

Some notable excerpts from the article that highlight the pace of expansion in renewables facing headwinds from supply chains, regulatory/government, uncertainty of completion, grid considerations, inflation etc:

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.

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...

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.

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.

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

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.

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. - WSJ