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We're back! While many of us were on vacation, California lawmakers were busy passing what may be one of the world's most consequential pieces of clean energy legislation to date. It was part of an eventful week and I'm here to bring you up to speed.

I'm Dan Gearino, providing you with news and analysis about the clean energy economy. Send me questions and comments at dan.gearino@insideclimatenews.org, and thanks for reading!

— Dan

California's 'Huge Deal' on Its Clean Energy Transformation



California's legislature [has passed a bill](#) setting an ambitious goal: 100 percent carbon-free electricity by 2045. [The bill](#), awaiting Gov. Jerry Brown's signature, is groundbreaking and may be trend-setting.

Before we get into its broader significance, it helps to understand precisely what this measure does. So I reached out to a few experts.

The bill has two big elements, explained Laura Wisland of the Union of Concerned Scientists. The first is the 100 percent by 2045 goal. The second is a requirement (not just a goal) that utilities get 60 percent of their electricity from renewables by 2030. That's an increase from the previous 50 percent by 2030 goal (already one of the strongest mandates in the country).

"I don't usually speak in superlatives, but this is a huge deal," Wisland told me. "We don't have any time to waste when it comes to thinking about ways to deal with climate change. We know the electricity sector needs to be a major player in that to reduce emissions across several sectors of the economy."

It's interesting to note the difference between the types of renewable energy eligible to meet the 2030 requirement—a [dozen sources](#), from wind and solar to certain types of biomass and some hydropower—and the zero-carbon energy that counts toward the 2045 goal.

While zero-carbon sources are not defined in the bill, lawmakers said nuclear and some types of large hydropower that wouldn't count toward the renewables standard would be allowed. According to Ralph Cavanagh of the Natural Resources Defense Council, the idea was to give policymakers the flexibility to adapt to changing technologies and economics.

The mention of nuclear can sometimes derail energy debates, but he thinks that's unlikely here.

"It is important to note that by 2045, California's nuclear plants will be retired," he said. The last one, [Diablo Canyon](#), is set to close by 2025. "It's extremely unlikely that any new nuclear plant would be built in response to this bill because of the economics of nuclear compared to other zero-carbon alternative."

The Largest Entity in the World to Move Toward 100%

One of the most important aspects of the bill (if it passes) is its potential to inspire others to take similarly ambitious steps. The leadership of California on climate has long been a template for action elsewhere.

"California is the largest entity in the world that has adopted a 100 percent renewable energy goal," said Mark Jacobson, a Stanford University professor whose research deals with the feasibility of moving to a carbon-free energy system. "It could help create a domino effect for other states and countries."

Hawaii was the first state to adopt a 100 percent clean energy law in 2015, also with a goal of hitting the mark by 2045.

Who might be next?

At the top of the list is Massachusetts, whose legislature considered a plan this year to get to 100 percent renewable energy by 2045 but ended up [passing something more modest](#). (Lawmakers may try again next year for the more aggressive target.)

Washington State and Oregon also are top candidates, Jacobson said.

And Colorado, Nevada and several northeastern states all could plausibly pursue zero-carbon plans in the near future, he said. (For example, Colorado's Democratic nominee for governor [has said](#) he wants to see the state get to 100 percent renewable energy by

2040.)

“They won’t do it because California does it,” Cavanagh of NRDC said. “They’ll do it because they think it’s in their own self interest. California is doing it first and foremost as an act of enlightened self interest, not as a sort of philanthropic venture for the rest of the country.”

Needed: Clean Break From Natural Gas



One of the biggest challenges for California will be finding a way to replace the electricity that is now generated from burning natural gas. Gas was [34 percent of the electricity used in in the state last year](#).

