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2020 renewable energy industry outlook

Renewable energy industry primed for continued growth

For the first time ever, in April 2019, renewable energy outpaced coal by providing 23 percent of US power generation, compared to coal's 20 percent share.[1] In the first half of 2019, wind and solar together accounted for approximately 50 percent of total US renewable electricity generation, displacing hydroelectric power's dominance.

Declining costs and rising capacity factors of renewable energy sources, along with increased competitiveness of battery storage, drove growth in 2019. In the first half of the year, levelized cost of onshore wind and utility-scale solar declined by 10 percent and 18 percent, respectively, while offshore wind took a 24 percent dip.[2] The greatest decline was in lithium-ion battery storage, which fell 35 percent during the same period.[3] This steady decline of prices for battery storage has begun to add value to renewables, making intermittent wind and solar increasingly competitive with traditional, "dispatchable" energy sources.

The renewable energy sector saw significant demand from most market segments as overall consumer sentiment remained positive. Renewable energy consumption by residential and commercial customers increased 6 percent and 5 percent, respectively, while industrial consumption declined slightly, by 3 percent, through June 2019 compared with the previous year.[4] As in 2018, US corporate renewable energy contracts once again hit new levels, as corporations signed power purchase agreements (PPAs) for 5.9 gigawatts (GW) of renewable energy in the first half of 2019.[5]

The prospects for short-term solar and wind energy growth appear favorable, with about 96.6 percent of net new generation capacity additions (~74 GW) expected to come from these two resources in 2020.[6] With several states increasing their renewable portfolio standards (RPS) in 2019, the industry will likely see mandatory RPS-driven procurement growth through the mid-2020s, while voluntary demand will continue to hit new levels. As of late 2019, at least 10 utilities have announced 100 percent decarbonization goals, and we'll be watching for that list to grow in 2020.[7]

Moving into 2020, companies in the renewable energy industry should be mindful of a few caveats that could impact renewable energy growth. Under current policy, eligibility for the Production Tax Credit (PTC) for new wind build expires and the solar Investment Tax Credit (ITC) stepdown starts in 2020, both of which have been key drivers for wind and solar growth in the US renewable energy market.

While the wind industry did not request extension of the PTC before it expires next year,[8] it has requested that solar energy's ITC be extended to wind projects.[9] The solar industry, however, did request an ITC extension. In July 2019, both houses of Congress introduced legislation to extend the solar ITC for five years at its full 30 percent value.[10] We'll be watching to see if this becomes law by yearend or is taken up again in 2020, and whether wind will be included. For sectors that have worked together toward a cleaner energy mix, taking separate paths would likely create new industry dynamics.

We will also be watching US tariff policies throughout 2020. Solar developers are optimistic, since imported panel costs have fallen rapidly and are likely to offset the impact of existing tariffs by the end of 2019.[11] That's good news for growth as long as new tariffs are not imposed. However, the US government expanded tariffs on Chinese imports, most recently including bifacial solar modules, and is considering increasing tariff amounts.[12] The wind industry expects record growth for 2019–2020 before the PTC phaseout, but we're keeping an eye on recently proposed tariffs on imported wind towers from several countries. If these tariffs are imposed on top of existing tariffs on towers and other equipment from China—and existing multicountry steel tariffs—the upward pressure on prices could stymie some new projects.[13] Overall, the decline in wind and solar construction costs—weighted project costs fell 13 percent and 37 percent, respectively, between 2013–2017—will likely help cushion the impact of tariffs on imported components.[14]

1

Market transformation

Renewables' costs competitiveness ushers in a new era of competition

Overall flat US electricity load growth, rapidly declining renewable energy costs, and maturation of energy storage are increasing competition between traditional and renewable energy resources, as renewables compete to replace retiring coal capacity and aging gas and nuclear plants. In fact, some state regulators have hesitated to approve investments in nonrenewable capacity additions, fearing these investments could become stranded, uneconomic assets in the future. Instead, they often favor renewables, storage, and DER as replacements for retiring plants. In April 2019, Indiana regulators rejected Vectren's proposal to replace a baseload coal plant with a new 850 MW natural gas–fired power plant and are pushing the utility to consider renewable alternatives and storage.[15]

In 2020, this competition will likely evolve further to encompass not just renewable versus traditional resources, but also renewables in competition with each other. Currently, in many areas of the United States, the levelized cost of energy for onshore wind is less than for utility solar photovoltaic (PV). However, costs for solar have been declining faster than wind recently; and, as the federal PTC for wind steps down in 2020 while solar still enjoys the ITC benefit, solar could become increasingly cost-competitive with wind. As a result, in 2020 and beyond, some wind-only customers will likely diversify and build a mixed portfolio of wind, solar, and storage to fulfill commitments.

