

U.S. Solar Power Manufacturing Boom is Going Strong



Nearly 12 gigawatts of new solar module manufacturing came online domestically during the first quarter of the year.

The nation's solar industry installed 11.8 gigawatts-direct current (GWdc) of capacity in the first quarter of 2024, according to [U.S. Solar Market Insight Q2 2024](#). Created by the Solar Energy Industries Association (SEIA) and Wood Mackenzie, the report estimates that total U.S. solar module manufacturing capacity now exceeds 26 gigawatts annually.

According to SEIA, the utility-scale segment had a “remarkable quarter,” putting 9.8 GWdc of projects in the ground—more than the annual total for this segment as recently as 2019. Overall, photovoltaic (PV) solar accounted for 75% of all new electricity-generating capacity additions in the first quarter of 2024, remaining the dominant form of new generating capacity in the U.S.

The distributed solar segments posted mixed results. For example, residential solar shrank by 25% year-over-year as the segment continued to struggle with high interest rates and the transition to net billing in California. With 1.3 GWdc installed, it was the segment's lowest quarter since Q1 2022, the report explains.

The commercial and community sectors were relatively flat year-over-year, installing 434 MWdc and 279 MWdc, respectively. “The commercial sector is diversifying – newer states are growing but are offset by declines in mature markets,” SEIA says. “Community solar relies heavily on the creation of new state programs and policies to generate growth in new markets.”

While there's been progress on legislation in several states, SEIA says new policies have been “slow to cross the finish line.” Furthermore, the promise of future market growth in California was impacted by a recent decision by the California Public Service Commission (CPUC) to reject a proposed new program.

Off to a Running Start

According to [Wood Mackenzie](#), the first quarter of the year was the second-best quarter ever for the industry, other than the last quarter of 2023.

“After achieving record installation growth in 2023, we expect the US solar industry to add a similar amount of capacity in 2024,” the company states. “While we do not expect growth this year compared to 2023, the US solar industry will add nearly 40 GWdc of installed capacity, double the market size from just two years ago. Our 2024 outlook reflects mixed trends across segments.”

For example, it expects the residential solar market to shrink 14% year-over-year as California residential volumes decline by nearly 40% due to the net billing transition. While solar-plus-storage installations are on the rise, it adds, this doesn't compensate for the declines in standalone solar. “Overall residential sector growth outside of California is expected to be flat as higher financing rates continue to challenge residential solar sales,” Wood Mackenzie predicts.

What's Coming Next?

After 23% growth in 2023, commercial solar is expected to increase by 14% this year, primarily driven by growth in California and Illinois. “While this might seem counter to the declines in residential solar installations in California,” the company explains, “commercial solar is experiencing the same dynamics but on a delayed timeline due to longer development cycles.”

Wood Mackenzie says community solar growth will slow to 4% this year after increasing 10% last year. States like Illinois and Virginia are expanding on the community solar front, it adds, but “growth has slowed in more mature markets, and new state programs have been slow to form.”

Finally, the company expects utility-scale solar growth to remain flat in 2024 and 2025. “The pipeline is strong,” it points out, “but buildout is being suppressed by a lack of labor availability, high voltage equipment constraints, and continued trade policy uncertainty, among other headwinds.”

The market is also highly competitive. Industry giants are adopting product expansion strategies such as mergers and acquisitions, Fact.MR reports, while mergers and acquisitions help companies increase their product offerings and market reach. For instance, Infineon Technologies AG recently announced the acquisition of GaN Systems Inc., and Flosfia began offering next-gen power chips made from gallium oxide.

Overall Outlook Remains Positive-But-Cautious

The broader semiconductor market has been through some ups and downs lately as the sector emerged from the pandemic, shook off the impacts of the global shortage and caught up with demand for certain products. According to [KPMG's Semiconductor Industry Confidence Index](#), the current score of 54 is similar to that of 2023, with a value above 50 indicating a more positive outlook than negative.

According to KPMG, 83% of semiconductor leaders project their company's revenue to grow in 2024, which is in line with last year's 81%. However, the rate-of-growth projections are slightly lower. This year, four in 10 leaders expect revenue growth of more than 10 percent. While still healthy, a full half of respondents (5 in 10) felt this way last year.

Automotive topped the survey as the most important application driving semiconductor company revenue, with wireless communications coming in second and cloud/data centers and the Internet of Things tied for third place on organizations' top list of revenue drivers in 2024.