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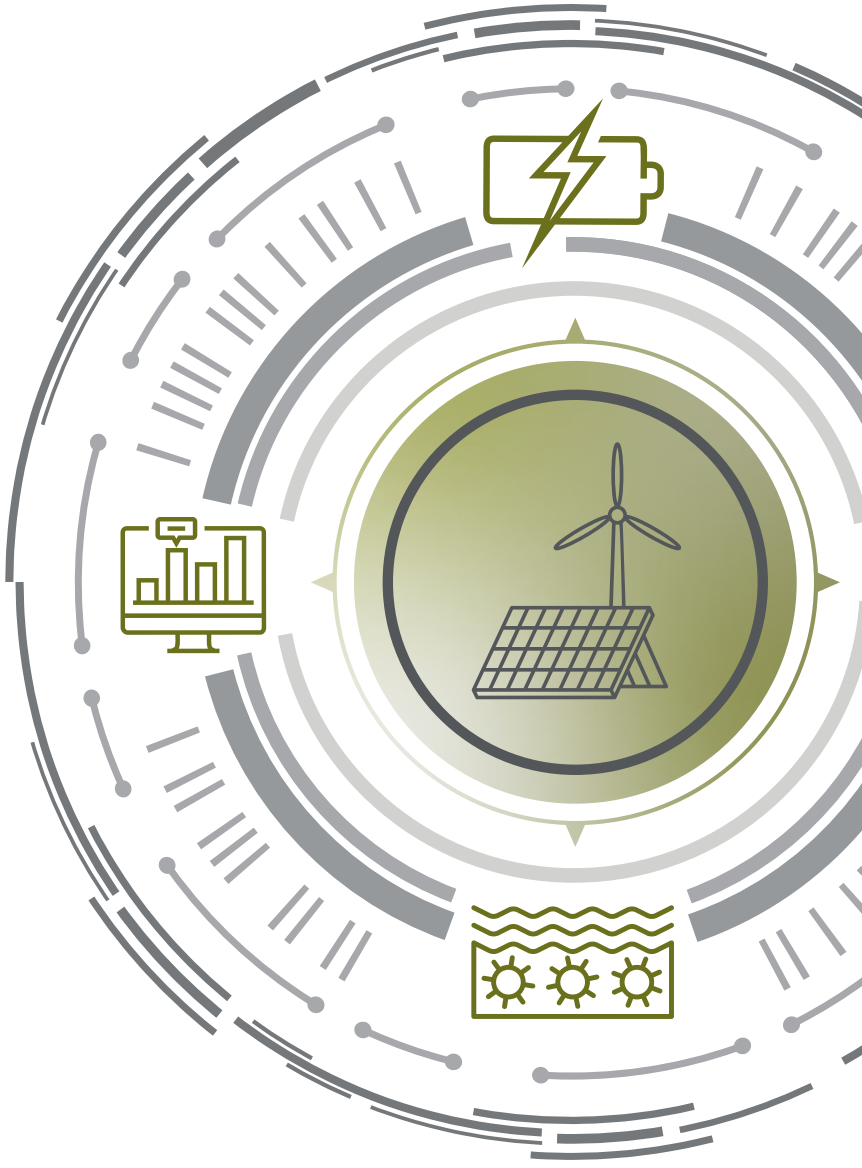
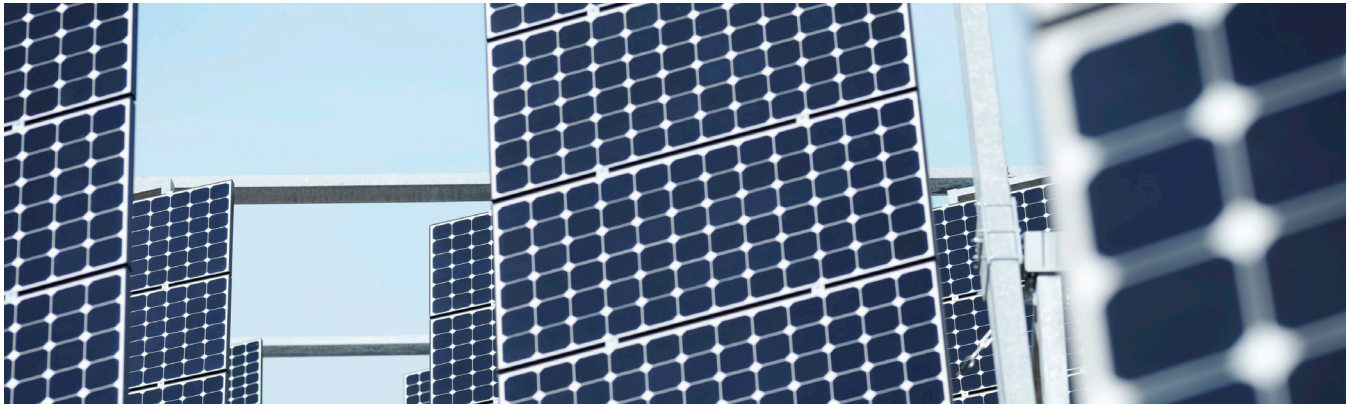


