Renewable supply chain concerns shift to electrical equipment, Edison Energy’s Q4 Global Renewables Market Update finds

Long lead times push developers to stockpile breakers and transformers; most are expected to remain untouched when solar import tariff moratorium ends in June

IRVINE, CALIFORNIA, USA, January 24, 2024 /EINPresswire.com/ -- Solar panels and wind turbines had been central to renewable energy supply chain worries, but that changed in Q4 as concerns grew over the availability of high-voltage equipment such as breakers and transformers, according to Edison Energy’s Q4 Global Renewables Market Update. (Edison does business in Europe as Altenex Energy and Alfa Energy.)

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> *Edison Energy's 2023 Q4 Global Renewables Market Update*

Balance-of-plant equipment such as transformers previously had lead times of several months to a year, but now are cited at up to 3 years. Breakers, which previously had lead times of 10-40 weeks, now require 60-80 weeks or more. And, in some cases, lead times for medium-voltage equipment have more than doubled.

In response, developers are adopting a preemptive strategy of securing such high-voltage equipment well in advance, even stockpiling it to ensure future supply. However, stockpiling can be expensive, as needs differ greatly from project to project.

More broadly in Q4, solar developers noted a break in module supply constraints, largely because of President Biden's 2022 executive order that provided a two-year safe harbor period on new import duties on panels originating from Cambodia, Malaysia, Thailand, and Vietnam.

Developers who previously struggled to source solar panels now say they have been able to sign long-term supply agreements with manufacturers. Those same developers said they also expect to be unaffected by tariffs once the safe harbor period ends this June 7.

Domestic solar supply concerns

Despite the relief in the panel supply crunch, concern remains that the projected jump in domestic solar manufacturing may fall short of expectations.

Dozens of planned manufacturing facilities were announced in the U.S. after the Inflation Reduction Act became law in 2022. However, Wood Mackenzie now predicts that just 52% of the roughly 112 GW of planned capacity will be operational by 2026. If a domestic manufacturing shortfall emerges, then a flood of lower-cost imports could prove to be a market driver.

Wind manufacturing stagnation

The North American wind turbine supply chain was relatively stagnant in Q4. Global supplier Siemens Gamesa continued to face turbine quality issues, and indicated that it has restricted sales, potentially limiting supply.

In a move that may improve reliability and lower costs in the intermediate- and long-term, Siemens Gamesa and Vestas formed a partnership, aided by Energy Cluster Denmark, to drive standardization across the industry. Initial efforts appeared to focus on the offshore wind sector (specifically with transporting turbines). However, efficiency gains across the broader wind sector are likely.

Emission targets drive VPPA activity

Strong demand for Virtual Power Plant Agreements (VPPAs) continued among U.S. commercial and industrial buyers, particularly with 2025 and 2030 emission targets approaching.

Demand also rose for retail-delivered renewables, making it increasingly clear that the path to cost-effective carbon reductions for corporate buyers will likely require both a portfolio approach and creative thinking.

At the same time, recently released IRS guidance outlined key aspects of tax credit transferability. Tax credits are expected to become a major contributor to clean energy project finance as they unlock previously inaccessible funding sources.

REC prices decline, skip PJM

U.S. National Renewable Energy Credit (REC) prices fell in Q4. However, prices in the mid-Atlantic and Midwest PJM grid held largely steady.

Nationally, prices began their decline at the end of Q3, with 2023 vintages valued at around $2.25 at the end of December. Prices had hit a 5-month high in late September at $3.15. And they had been as low as $2.20 in mid-November.

Meanwhile, 2024 vintages posted an even steeper fall, with RECs trading at $3.00 at the end of 2023. That was down from their September high of $3.80.

Edison Energy has transitioned from publishing median pricing to P25 pricing, which refers to the 25th percentile of relevant bids offered in the quarter. Wind PPA price trends were not reported this quarter due to insufficient data.

ERCOT's P25 and P50 solar PPA prices continued to moderate for the third quarter in a row. Both prices fell around 2% ($1) during Q4, and showed signs of stability after dramatic increases in 2022. Just $19 separated ERCOT's highest and lowest PPA prices in Q4, indicating an unusually narrow price range as inventory across Texas fell around the holidays.

Meanwhile, PJM's median solar price topped $80 for the first time, climbing 7% ($5) to reach $80.45 in Q4. The P25 solar price rose by 3% ($2). A combination of interconnection costs, queue delays, and regulatory challenges put upward pressure on PJM prices, making it the only market that did not see any price decrease through 2023.

MISO's solar P25 price rose 5% ($3) in Q4 for its largest change since Q1 2023. Some of the gain comes from Minnesota Hub, which posted moderate project price increases during Q4, even as other low-priced Minnesota Hub projects were no longer available.

Solar prices across the Southwest's SPP grid also moderated, with the P25 price up $2 and the median price down $5 from Q3. Similar to ERCOT, SPP solar prices were largely stable in 2023 and remained below their peak in Q3 of 2022.

C&I demand remains strong

With 2025 emissions targets approaching and 2030 goals quickly following, Virtual Power Plant Agreement (VPPA) demand showed no signs of easing among Commercial & Industrial customers. And alternative carbon reduction strategies also gained traction.

The VPPA structure remains a key carbon reduction tool because its single contract is able to cover much of an offtaker's electricity demand across diverse regions.

Pricing in ERCOT was more favorable than in other markets, and VPPAs there are expected to settle at a cost to offtakers. Many first-time corporate buyers flock to ERCOT, driven by economics, flexibility in terms, and project supply. However, other markets have become more competitive in recent years. As a result, VPPA buyers who have focused on ERCOT may want to

adopt a more diversified geographical approach, targeting other regions and energy markets.

Perhaps as a result of VPPA market competition, demand also has increased for alternatives such as retail-delivered renewables. These have proven effective for buyers with sizable energy loads in a single market. Retail-delivered renewables offer long-term budgetary certainty, enhancing interest in the approach.

Onsite solar, located at a customer's site and offering cost-saving benefits associated with net-metering programs, also may see growth as a supplement both to VPPAs and retail-delivered renewables.

Given the current environment and available renewable products, it is increasingly clear that the path to cost-effective carbon reductions for corporate buyers will likely require a portfolio approach; a magic bullet is unlikely in the current market and creative thinking will be needed.

Follow the link to read more details in Edison Energy's full Q4 Renewables Market Report.

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