2

New opportunities

The door is ajar for new offshore wind opportunities and may open wider in 2020

After a spate of state and federal policy initiatives sparked the US offshore wind industry in 2018–2019, several new offshore projects were announced and development appears poised to take off. But there may be more hurdles to jump as the industry moves into 2020. A large commercial project slated for development has hit a snag in the approval process that will likely delay it further and could potentially impact the schedules of those waiting behind it. As they await final project approvals, industry stakeholders are taking the next steps to further develop the US offshore wind industry.

The 84-turbine, 800-megawatt Vineyard Wind project is the first large, utility-scale offshore wind project scheduled for development in the United States. The $2.8 billion project, backed by Copenhagen Infrastructure Partners and Avangrid Renewables, has received most of the required permits, lined up a power purchase agreement, and was expected to begin construction by yearend 2019.[16] However, the US Bureau of Ocean Energy Management announced it will conduct a supplemental Environmental Impact Statement, which it anticipates completing in late 2019 or early 2020. About 25.8 GW of offshore wind capacity is currently in the US development and operational pipeline.[17] If Vineyard Wind is approved in the new year, the door will likely open wider for other projects to proceed.

In that case, US-European partnerships may prove to be just the right recipe for taking US offshore wind development to the next level in 2020. US and European entities are forming joint ventures (JVs) that combine complementary knowledge and skillsets. While US firms typically bring domestic credentials, such as their deep knowledge of local markets and regulatory systems, their European partners often bring a wealth of experience and expertise in offshore wind technology. Three of the four bidders on New York state's first offshore wind project were JVs between US and European entities.[18]

As they work to obtain project approvals, developers and other industry stakeholders are also taking the next steps, focusing on expediting project execution, optimizing supply chains, improving efficiencies, and developing requisite skills. Optimization of the supply chain could help minimize costs associated with developing offshore wind farms, creating opportunities for renewable energy companies. East Coast states, such as New York, Connecticut, and Rhode Island, are contending for greater roles in the emerging offshore wind industry for their port infrastructure, industries, and workers.[19]

In 2020, the industry will likely continue to boost efficiency with larger turbines, taller towers, and longer cables. And in the deeper waters off the US West Coast, developers are pursuing the next frontier in offshore wind: floating offshore turbines. The US Department of Energy recently announced $28 million in funding for new floating turbines.[20] Finally, about 43,000 new jobs will likely be created in the offshore wind industry by 2030,[21] and the industry is committing resources to prepare the new workers. For example, New York state has committed $15 million toward training its local workforce and building port infrastructure.[22]

3

Grid resiliency

Growing resiliency imperative may mean an increasing role for renewables and storage

The increase in severe weather events across the country, from hurricanes and floods to wildfires, has caused longer duration outages and growing demand for resiliency. In 2018, excluding major events, the average US electricity customer experienced one outage and lost power for 142 minutes. Adding major events to the equation boosts those numbers to 1.6 outages and 327 minutes without power.[23] California's recent wildfire threat and the associated power shutdowns have increased pressure on utility companies to boost resiliency on the West Coast in particular. And in 2020, we expect to see utilities and their customers across the country increasingly turn to microgrids, often including solar and storage, to support critical facilities. Reconstruction efforts in the wake of Hurricane Maria in Puerto Rico are also focusing on using DERs to build in resilience.[24]

The rapid growth of DERs such as solar PV, batteries, and microgrids has introduced new technology options that support grid resiliency. These technologies enable building resiliency into the grid from the "bottom up," or customer sites. In fact, storage has started to play a critical role in resiliency as more homes and businesses have increased energy storage installations in the United States. In the first half of 2019, behind-the-meter installations were up 72 percent from the previous year.[25] Although they're falling rapidly, battery storage prices are still a concern. But there are efforts to make battery storage more competitive. In April 2019, lawmakers introduced the Energy Storage Tax Incentive and Deployment Act of 2019 in the US House and Senate. The legislation would make standalone energy storage eligible for the ITC by itself, rather than qualifying only when part of a qualified solar facility.[26]

While utilities have focused primarily on hardening the grid from the "top down" by investing in large grid–scale projects such as upgrading towers, poles and wires, and elevating substations, combining this strategy with the bottom-up approach could provide a more balanced formula for achieving greater grid resiliency.

