Recent Trends in Renewable Energy

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This article is from Skadden's 2019 Insights.

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Four Times Square New York, NY 10036 212.735.3000 The renewable energy sector has benefited in recent years from its growing cost-competitiveness, favorable climate change-related policies, and significant new capital investment from traditional and nontraditional debt and equity financing sources. The increased availability of capital since the last economic recession has supported the rise of renewable energy as a mature and cost-competitive asset class in many power markets around the globe. These trends likely will continue in the coming year, as the sustainable features of well-structured renewable generation assets with contracted output, low operating costs, and predictable revenue and cost streams remain attractive in the market.

Areas of the sector where much focus and momentum will build in 2019 include the following:

Portfolio Transactions

In the past several years, the renewable energy sector has been highly attractive to private equity, pension and infrastructure funds seeking to deploy substantial amounts of capital in increasingly large portfolios of renewable generation assets. We expect the formation of funds serving the sector to continue to increase as demand from a variety of financial investors grows for portfolios of highquality, renewable generation assets. We also anticipate that project sponsors will continue to pursue the most competitive capital sources using innovative transaction structures at the portfolio level to complement the wide variety of construction debt, tax equity and other more traditional sources of project-level financing available in the market.

Offshore Wind

The development pipeline for new offshore wind projects in the United States has grown substantially in recent years, to approximately 25 gigawatts, according to U.S. Energy Information Administration estimates. Most will

be located along the Northeast and Mid-Atlantic regions, primarily using proven fixed-platform technologies. Key opportunities on the West Coast are behind in development, and some require the use of newer floating technologies as a result of the deeper waters — an additional challenge for developers to overcome. The offshore wind market in Europe is further ahead of the United States, and several large European offshore wind developers are pursuing new projects that may enter the markets for financing and commence construction as early as this year.

Electricity Storage

One of the challenges the industry faces is the potential for large-scale deployment of renewable energy to raise grid reliability issues, since renewable generation assets depend on the availability of intermittent resources to produce power (e.g., wind or sun). Advancements in energy storage technology have made the development of battery storage projects attractive opportunities that would help mitigate reliability concerns. As such, the number and size of battery storage projects is expected to continue to grow. In order to support the growth of storage, developers and sponsors of renewable energy

projects are pursuing state policies similar to renewable energy portfolio standards that would raise the minimum amount of electric storage generation assets in states' power procurement efforts, or otherwise incentivize the development of additional storage capacity. While storage technology continues to advance, revenue models to facilitate broad implementation are still in development and remain an obstacle to investment.

Construction and Ownership by Regulated Utilities

Vertically integrated utilities have typically owned very limited numbers of renewable generating assets, relying instead on power purchase agreements (PPAs) with independent power producers. Within the last few years, however, several regulated utilities have been able to enter into arrangements for the acquisition and construction of renewable energy projects and have gained the support of public utilities commissions for these investments. Increased ownership of renewable energy projects by regulated utilities has the potential to alter the market landscape, as more regulated utilities choose to own renewable power generation assets rather than contract with developers to purchase power, but ultimately this could result in the deployment of more renewable energy.

Financial Hedges

The explosive growth of renewable energy in the U.S. has been facilitated significantly by long-term PPAs with load-serving entities seeking to comply with renewable energy portfolio requirements. In recent years, however, long-term PPAs have become more and more scarce in the market. Consequently, developers are increasingly relying on alternatives, such as financial hedges with banks and other counterparties, whether through contracts for differences, revenue puts or synthetic heat rate call options.

Corporate PPAs

Corporations have become significant procurers of renewable energy in recent years, including many high-profile multinational corporations such as Facebook, Google, Amazon, AT&T, Microsoft and Walmart. Corporate buyers view renewable energy procurement as part of their energy cost management strategy and seek to benefit from a marketing standpoint in making a contribution toward carbon neutrality. While corporate PPAs are generally structured as financial hedges, some provide for physical delivery. As additional companies look to take advantage of new opportunities in renewable power, demand for corporate PPAs should expand.

Pending Expiration of Federal Tax Incentives

Federal tax incentives that have supported the development of the renewable energy industry will be winding down in coming years as the sunset provisions in current tax laws begin to take effect. As a result, developers will be keenly focused on taking advantage of the remaining opportunities for available tax credits, and will utilize substantial near-term efforts to satisfy construction commencement requirements and qualify assets for safe harbors, including through the repowering of existing wind projects.

Climate Change and Clean Energy Initiatives

The renewable energy industry likely will continue to benefit from favorable climate change policies and other clean energy initiatives in 2019. Despite the steppingdown of key tax credits and certain policies within the federal government to bolster the U.S. fossil fuel industries and lighten environmental and other regulatory requirements, renewable energy policies continue to expand at the state level. California recently enacted a bill that will increase its renewable portfolio standard to 60 percent by 2030 and move the state to 100 percent zero-carbon electricity by 2045. Several states are expected to follow this trend given the outcome of the recent elections, and other state efforts to increase renewable generation capacity are well underway, including through additional offshore wind procurement and increased public utilities commission support for renewable energy acquisitions.

In sum, the renewable energy sector is expected to remain strong in 2019 as it continues to evolve in a robust environment with many new opportunities.

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