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## BUSINESS

# Investors Plow Into Renewables, but Projects Aren't Getting Built

Potential \$40 billion spending spree for renewable-energy projects hits slowdown in wind and solar installations



By *Jennifer Hiller* [Follow](#) | *Photographs by Sergio Flores for The Wall Street Journal*

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Even as developers plan an unprecedented number of grid-scale wind and solar installations, project construction is plummeting across the U.S.

Despite billions of dollars in federal tax credits up for grabs and investors eager to fund clean energy projects, the pace of development has ground to a crawl and many renewables plans face an uncertain path to completion. Supply-chain snags, long waits to connect to the grid and challenging regulatory and political environments across the country are contributing to the slowdown, analysts and companies say.

New wind installations plunged 77.5% in the third quarter of 2022 versus the same period the year before, according to S&P Global Market Intelligence. New utility-scale solar installations likely fell 40% in 2022 compared with 2021, according to a report from the Solar Energy Industries Association and research firm Wood Mackenzie.

The decline belies enormous demand for renewable projects. The industry is ready to launch a would-be building spree after last year's spending and climate law, the Inflation Reduction Act, extended and increased tax credits for wind and solar projects and introduced new incentives for green hydrogen and battery storage for the electric grid. The success of the IRA, the Biden administration's climate targets and many state decarbonization plans hinge on adding massive amounts of renewable energy into the grid.



A technician exiting a wind turbine at the recently completed wind farm outside Goldthwaite.



Swift Current Energy finished building dozens of wind turbines in the area.

More than \$40 billion in wind, solar and battery projects were announced in three months late last year —as much as the total clean-energy investment for all of 2021, according to the industry group American Clean Power Association. Large corporations with climate targets are among the most eager buyers of green power, contracting for enough wind and solar capacity last year to power more than 1,000 data centers.

“Ten years from now there’s going to be a huge shift in the landscape where there is going to be a significant amount of electricity coming from renewables,” said Matt Birchby, president of renewable-project developer and owner Swift Current Energy LLC. “But getting from A to B is inherently going to be messy.”

Supply-chain and trade issues have complicated planning. Average lead times for securing high voltage equipment have risen from 30 weeks to more than 70, Mr. Birchby said.

Sourcing solar panels has turned into the stuff of spy stories as companies try to avoid running afoul of trade regulations and navigate risks and complications of global shipping. “You almost feel like you’re in a Tom Clancy novel,” Mr. Birchby said. Swift Current Energy has contracted to purchase nearly \$1 billion in American-made solar panels, he said.

Efforts to create a domestic solar supply chain to meet U.S. project demand are expected to take a few years. Meanwhile, panel imports, 80% of which come from Chinese and other Asian makers, have slowed following U.S. legislation aimed at cracking down on labor abuses in China. Several thousand shipping containers of solar panels have been detained by U.S. Customs near ports such as Los Angeles, according to some estimates.

The wind industry has struggled to overcome pandemic-related supply-chain and logistics challenges in delivering its massive equipment, but uncertainty over the details of federal tax policy has been a significant factor slowing installations. Companies are waiting on Treasury Department guidance to outline the specifics of how a project can qualify for tax credits in the Inflation Reduction Act.

Even in battery storage, an industry which saw more installations in 2022, supply-chain problems have slowed some construction plans by as much as a year, developers say.

A bigger unknown is the time and cost to get new batteries or solar or wind farms connected to the grid, as grid operators and interconnecting utilities must study the projects' likely impact on the power system and any needed network upgrades before signing off on them.



Construction of the Western Spirit Wind project in New Mexico.  
PATTERN ENERGY



A turbine component en route to the project.  
PATTERN ENERGY

Caitlin Smith, senior director of regulatory, external affairs and ESG at Jupiter Power, which develops standalone-battery projects, said she has seen connection estimates stretching out as far as 2032 in some markets. For another project, “we just heard crickets for two years,” she said, to schedule a first meeting with grid officials.

Part of the issue is that more projects enter the interconnection process than will realistically be built, said Rich Hossfeld, co-CEO of SoftBank Group’s SB Energy Corp., which has 1.7 gigawatts of renewable power operating in the U.S. and 1.3 gigawatts under construction this year.

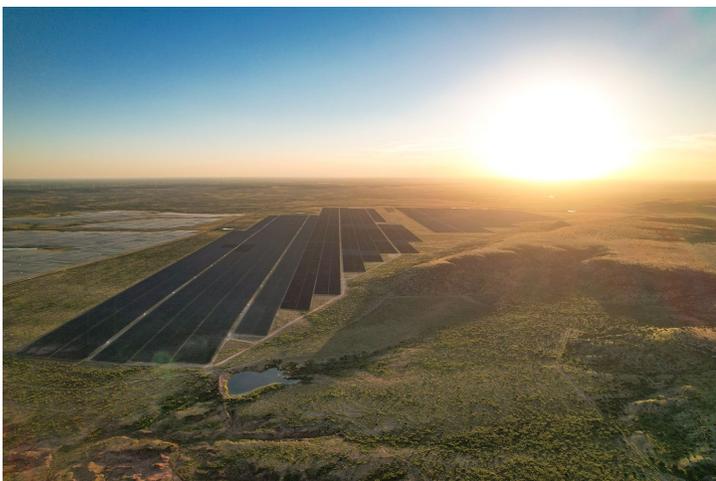
“It’s a little bit like land speculation where there’s low barriers to entry. Developers can accumulate very, very large interconnection positions at a low cost,” Mr. Hossfeld said.

Grid operators have been overwhelmed by requests, and several are trying to overhaul their processes. There were around 8,100 projects in line in the U.S. in 2021, up from 5,600 in 2020, each requiring a technical review. Interconnection wait times rose to about 3.7 years for projects delivered between 2011 and 2021, up from around 2.1 years for projects built in the decade prior, according to a study last year by Lawrence Berkeley National Laboratory.

Inflation can chip away at a project’s economics as it sits in line before construction begins. “It does lead to all these uncertainties if you enter the queue and have to kind of wait around three-plus years before getting an interconnection agreement,” said Joe Rand, senior scientific engineering associate at the national lab and lead author of the study.

Just 23% of the power-generation projects seeking grid connection from 2000 to 2016 were ultimately built. Completion rates were even lower for wind, at 20%, and solar at 16%. Around 19 gigawatts of wind and more than 60 gigawatts of solar were withdrawn from interconnection processes in 2020 and 2021, according to the national lab.

The certainty of securing local permits also varies market by market, even within the same state, along with the willingness of a community to welcome large renewable energy projects, Mr. Rand said.



An SB Energy Corp. solar project in Borden County, Texas.

PHOTO: SB ENERGY

Write to Jennifer Hiller at [jennifer.hiller@wsj.com](mailto:jennifer.hiller@wsj.com)

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