



# 2019 renewable energy industry outlook

My take: Marlene Motyka

# Looking ahead: Strong fundamentals bolstered by three enabling trends in 2019

The fundamental drivers of renewable energy growth in 2018 are poised to continue in 2019, but we also see three trends coming into sharper focus that are likely to shape renewable growth in the coming year.

In 2018, the US renewable energy sector remained remarkably resilient, gaining ground despite uncertainty about the effects of federal tax reform legislation and a spate of new import tariffs.

Output from utility-scale wind and solar capacity topped 8 percent of total US electricity generation through the third quarter of 2018, compared with 7 percent for the same period in 2017.<sup>1</sup>

We see the fundamental drivers of this growth poised to continue in 2019, but we also see three trends coming into sharper focus that are likely to shape renewable growth in the coming year. Those trends include emerging policies that support renewable growth, expanding investor interest in the sector, and advancing technologies that boost wind and solar energy's value to the grid, asset owners, and customers.

Some of the core fundamentals that drove growth in 2018 were declining costs of wind and solar generation, advances in battery storage technology, and grid operators' growing expertise and expanding toolset for integrating intermittent renewable power into the grid.<sup>2</sup> And, perhaps most significant, was robust demand from most market segments. Utilities demonstrated

strong "voluntary demand," as opposed to the demand driven by policy mandates we've seen in the past. Voluntary procurement represented 52 percent of utility-scale solar projects in development and 73 percent of projects announced in the first half of 2018.<sup>3</sup> This demand was partly driven by corporations' rapidly growing appetite for renewables. As of mid-October 2018, corporations had purchased nearly 5 gigawatts (GW) of renewables through a variety of procurement routes.<sup>4</sup>

Demand from consumers was also robust in 2018, and the findings of the *Deloitte Resources 2018 Study* demonstrate some of the sentiment behind these trends. More than half of all residential survey respondents (53 percent) indicated that it is extremely or very important to them that part of their electricity supply come from renewable sources, trending upward since 2013.<sup>5</sup> And about half (48 percent) of business respondents are working to procure more electricity from renewable sources.<sup>6</sup>

# Tax and trade policies will likely continue to impact renewable growth

Potentially accelerated project schedules ahead of tax credit phasedowns suggest a favorable outlook for renewable growth in 2019, while tariffs could continue to create headwinds.

Developers may hasten to begin solar project construction by year end to qualify for federal tax credits before the investment tax credit for solar falls from 30 percent to 26 percent and expedite the in-service dates for wind projects before the production tax credit for wind phases out entirely in 2020.

Federal trade policy will likely continue to create headwinds, specifically the 30 percent import tariff on crystalline-silicon solar cells and modules, and tariffs on imported steel, aluminum, and inverters from China. The solar tariff is scheduled to decline 5 percent annually, eventually falling to 15 percent in year four, and may delay or cancel some projects, particularly utility-scale ones. Steel and aluminum tariffs could increase the levelized cost of energy for new US renewable plants by an estimated 3 to 5 percent.<sup>7</sup> However, exclusions on finished goods and geographic exemptions for Mexico and Canada may blunt the overall project cost impact.



# Three trends likely to shape renewable growth in 2019

Three additional trends appear poised to strengthen renewable energy growth prospects in 2019: emerging policies, expanding investment interest, and advancing technologies.

## Emerging policies

New and renewed policies and initiatives at the local, state, and federal level will likely boost renewable growth in the coming year, including those listed below.

### State and local policies likely to promote renewable growth

Over the past two decades, nearly 50 percent of US wind and solar development was driven by state mandates, especially renewable portfolio standards (RPS).<sup>8</sup> Today, half of the states with RPS targets are poised to reach them by 2021, and several are mulling an increase. A few are even targeting 100 percent renewables. For example, Hawaii set the ball rolling with its “100 percent by 2045” target, and California followed its lead with the same goal. Washington, DC and Michigan have also recently been considering a 100 percent goal. At the same time, several other states such as Vermont, Massachusetts, Connecticut, and New Jersey, while stopping short of 100 percent, have significantly increased their RPS targets.<sup>9</sup>

Recent municipal initiatives are also likely to promote renewable growth. For example, as of December 2018, mayors of over 200 communities in the United States had adopted goals to transition to 100 percent renewable energy community-wide no later than 2035.<sup>10</sup> And programs such as community choice aggregation (CCA), which bring residents, businesses, and municipal accounts together to procure energy, are increasingly driving renewable growth and new business models with community solar developers.<sup>11</sup> Put simply, strong demand and renewable development at the state, municipal, and community levels are ushering in growth and opportunities, which may well provide a strong cushion against any potential federal and trade policies impacting competitiveness of renewables.