Regulators and utilities are increasingly on board with DERs playing a pivotal role in grid resiliency. ComEd is installing the first utility-operated microgrid cluster that uses solar PV and energy storage to enhance resilience in a Chicago community.[27] And regulators are increasingly allowing utilities to rate-base microgrids by treating them as a nonwire alternative approach that can help avoid costly upgrades of transmission and distribution system equipment.[28] We'll look for additional regulatory moves in this direction in 2020.

4

Innovation

Collaboration is key to innovation in the renewable sector

In recent years, an expanding chorus of stakeholders has called for a rising role for renewable energy as a share of electricity consumption and production. Cities, states, corporations, residential consumers, and utilities themselves have set goals to consume, procure, and/or produce more renewable energy. As each group pursues its goals individually, they're increasingly finding that collaboration can add efficiency and hasten progress and can spark and nurture ideas, investments, and leadership. By pooling resources across this growing ecosystem, they can accelerate technological development, financial innovation, and other initiatives to promote renewable energy industry growth. Such collaboration could be of key importance in 2020 as stakeholders increase their active participation in the renewable sector.

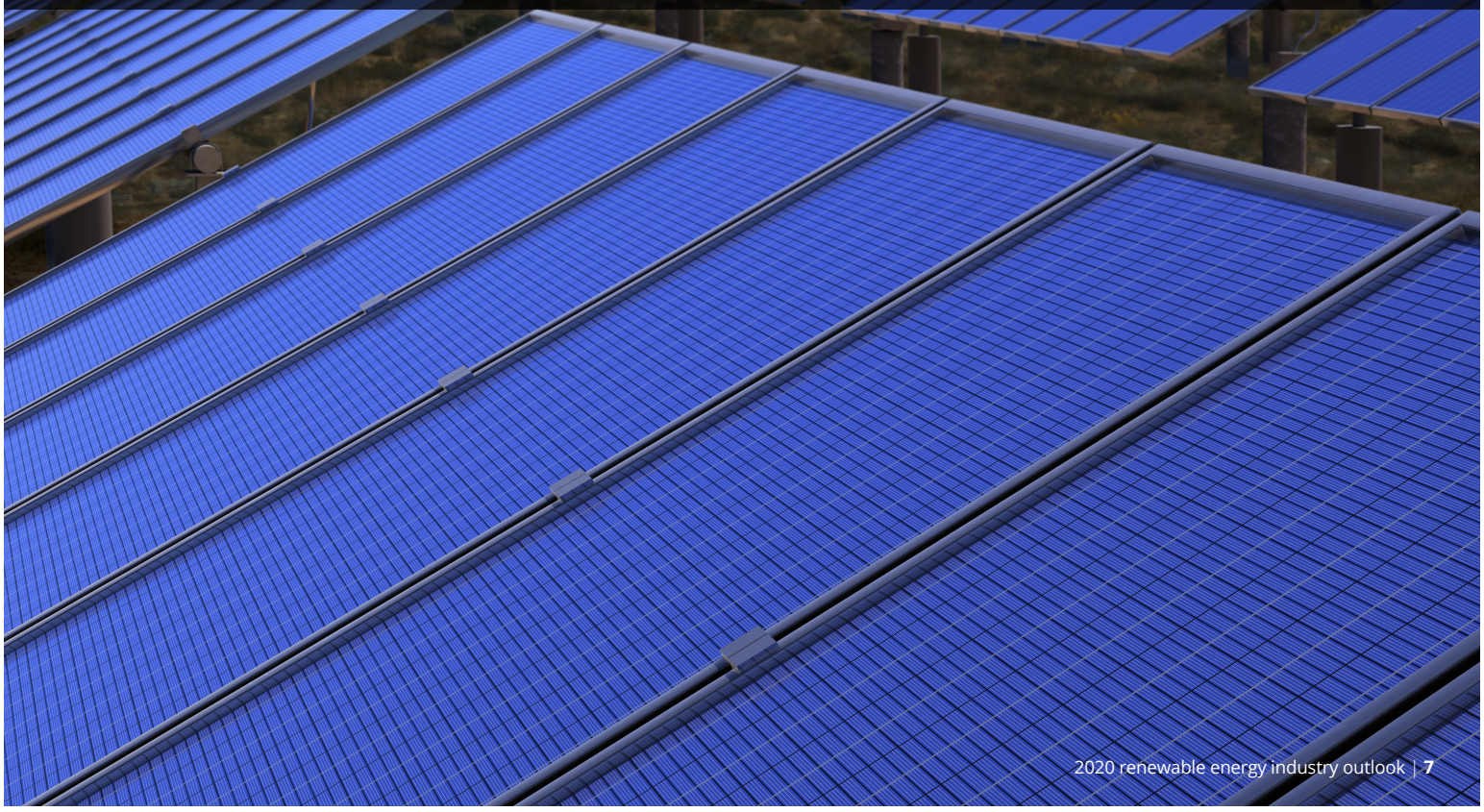
In the coming year, renewable energy companies will likely see increased opportunities to engage in smart city initiatives, whether it's building distributed renewable resources or providing related services such as energy management and power trading. Most large US cities, and more than 35 percent of mid-sized cities, are implementing smart city projects.[29] These smart cities are potential incubators for new technologies, as well as centers for deploying those technologies. Smart cities collaborate with other stakeholders for deploying these new technologies. One such collaboration is with utilities, where both come together for new initiatives. San Diego Gas & Electric has been working with the city's port to install chargers for electric medium- and heavy-duty vehicles and forklifts.[30] As smart cities continue to pursue their goals, especially with respect to cleaner energy, collaborations with utilities and other stakeholders will likely increase, bringing new opportunities in the industry.

