to satisfy its curiosity. The condor has evolved to be attracted to novel objects and activity as it must constantly scour vast landscapes for its dinner, be it dead cows, deer or, for the coastal cousins, elephant seals and beached whales. Those who have observed the bird for decades say condors are a highly social, even playful species, with a defined pecking order in which they belong to specific clans. "A condor is a primate that's been trapped in a bird's body," says Grantham.

While the birds tend to forage alone, more than two dozen have been photographed sharing a meal of bloated bovine. The nightmare scenario for biologists would be if one of these clans of condors follows an alpha bird directly into a 45-story turbine after the alpha has spotted dinner below a wind farm. Condors don't look up when they fly; not expecting to collide with anything at that height, they have evolved over the eons to soar looking down for carrion on the ground.

Back when many of the current wind projects were being planned, the condor had yet to expand beyond the core reintroduction sites. But maps produced by the Fish &



Wildlife Ser-vice plotting condor locations and flight paths between 2005 and 2010 show an explosion of avian exploration in recent years, with some birds flying over or near existing and proposed wind farms.

"Wind turbines right now are on the edge of the condor's expanding range," Grantham notes. "But as the number of birds begins to increase and they begin to take advantage of some of the other food resources in the southern Sierra, there's no question that's where the birds will be. They'll be crossing over those areas where most of the wind energy is going now."

I've gone to see some of those new wind farm sites with Tholke, the enXco executive, and Jim Walker, the company's vice chairman and a longtime industry leader in efforts to reduce wind farms' impact on birds. They are among the few wind company execs willing to talk publicly about the condor. "As far as I'm concerned this is an industry that doesn't need to spend any time in denial," says Walker, 67, a no-nonsense wind veteran standing amid Joshua trees as construction cranes hoist 260-foot turbine towers into place at the Manzana wind farm. "This is about two big successes—the successful reintroduction of the condor and the success of this technology. It's our responsibility on the wind-industry side to let these two coexist."

The 300-megawatt Manzana project speaks to the economic pressures driving development in the Tehachapi, one of the nation's prime spots for wind power. EnXco originally developed the project and then sold it to Iberdrola, the Spanish energy giant, which in turn was to build the turbine farm for utility Pacific Gas & Electric. Although Kern County issued permits for Manzana, California utility regulators last March refused to approve PG&E ownership of the wind farm, finding the price of the power unreasonably high. High, too, regulators concluded, was the risk that the condors could force a curtailment of electricity production. In an unusual move, Iberdrola is pressing ahead and building Manzana without securing a long-term contract to sell the electricity it will generate, according to Tholke.

The need for that speed lies a few miles away, where steel towers of the Tehachapi Renewable Transmission Project are being erected. Snagging space on that power line is why enXco broke ground in December on its 140-megawatt Pacific Wind project adjacent to Manzana.

"We feel pretty comfortable with the location of these projects in regard to the condor, as we're on the downdraft where they wouldn't be flying," says Tholke, 41, gesturing at the desert, empty of condor chow, with the Tehachapi foothills miles in the distance. "Our development model is first avoid potential issues."

But in a sign of how contentious wind projects have become the Fish & Wildlife Service disputed Kern County's characterization of the Pacific Wind site's potential to attract condors as "low." (The county green-lighted the project nevertheless.) In October the agency objected to the county's environmental review of enXco's 350-megawatt Catalina project to be built nearby. "We do not agree with your conclusion that California condors are 'absent' from the project area," wrote Diane K. Noda, a field supervisor, in a letter to the county. "California condors likely use the project area as foraging habitat and are likely to be affected by project activities."

"We cannot envision a situation where we would permit the lethal take of California condors," she added.

The company most at risk from the condor is Terra-Gen, which plans to build 1,550 megawatts' worth of Tehachapi wind farms financed by the likes of Citibank and Google. In a preliminary review Kern County found that the company's proposed 230-megawatt Morgan Hills project would "pose a high risk of collision" to the condor. Federal officials in August told county planners that Terra-Gen's 300-megawatt Alta East wind farm "poses a threat" to the condor. The wildlife service also labeled as "high" the potential for the condor to appear on the site of the company's giant Alta Oak Creek wind complex, now being built. Terra-Gen declined requests for comment.

Last May Kern County concluded that NextEra's 300-megawatt North Sky River project posed a low risk to the condor, stating that no birds had been detected within 18 miles of the site. Then on July 18 two condors flew near the site and possibly directly over it, according to their GPS signals. Although the agency urged the county to withhold its approval, the project received the go-ahead on Sept. 13. A month later the Sierra Club, Defenders of Wildlife and the Center for Biological Diversity sued to overturn that decision. A NextEra spokesman declined to comment, citing the litigation.

"I don't really think it's the intention of the citizens of California, who have been really supportive of renewable energy, that we take such a conservative view of new projects that we never do anything," says Oviatt, the Kern County planning director, who noted the county itself has so far rejected some 650 megawatts of wind projects.

But Dan Taylor, executive director of the National Audubon Society's California office, says more litigation may be inevitable unless a technological fix is found. "We're on a collision course for some potential fatalities," he says. "I think the day a condor is killed by a wind turbine in California changes the course of future development."

Avoiding that day could depend on technology like the U-Haul-size radar system parked recently at the San Diego Zoo Safari Park, home to a major condor research and breeding center. Made by a company called DeTect, its spinning antennas are scanning foggy skies for turkey vultures, standing in for condors.

"About nine months ago we started getting calls from developers because condors are expanding their range and moving down into wind farm areas, which makes everyone very worried," says Gary Andrews of DeTect.

Andrews has deployed an avian radar unit in the Tehachapi for wind developer Terra-Gen to see if the system can detect condors. If so, it could be connected to a system that automatically shuts down turbines when a bird approaches a wind farm.

In Mexico James Sheppard, a wildlife biologist with the zoo, is using his field research to develop an algorithm that will help predict the condor's future expansion. That "will obviously have important implications for wind farm development," he says.

The work is being funded by Sempra Generation, which is planning to build a large turbine farm in the Baja region. "We don't want to make a large commitment to the wind project without understanding the larger environmental issues," says Sempra exec Joe Rowley.

Michael Mace, the zoo's curator of birds, who has worked with the condor for three decades, has been meeting with visiting wind executives who have come to learn how the condor might behave around turbines. "We have these companies moving very quickly to develop these projects, but from a scientific perspective it's going to take some time to research and answer those questions," says Mace as we walk past the breeding center where several condors perch regally on their roosts. "No one wants to take an endangered species out of the air. The risk and liability here are tremendous."