

Regulation hampers Californian potential

Solar is likely to remain the renewable of choice in California over the coming decade. But a long-awaited wind-energy renaissance may also be on the horizon, provided practical solutions emerge to resolve permitting problems. [By Mark Anderson](#)

California's ambitious 2020 mandate for 33% of its electricity to be generated by renewables represents a welcome opportunity for the wind industry. But it also heralds significant challenges, given the state's reputation for sluggish permitting procedures, inadequate transmission and a growing focus from policymakers on solar power and distributed generation (DG).

In addition to setting an overall goal of 20GW of new renewable capacity to meet the 2020 target, California governor Jerry Brown has also issued a non-binding call for 12GW of this to be in the form of DG, from rooftop solar and other localised sources. Under this scenario, wind energy would be left to share a still-sizeable 8GW pie with utility-scale solar and other renewables. Should all of these targets be met, it would transform the energy landscape in a state that — with a population of almost 40 million — is one of the world's ten-largest economies.

Understandably, wind-energy representatives are keen to see wind win as great a share of California's expanding renewables market as possible. "The concern that we have is that the agencies will get diverted to developing a DG programme," says Steven Kelly, director of policy for California-based renewables organisation the Independent Energy Producers Association. "While we're just at the start of taking off on the utility-scale stuff."

Nancy Rader of the California Wind Energy Association (CalWEA) echoes this concern. "I would characterise the governor's DG goal as aspirational," she says. "The associated grid impacts, costs and policies required to achieve anything close to that goal in the 2020 timeframe have not been grappled with."

As recently as 2006, California outpaced all US states in wind energy with more than 2GW operational. Since then, Texas has taken the lead with Iowa boasting the



Working hard Pattern Energy's 101.2MW Hatchet Ridge wind project near Burney, California.

second-largest installed capacity. Last year, permit-friendly Texas moved past the 10GW mark, while just one wind project was completed in California, the 101MW Hatchet Ridge development.

California struggles to advance projects beyond litigation limbo and despite recent multi-megawatt gains, still remains short of 4GW.

Competing against solar

Solar's inroads in California — distributed and utility-scale — are attributable to falling prices, along with the fact that the sun shines when the state needs most of its power. Much of the state's best wind occurs overnight.

"Wind faces competition from solar in California," says Ryan Wiser, staff scientist at the US Department of Energy's Lawrence Berkeley National Laboratory. "That competition is real and it's serious."

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Solar's competitive advantage has been recognised by Gary Hardke, president of California-based developer Cannon Power, a company that has designed major wind farms in Washington state and Mexico with the intention of exporting power to the lucrative California market. Cannon is currently developing a utility-scale California solar project, but no in-state wind.

"The X-factor is solar, which is crowding out wind as the renewable technology of choice," says Hardke. "Part of the reason is the way prices work in California. There's a base price, and then there's a time-of-day adjustment where a solar project is going to get about a 25% increase in price compared to a wind project."

Hardke also laments California's protracted permitting process, which typically involves half a dozen or more federal, state and local agencies. "You might have as many as ten or 15 outside consultants cranking on, not for two or two-and-a-half years but maybe for five years or more."

In addition, various anti-development groups exist solely to create slowdowns, according to John Calaway, director of wind development for California-based Pattern Energy. Pattern has been busy in its home state. It completed the Hatchet Ridge project last year and is expecting to build the 315MW Ocotillo project in 2012.

Any developer pursuing a substantial project on federal land in California expects to face legal action designed to derail the project, with suits typically aimed at governmental agencies, explains Calaway. "You're dealing with high probabilities of multiple suits on every single project," he says. "That in itself creates a lot of tension within agencies."

Anti-development groups know slowdowns can force project financing to unravel. "If somebody doesn't have the stomach for that, then they need to stay in Kansas or Texas," argues Calaway. Despite these disincentives, California's high energy prices — near \$100/MWh versus \$60/MWh or less in the Midwest — ensure a steady stream of developers pursuing projects.

Part of the solution to permitting obstacles may emerge from the Desert Renewable Energy Conservation Plan, a project focusing on more than 90,000 square kilometres of California desert. If completed by its 2012 target, the plan is expected to accelerate permitting for nearly 40GW of renewables potential in a vast area east of Los Angeles.

The zone, which includes wind-rich Kern County and the Tehachapi region, could become home to as much as 80% of the state's new wind, solar and other renewable-energy projects by 2050, according to CalWEA's Rader.

The purpose of the plan is to streamline permitting by limiting preconstruction surveys and levying up-front mitigation costs while addressing the concerns of various governmental and environmental stakeholders. "The question is how high they're going to set the bar and how high the fees are going to be," says Rader. "But we're fairly confident that, if this gets done, it will simplify permitting."

Transmission construction

Three major transmission lines are also in the works. The Sunrise Powerlink, expected to be completed as soon as next year, will bring 1GW of power from near the



No competition Wind power will remain behind solar in California

Mexican border to San Diego. A Tehachapi project, which will include new and upgraded lines, should add 4.5GW of capacity by 2013. Finally, a third project, the Colorado River Devers Valley line, could add as much as 10GW of wires between the Arizona border and major California population centres before the end of the decade.

"It's assumed that all three of those projects will be completed," says Rich Ferguson, director of research at the California-based renewables organisation, the Center for Energy Efficiency and Renewable Technologies. "If they finish everything they've permitted, it would pretty much satisfy our transmission requirements."

Ferguson believes some of the new renewable energy will supplant fossil-fuel generation, freeing up even more transmission. "The new energy will displace energy we're getting now from gas," he says. "Although you might have to keep a bunch of that capacity around for reliability purposes and ancillary services and ramping."

Out-of-state imports

Another factor in the mix is renewable energy generated in nearby states. Recent legislation has put significant caps on utilities' use of out-of-state renewable-energy credits. However, utilities have been granted unlimited use of actual imports of renewable energy generated in other states. Although some details remain unclear, new transmission upgrades between California and the state of Oregon should facilitate more imports from the windy Columbia River Gorge.

Another priority is repowering dozens of California's existing wind projects, many of the oldest in the nation. Some experts also insist that energy storage should be part of the solution to meeting the 33% target. Offshore wind development is unlikely in the near term due to the extreme ocean depths off California's coastline.

It is clear that wind is bound to share the 8GW pie with players from other sectors, including geothermal and biomass developers. Meanwhile, critics point out that the state is still short of meeting its 2010 mandate for 20% of electricity to be generated by renewable sources, even with the compliance period extended to 2013.

"The irony in California is we're so green that the permitting process is complicated," says Peter Asmus, author of several books on the California energy market.

Clearly, leaders of the state's understaffed and underfunded regulatory agencies have their work cut out as the clock ticks towards 2020. |||W

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