### Policies supporting energy storage also support renewables

As highlighted in Deloitte's recent report, *Supercharged: Challenges and opportunities in global battery storage markets*, the pace of battery storage product deployment and market development is accelerating.<sup>12</sup> Falling costs and maturing technology are multiplying opportunities to add value to renewables by combining them with energy storage and helping them to compete with conventional technologies. In fact, a solar-plus-storage project outbid a natural-gas peaking plant in February 2018 to provide peaking services in Arizona.<sup>13</sup>

Federal and state policies are also supporting battery storage development, which adds value to renewables and promotes further growth. In February 2018, the Federal Energy Regulatory Commission finalized order 841, which requires grid operators to remove barriers hindering participation of electric storage resources in the capacity, energy, and ancillary services markets.<sup>14</sup> Similarly, state-level policies—such as energy storage mandates, financial incentives, and incorporation of storage into long-term resource planning mechanisms—are providing a strong base for battery storage deployment.<sup>15</sup> Across many states, policy makers are designing new rates (tiered and time-of-use) to drive solar-plus-storage growth, the way net metering drove distributed solar in the past. But, given battery storage's versatile use across the electricity value chain, its long-term sustained development may require greater coordination of federal and state policies.

### State and federal policies are boosting offshore wind growth

Falling costs, commercial success in Europe, and opportunistic buying by European developers have set the stage for offshore wind growth in the United States. Combine that with supportive federal and state policies, and we may finally be on our way to seeing sustained growth in the US offshore wind industry.<sup>16</sup>

In April 2018, the US Department of the Interior announced major lease sales off Massachusetts, sought input on potential lease areas in New York and New Jersey, and began an assessment of Atlantic coast waters for wind energy potential.<sup>17</sup> And on the West Coast, the administration is opening the door to offshore wind energy development on the California coast for the first time.<sup>18</sup> At the state level, several East Coast state legislatures are working to facilitate development of offshore wind and have instituted goals specific to offshore wind.<sup>19</sup>



## Expanding investment

Renewable procurement and project investment is expanding among current buyers and spreading to new groups such as smaller companies, oil and gas companies, and asset management firms.

### Corporate renewable procurement expands to smaller companies

Corporations are continuing to procure increasing volumes of renewable energy, driven by sustainability goals and a growing variety of procurement options. As of early December 2018, 156 corporations across the globe, including many headquartered in the United States, had committed to achieving 100 percent renewable power as part of the RE100 campaign.<sup>20</sup> To date, 23 green tariffs in 17 states have been proposed or approved to facilitate US corporate renewable procurement.<sup>21</sup> That may have contributed to the record-breaking 4.96 GW of wind and solar capacity US corporate buyers purchased in the first 10 months of 2018. And that number excludes on-site renewable generation capacity, another notable way that corporations are pursuing their renewable energy goals.<sup>22</sup>

As corporate procurement expands, smaller companies are beginning to enter the renewable market, with support from established corporate buyers such as those in the technology sector. Larger companies are joining with smaller companies to develop new wind and solar projects.<sup>23</sup> One global technology giant designed a procurement instrument to reduce weather-related risks from renewables, making them a safer investment for “small” corporate buyers.<sup>24</sup> And some large corporations have

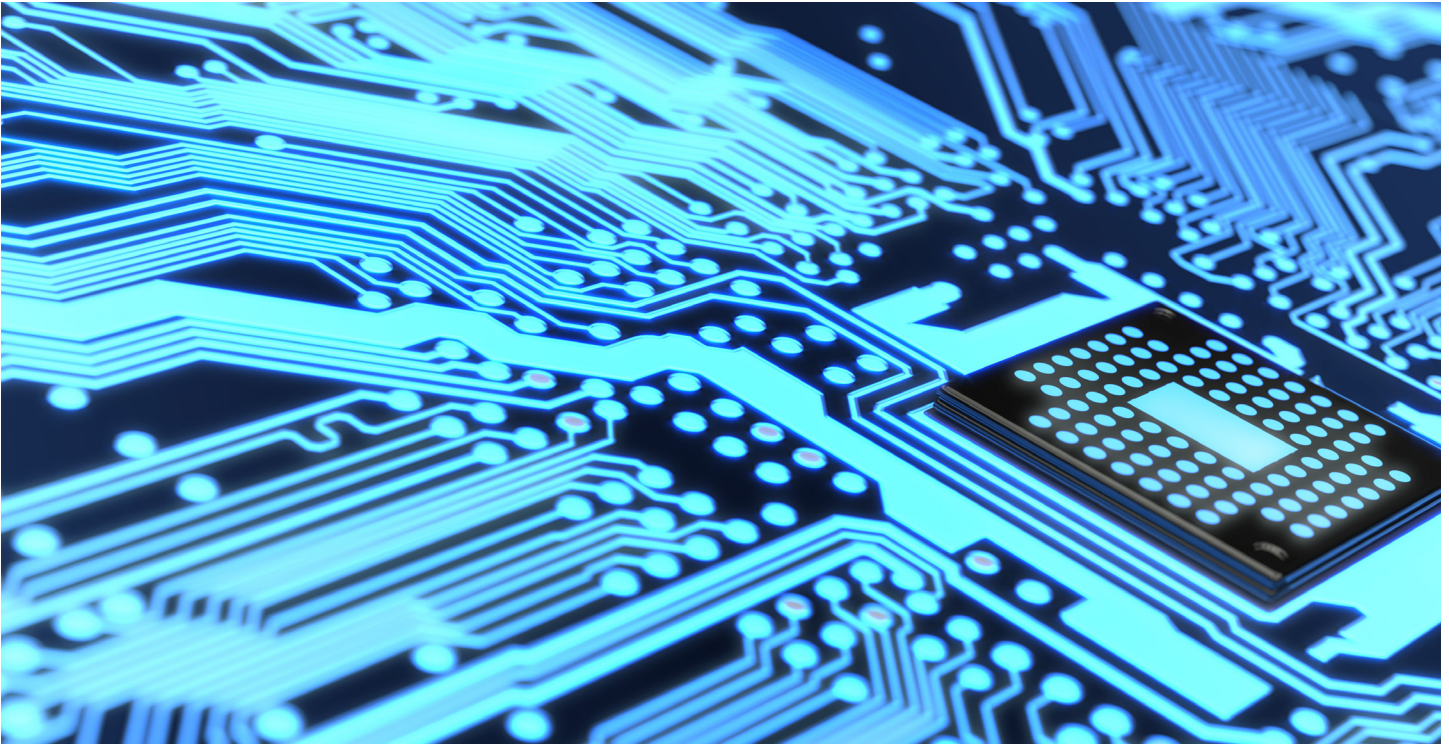
also started imposing sustainability standards on their supply chain participants, a trend that brings more companies into the market and is expected to grow in the future.<sup>25</sup>