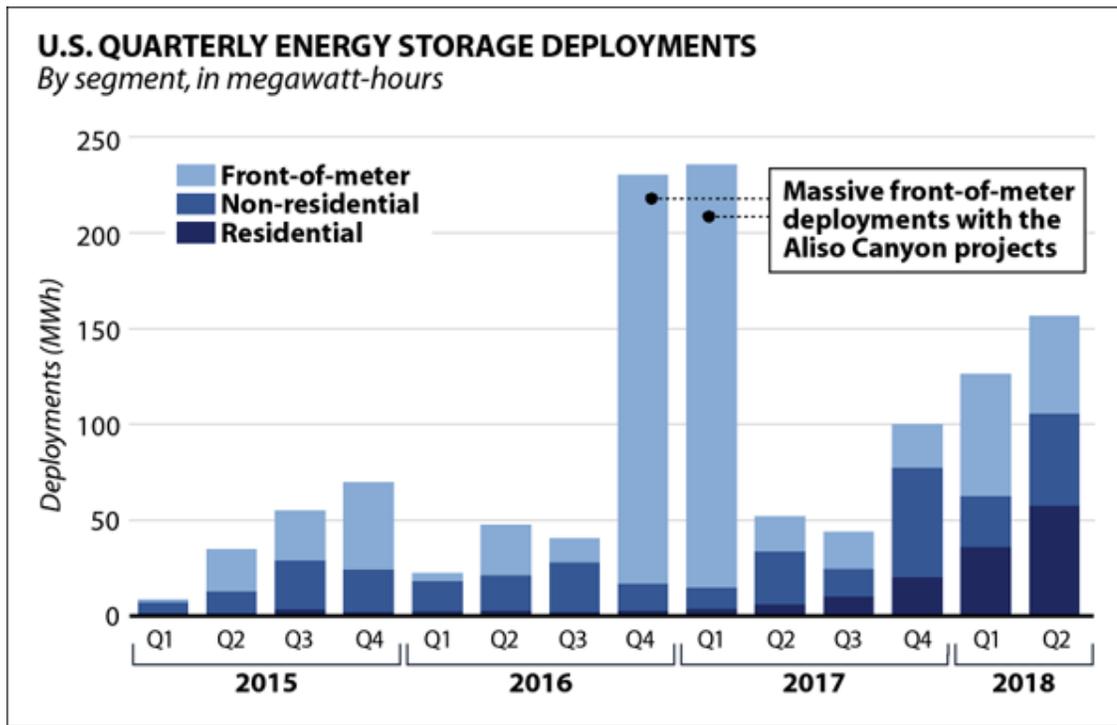
Wisland of the Union of Concerned Scientists was co-author of a new study about how the state can break from gas. It’s a complicated issue, requiring wholesale change.

The study’s takeaway is that many of the state’s gas-fired power plants could be retired without harming the grid’s reliability.

To completely stop using gas-fired electricity, the state would have to shift some electricity demand to non-peak hours and dramatically increase the use of battery systems to store solar power for evening use.

If we’re committed to curbing climate change, “then we must move away from natural gas in a way that both makes sense for the communities most affected and keeps everyone’s lights on,” Wisland said in a [blog post](#) about the report.

U.S. Energy Storage Continues Growth Surge



SOURCE: GTM research

InsideClimate News

This is shaping up to be the year energy storage comes into its own as a clean energy resource in this country.

Second-quarter project deployments were 61.8 megawatts, up 60 percent from the prior-year quarter, according to [a report](#) issued Wednesday by Wood Mackenzie and the Energy Storage Association. Those systems can produce 156.5 megawatt-hours, up 200 percent.

The growth is being fueled in large part by new systems installed in houses.

The residential market is “moving beyond simply being a cool toy and into something that’s being widely deployed and used by people across the country,” said Brett Simon, a senior analyst at Wood Mackenzie Power & Renewables, in an [interview with Bloomberg](#).

This surge is why the report is projecting the size of the U.S. storage market to double between 2018 and 2019, and then double again between 2019 and 2020. This is how the market could go from \$302 million last year to an estimated \$4.56 billion in 2023.

Xcel's Transformative Plan Moves Forward

Colorado regulators have approved Xcel Energy's plan to close the Comanche coal-fired power plant and replace much of the lost capacity with renewables and battery storage. ([Read more about the plan here.](#))

This is one of the best examples I've seen of a utility leading the transition away from coal in a way that seeks to also invest in the communities that may be hurt by the loss of the power plant as an employer.

Much of the activity is in and around Pueblo, Colorado, and the local newspaper had [this rundown](#) of the news last week.

"The Colorado Energy Plan Portfolio is a transformative plan that delivers on our vision of long-term, low-cost clean renewable energy for our customers, stimulating economic development in rural Colorado, and substantially reducing our carbon emissions," said Alice Jackson, Xcel Colorado president, in a statement.

A proposal of this size—\$2.5 billion for the first four years—does not happen just with one regulatory approval. I'll be watching and providing updates about a plan that could inspire other utilities to think this big about the coal transition.

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