



Dispatches From The Wild, Weird World Of Humanity And Its Biosphere

May 4 2022

Taiwan



Cities the world over are becoming havens for wildlife in the Anthropocene, thanks to [a range of factors](#) including increased urban green space, efforts to clean up pollution, and a more compassionate "wildlife-watching" ethos spreading among citizens. Marquee examples include [caracals in Cape Town](#), [wolves and wild boar in Rome](#), [yellow-crested cockatoos in Hong Kong](#), [whales in New York Harbor](#), and [marmosets in Rio de Janeiro](#), among multitudes of others.

Now, a new efflorescence of this heartening trend has emerged: fireflies in Taipei. Taiwan has over 65 of the world's approximately 2,200 species of firefly, but they're under threat from pesticide use, light pollution drowning out their bioluminescent signaling, and climate change. "[Fireflies] like to hatch in a wet and humid area, so if climate change makes a place too dry [they won't hatch]." said Dr. Wu Chia-Hsiung, a firefly expert from National Taiwan University, [to The Guardian](#). In 2014, Dr. Wu helped form a conservation group that [successfully reintroduced fireflies](#) to Daan Park in the center of Taipei, where they had been absent for nearly a century. They worked to ensure a more firefly-friendly environment and populace by restoring habitat, installing less harsh streetlights,

and offering educational guided tours to the park's fireflies. Now, their firefly excursions [attract 500-100 visitors nightly](#), and delegations from Hong Kong, Singapore, and Bangkok have visited to study their success. "It's a childhood memory for those over 50, and before 2014 many of them thought it would be impossible to see them again," [said Dr. Wu](#). "We brought them back. It's an ecological miracle." Great work!

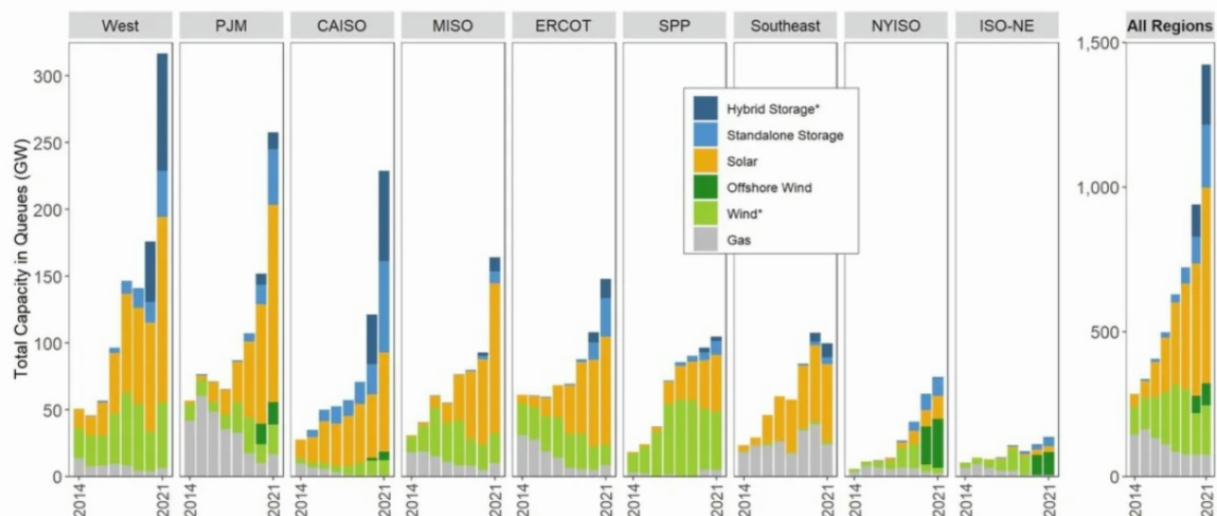


Clean Energy in America

A bunch of news in the American renewables sector dropped in the last few weeks: here's a quick roundup!

On the one hand, there are some new potential problems. A tiny US solar manufacturer, Auxin Solar, [submitted a petition](#) to the US Department of Commerce to slap **tariffs** on solar panels made in Malaysia, Cambodia, Vietnam, and Thailand, alleging that Chinese companies are moving operations to these countries as a way to evade preexisting tariffs on Chinese solar panels. This may or may not be true, but it's already damaging the US solar industry. The Commerce Department has [now opened an investigation into these claims](#), and since the tariffs may be applied retroactively, this is already leading Asian manufacturers to slow or halt solar panel shipments to the US. This could be incredibly damaging to solar deployment, since over 90% of solar panels used in the US are imported from Asia, and despite Biden Administration efforts to boost domestic manufacturing, there's nowhere near enough homegrown capacity to replace that anytime soon.