### Oil and gas players are showing fresh interest in renewables

Climate change, corporate social responsibility, falling renewable costs, and the drive to diversify have renewed many oil and gas companies’ interest in the renewable energy sector. Several companies have increased renewable investing in the last two years, including investment in wind and solar energy projects and companies.<sup>26</sup> Royal Dutch Shell, for example, allocates \$1-2 billion annually to new energy solutions and acquired a 44 percent stake in solar developer Silicon Ranch,<sup>27</sup> following earlier investments by BP in Lightsource and Total S.A. in SunPower.<sup>28</sup> Oil majors may also find opportunities in areas where their expertise can help them succeed, such as offshore wind and ultra-large tenders for solar PV.<sup>29</sup>

### Asset management companies collect renewable energy portfolios

Asset managers have started compiling portfolios of distributed commercial and industrial renewable projects, as well as community renewable projects. These portfolio projects provide an opportunity to manage transaction costs thus allowing them to increase the size of investments. Goldman Sachs, for example, acquired a portfolio consisting of 76 distributed solar energy projects across 143 sites with a total capacity of 204 megawatts (MW).<sup>30</sup> In another transaction, Massachusetts-based BlueWave Solar sold a portfolio of community solar projects with a combined capacity of 24 MW to Goldman Sachs.<sup>31</sup>



## Advancing technologies

Accelerating deployment of renewables across the electricity value chain offers unique opportunities to revisit grid infrastructure and manage household energy usage. As part of this effort, digital solutions for forecasting renewable energy output, optimizing grid integration benefits, and influencing smart home investments have been developed and are now widespread with proven ROI. Looking forward, new digital applications that could promote or facilitate renewable growth are emerging across the electricity value chain. Many of these are at the distribution level or even behind the meter—such as enabling peer-to-peer renewable energy trading, tracking the provenance of renewable energy certificates, or paying for electric vehicle charging through blockchain technology. For example, Australia's GreenSync launched the Decentralized Energy Exchange (deX), a digital marketplace that, in addition to supporting the grid, connects millions of distributed energy resources to existing markets.<sup>32</sup>

As solar-plus-storage installations gain traction, software platforms that enable aggregators to pool these resources and use them to offer grid support services in wholesale markets will likely gain popularity as well. Companies like Sunrun offer a comprehensive energy software platform that incorporates solar, storage, and home energy management systems. They are working with utilities and organized energy markets to determine how these assets can be aggregated to provide ancillary services to support the grid.<sup>33</sup>

Unlike previous renewable sector innovations based largely on material and design improvements, these innovations enable the renewable sector to open new business and revenue models based on integrated data and platform analytics. Developers can build end-to-end renewable analytics-based platforms that can enable optimization of grid assets, and they can partner with utilities to provide customized services to customers.



In sum, strong fundamentals, emerging policies, an expanding investment community, and advancing technologies will likely underpin US renewable energy growth in 2019.

Increasing customer demand for renewable energy across almost all market segments continues to expand opportunities. While the current US administration is not focused on decarbonization, states, cities, communities, and businesses with increasingly ambitious sustainability goals are driving renewable growth. Market developments such as the entry of smaller corporations into the corporate procurement market, renewed interest from oil and gas players, and greater involvement of asset management companies offer new opportunities for renewable growth.

The supply side is buoyed by multiple factors beyond technological advances. Renewable energy costs continue to fall, and grid operators have an increasing array of tools and the experience to integrate greater volumes of renewables on the grid. In addition, federal policy on offshore wind and state actions on several fronts will likely stimulate renewable demand in the short term.

Finally, as digital solutions developed for the renewable industry spread across the electricity value chain, renewables are at the vanguard of technology innovation that can open new revenue and business models in the electricity sector.



# Let's talk



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