After the first cycle of renewable procurement, many corporate customers are exploring new growth accelerators in the renewable industry. Previously only buyers of renewables, some corporations are now becoming active stakeholders in the renewable industry, increasingly interacting with utilities, residential customers, state governments, developers, and other stakeholders. For example, some larger corporations are working with developers and technology providers to increase renewable access for other consumers, mainly smaller corporations. In June 2019, Starbucks, in collaboration with LevelTen Energy, announced a 146 MW wind and solar aggregation deal combining three projects built by three developers across three states.[31] Additional collaboration between project developers and LevelTen Energy, through data sharing, will help track portfolio performance and streamline contract management. This deal helped the company decrease overall risks and enable cost-effective sourcing of small amounts of renewable power from large-scale projects, which typically have better economics. Bringing such flexibility into renewable energy procurement through innovative deals will likely continue to ease access to renewable energy for smaller corporations in the coming years.

In 2020, we'll be looking for corporations to continue interacting and collaborating with utilities to help them design new utility products and offers. One example is community solar projects, in which corporate participation can expand the scope of renewable energy. Corporations are increasingly participating in community projects, either individually or by aggregating with a group of residential customers and small businesses, often acting as an "anchor tenant." Recently, in Minnesota, Walmart agreed to subscribe to 36 of United States Solar Corporation's community solar projects in 13 counties.[32] In 2020 and beyond, as diverse stakeholders increasingly collaborate, innovation will likely rise, leading to new renewable products and extending the renewable energy customer base.

2020: Renewable energy industry poised to enter new growth phase

The year ahead promises further growth in the renewable energy sector. This will likely come against a backdrop of increased innovation and collaboration among multiple stakeholders. Renewables are likely to continue moving into the driver's seat in electricity markets as utilities and regulators prefer them to replace retiring capacity and customers increasingly choose them to save costs and address climate change concerns. Growth in the US offshore wind sector will likely bring multiple opportunities for industry players as states vie for manufacturing and port infrastructure projects. Grid resiliency will also likely be a growing driver for distributed renewable deployment as utilities and their customers increasingly consider renewable microgrids combined with storage solutions. However, trade and tariff policy uncertainty will likely keep the industry on the lookout for risk mitigation tactics. But companies that are ready to innovate, collaborate, and seize new opportunities will likely thrive in a new phase of renewable growth.



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Let’s talk

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Marlene serves as the US and Global Renewable Energy leader for Deloitte and is a Risk and Financial Advisory principal in Deloitte Transactions and Business Analytics LLP. In her role as US Renewable Energy leader, she steers Deloitte’s overall delivery of a broad range of cross-spectrum professional services to renewable energy companies and those who invest in renewable energy. Marlene has worked in the energy and resources sector for close to 25 years. She consults with clients across many industry sectors who are investing in the renewable energy sector by providing insight into the drivers and challenges, market dynamics, and financial aspects of the sector. She also works with clients in the area of valuation and financial consulting including valuation and modeling.

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