MIDYEAR OUTLOOK

2020 renewable energy industry outlook

At the end of 2019, we produced our 2020 outlook for the renewable energy industry. Given the disruption and impact caused by COVID-19, we've evaluated the key trends, challenges, and opportunities that may affect your business and influence your strategy for the remainder of 2020. Check out our midyear trends:



Despite challenges, renewable energy industry's long-term growth trajectory appears intact

As the full force of the COVID-19 pandemic hit the United States in March, the Energy Information Administration's (EIA) projections for utility-scale wind and solar energy capacity installations in 2020 stood at nearly 34 gigawatts (GW), surpassing previous annual records set in 2012 and 2016 respectively.[1] The declining costs and rising capacity factors of renewable energy sources, along with the increased competitiveness of battery storage, had set the stage for continued rapid growth of renewable energy. But shelter-in-place orders, labor constraints, and supply chain disruptions have slowed this growth trajectory in the near term. The wind and solar industries have seen almost 100,000 job losses since March, in stark contrast with their record as being two of the fastest-growing employment sectors over the past decade.[2] Losses are projected to reach about 20 percent of the industry's workforce soon, comparable to losses in many other sectors.[3]

Although the industry is still grappling with the full impact of this pandemic, the outlook is changing rapidly. As the virus spread in April, the EIA revised its annual wind and solar installation forecasts down to 32 GW, cutting the wind forecast by 5 percent to 19.4 GW and the solar forecast by 10 percent to 12.6 GW.[4] By June, the 2020 combined forecast was back up to 35.8 GW, as rapidly evolving circumstances prompted an upward revision to the wind forecast to 23.2 GW and no change to the solar forecast.[5] These fluctuations underline the current uncertainty about growth, especially in the short term.

While tracking the industry's response to this uncertainty, there are three key trends we are watching: market transformation, grid resiliency, and innovation and collaboration. Despite significant short-term headwinds, the long-term outlook for the renewable energy industry remains positive as it builds on the massive economies of scale achieved over the past few years.

1

Market transformation

Renewables' low costs will likely continue to usher in a new era of competition, intensified by COVID-19 impacts

As shutdowns to control the spread of the novel coronavirus have led to a decline in electricity consumption and changes in demand patterns, with the EIA forecasting a 5.7 percent decline in electricity consumption this year, renewable energy sources have consistently accounted for a higher share of power generation due to their near-zero marginal costs.[6] As of mid-June 2020, daily electricity demand has fallen in the range of 2 to 17 percent year over year, with considerable regional variation.[7] During the same period, wind and solar energy's share in total US generation has continued to rise, averaging 12 percent compared with 10 percent in 2019.[8] Interestingly, renewable energy sources beat coal in the generation mix each day for 116 days, including a stretch of 63 consecutive days, compared with 39 days and just a nine-consecutive-day stretch in 2019.[9]

Most power system operators are managing increased shares of wind and solar power, making the pandemic a good test case for future grid reliability with higher renewable energy penetration. Recent tests conducted in California show that simple operational upgrades and market redesigns can allow wind power plants to provide ancillary services, appearing to improve their economic case for higher penetration in the future.[10]