Solar and Storage booming in most regions, especially the West, PJM, and CAISO. Wind growing in the West and offshore, with slight declines in ERCOT, SPP, MISO.



*Hybrid storage capacity is estimated for some projects, and that value is only included starting in 2020. Wind capacity includes onshore and offshore for all years, but offshore is only broken out starting in 2020.
Notes: (1) Hybrid generation capacity is included in all applicable generator categories. (2) Not all of this capacity will be built.



And America's grid is [having trouble dealing with the renewables boom](#). A new Lawrence Berkeley National Laboratory report has found that there's active corporate interest in building [1,300 megawatts' worth of new solar, wind, and energy storage capacity](#)-enough to give the US 80% clean electricity by 2030! That's incredibly awesome news-but only 13% of those proposed projects have signed interconnection agreements which guarantee them a slot to hook up to the grid. Many projects are ready to build but waiting in line-sometimes for years-for a

chance to get connected. The mid-Atlantic utility PJM has over 1,200 backlogged projects, mostly solar, already-and those aren't counted in the 1,300 megawatts above, they're projects that already *have* interconnection agreements approved but just haven't gotten their due yet. To get those done, PJM won't be accepting new applications until 2025! ([Pictured above](#), a figure from the report showing the breakdown by region of the 1,300 megawatts of proposed new renewables projects, plus some gas).

The American grid has become the chokepoint for decarbonization, and [seriously needs an upgrade](#), with analysts estimating that billions of dollars in investment in new power lines and other transmission infrastructure will be required. [Bipartisan Infrastructure Law funds are helping modernize the grid somewhat](#), but most power lines, unlike roads and bridges, are privately owned, so action from the utilities is needed. Fortunately, [FERC is currently in the throes of a rulemaking process](#) that should require transmission line owners to make new reforms, including cooperating on 20-year long-term planning to increase transmission cost-sharing and long-distance interconnectivity. This grid stuff is quite complicated, but it's increasingly becoming pivotal to the future of renewable energy in America-and lots of people are striving to make it work!

There's plenty more good news, too. The Republican-dominated **Florida** state legislature recently passed a bill that would have devastated the rooftop solar industry in the state by cutting the rate solar homeowners get paid for their contributions to the grid from 11 cents per kilowatt-hour to 2 cents per kilowatt-hour. However, in an uncharacteristically non-destructive move, arch-conservative Governor Ron DeSantis [vetoed this bill](#) on the grounds that it would contribute to inflation, thus sparing the Florida solar industry. One less thing to worry about in for the sunshine harvesters of the Sunshine State!

Washington State just [imposed the strongest building electrification rules in the nation](#), with the little-known Building Code Council ruling that new commercial buildings must use electric heat pumps for space heating instead of gas (in most cases) starting in July 2023. This is pretty esoteric, but really helpful!

US electric vehicles sales rose 76% in Q1 2022, doubling their market share to 5.2% versus 2.5% in Q1 2021. They [notably outperformed the overall automotive sector](#), which saw a 15.6% drop in sales that quarter. And that's all before the [highly anticipated Ford F-150 Lightning electric pickup truck](#) goes on sale later this year!



And the Department of Energy [made a \\$504.4 million conditional loan guarantee](#) to the **Advanced Clean Energy Storage (ACES Delta)** green hydrogen project, to be built by Mitsubishi Power among others. Located in Delta, **Utah**, this planned facility would use renewable energy to power 220 megawatts of electrolyzers splitting hydrogen atoms off water molecules. It would produce up to 100 metric tons of hydrogen a day, and store the result in Delta's huge underground salt caverns. ([Pictured above: artist's rendition](#)). Capacity is high, potentially storing enough hydrogen to generate 300 gigawatts of electricity. A local coal plant that supplies power to distant Los Angeles is now being converted to burn a mix of natural gas and hydrogen in expectation of a steady supply from the ACES project, with a plan to shift to 100% hydrogen by 2040. Furthermore, the Western Green Hydrogen Initiative, an alliance of 11 states, two Canadian provinces, and a plethora of companies, hopes that these projects will become the nexus of a [West-spanning hydrogen network](#).

This sort of thing is why a lot of people are really excited about [the massive electrolyzer technology improvements and cost decreases](#) that have occurred recently: it allows renewable energy to be essentially "stored" as easily transportable, clean-burning hydrogen, adding a new method of energy storage alongside batteries and pumped hydro plus granting long-distance portability if needed without the grid connection hassles discussed above.

In sum, the incredible clean energy revolution continues! Even the problems that are coming up are fundamentally good problems to have: there's so many people wanting to build renewable energy so fast that the grid's having trouble fitting it all in! The next few decades will see extraordinary progress.



The Weekly Anthropocene

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