As the pandemic continues to unfold in the second half of 2020 and utilities face revenue challenges, solar and wind plants will likely continue to be operated more than costlier fossil-fuel plants. Further, as weak coal plant economics continue to trigger early retirements,[11] renewables' role will likely expand. Many states are already making sustained progress on that path.[12] For example, Virginia recently passed legislation mandating a 100 percent renewable portfolio standard by 2050.[13] In addition, despite being the epicenter of the COVID-19 outbreak, New York passed measures in April to speed up the siting and construction of clean energy projects in its 2020–21 budget.[14]

2

Grid resiliency

Focus on grid resilience continues to drive renewables and storage

Utilities often prepare for the worst-case scenarios while planning, but, due to the unprecedented COVID-19 pandemic, utilities must consider workforce logistics, employee health and safety, operations, and supply chains, among other issues. In addition, there is currently an additional layer of pressure on the US electric grid to maintain and even boost resiliency. As a result, utilities and their customers are expected to continue deploying microgrids, often including solar and storage, to help ensure power continuity.[15]

While COVID-19 will likely have a short-term impact on the financing and construction of battery storage projects, long-term demand will likely continue to be strong. With rising renewable production, matching the supply of abundant renewable generation with energy demand would require long-duration bulk storage to maintain reliable grid service. The high levels of solar and wind curtailment in some areas of the United States seem to make a strong case for pairing renewables with storage.[16] About 46 percent of the storage projects slated to come online in 2020 are solar-plus-storage.[17] And the pandemic has not stopped new projects from being added—on May 11, the US Department of the Interior approved a combined 690 MW solar and 380 MW storage project.[18]

As noted in our previous outlook,[19] building resiliency into the grid from the "bottom up," or customer sites, has been a key trend over the years, mainly due to falling solar and battery prices. However, this opportunity may be muted in the short term as people practice "social distancing," and consumers' current economic uncertainty may cloud the intermediate-term outlook. In fact, the EIA's nonutility* solar installation forecast for 2020 in June was 29 percent lower than its March forecast (4.4 GW).[20] To overcome social distancing challenges, many residential solar developers are increasing remote interactions using digital permitting and interconnection procedures, as well as drones to remotely survey sites.[21] In May, the National Renewable Energy Laboratory released a pilot of its Solar Automated Permit Processing app, which can deliver instant online solar permits.[22]

* Includes commercial, residential, and industrial solar plants.

3

Innovation

New types of collaborations likely while many stakeholders adopt a wait-and-see approach

Corporations have contributed significantly toward driving renewable energy demand, and many have made voluntary commitments to transition to 100 percent clean energy. This has led to interesting collaborations in the sector, with an expanding pool of companies spearheading renewable procurement deals in recent years. This continued in the first quarter of 2020, and as of late April, companies announced deals for at least 1.76 GW of renewable capacity.[23] However, the current pandemic has slowed this activity, and renewable procurement deal activity is also subdued.[24] Future activity will depend on how corporations perform in their core businesses. With renewables' rising cost-competitiveness, in some cases, it might make a better economic case for investing in them. We will continue watching future activity among corporate buyers, especially as large tech players continue fulfilling their commitments to sustainability.[25]

Faced with supply chain bottlenecks and multiple projects receiving *force majeure* notices from suppliers,[26] renewable developers are likely to seek new collaborations to diversify their supplier base and add flexibility. Further, smaller, less capitalized developers are likely to restructure projects to better handle delays and additional costs or look for opportunities for consolidation or outside investors.

Finally, utilities are collaborating with energy contractors to provide them with technical training to better prepare for the post–COVID-19 environment. For example, Public Service Enterprise Group (PSEG) Long Island is offering several programs to support contractors, engineering firms, and consultants providing customers with green energy services.[27]

Second half of 2020: Moving ahead one step at a time

The latter half of 2020 could be crucial for the short-term renewable energy pipeline, which will depend on how the pandemic situation unfolds. However, continued state commitments to clean energy, renewables' competitive costs, and mature technologies will likely ensure long-term growth.

The US Treasury's extension of the safe harbor provision for the wind Production Tax Credit and solar Investment Tax Credit will provide some relief to wind and solar plants struggling with construction delays due to the pandemic.[28]

Going forward, we will also be watching the president's recent executive order banning transactions for electric equipment sourced abroad, if the US government determines they pose undue security risks, and its impact on the renewable energy industry.[29]

Let's talk

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