

Electric Power & Natural Gas Practice

Rethinking the renewable strategy for an age of global competition

Renewable-based power generation is rising. As the market evolves, what will it take to succeed, and what kinds of players will win?

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Over the past decade, renewables have developed from niche technology to global industry. With environmental concerns rising to the top of global and regional agendas, the debate has shifted from “When will renewables take off?” to “How much faster will they grow?” As the cost of renewables continues to fall sharply and their growth rates soar, a virtuous cycle is set in motion. The need for clean power in emerging economies only adds to the momentum.

Earlier concerns about intermittency and grid stability are fading as countries increase their share of electricity generated from renewable sources and as battery costs plummet. In Germany, for instance, renewables represented 38 percent of gross electricity consumption in 2018, up from 25 percent in 2013. At the same time, battery costs decreased from \$650 per kilowatt-hour (kWh) in 2013 to \$176 per kWh in 2018.¹ According to McKinsey’s latest Global Energy Perspective Reference Case, renewable-based power generation will represent more than half of the global total by 2035.²

Until recently, governments’ support programs shielded renewable companies from market risk, while technology risk and high barriers to entry shielded them from significant competition. But all that has changed. Today’s industry is coming under enormous cost pressure from extremely competitive reverse auctions. At the same time, the technology risk is falling as suppliers mature, allowing new entrants to join the fray. Nontraditional renewable players, such as institutional investors and oil and gas majors, are investing significant sums to play their parts in the global race for renewables.

Companies will soon have to contend with another layer of complexity as they take on responsibility for system integration and must meet new requirements, such as flexibly ramping generation up and down and adding storage to their sites. They will also be exposed to merchant risk as the share of guaranteed revenues from feed-in tariffs and public power-purchase agreements (PPAs) declines and

commercial terms become more stringent. What will it take to succeed in this rapidly evolving market, and what types of players will win?

Winning characteristics

To cope with the challenges of the new environment, companies will need to pay attention to three dimensions:

- **Value-chain excellence.** Companies will need to optimize activities across the entire value chain, from engineering to commercial capabilities, either by capitalizing on their own expertise or by engaging with partners. In engineering, for instance, operators will need to optimize plant design to maximize wind yield and minimize costs. As margins squeeze and operators’ exposure to risk increases, managing revenues and optimizing costs will be critical.
- **Economies of scale and skill.** To compete, companies will need to capture both sets of economies, whether globally (for technological economies of scale in areas such as procurement, for instance) or locally (for market understanding and analysis).
- **An agile operating model.** Agility will be key to coping with fluctuating development cycles across countries and technologies. It will enable businesses to shift resources quickly to the biggest value pools in response to changes in the landscape, such as new developments in regulatory regimes supporting renewables.

Winning players

Given the challenges of the new environment, we can expect to see fundamental shifts in the renewable-player landscape. We have identified three archetypes whose well-defined global and regional strategies position them for success:

¹ Volume-weighted price for lithium-ion battery packs. See Logan Goldie-Scot, “A behind the scenes take on lithium-ion battery prices,” BloombergNEF, March 5, 2019, about.bnef.com.

² In McKinsey’s Global Energy Perspective Reference Case, capacity is projected to rise from 301 gigawatts (GW) to more than 3,259 GW by 2035 for solar photovoltaic, from 469 GW to 1,558 GW for onshore wind, and from 16 GW to 304 GW for offshore wind.

- **Renewable ‘supermajors.’** A small number of companies, such as EDP Renováveis, Enel, and Iberdrola, have built economies of scale and skill across global portfolios of multiple renewable technologies integrated along the value chain. These players have announced they intend to build more than two gigawatts of renewable capacity a year.
- **Geography specialists.** Some regional renewables players—for instance, Greenko in India—have close ties to specific countries or jurisdictions. Such companies capitalize on local presence and deep market understanding to win in their chosen markets, though they still need to reach a certain minimum scale to compete sustainably against the supermajors.
- **Specialized, agile players.** Niche players compete by excelling in specific technologies or segments of the value chain in which they have developed deep expertise. Examples include Copenhagen Infrastructure Partners, a globally active asset developer and fund manager; Scatec Solar, a solar-energy specialist; and Van Oord, a specialist in engineering, procurement, and construction (EPC) for offshore wind.

We have seen similar developments in other global sectors that have reached a more mature stage in their industries’ life cycles. In oil and gas, for example, a few large supermajors, including Exxon Mobil and Shell International, drive global market development; strong national oil companies, such as Petrobras and Saudi Aramco, thrive; and engineering and technology specialists, such as Halliburton and Schlumberger, complete the picture.

Winning strategies

The fate of most renewable players will depend on how well they cope with the trends affecting the industry. Winners will focus on the following:

- **International expansion and scale.** As companies grow and expand across borders, their ability to reap benefits of scale will depend

on establishing global operating models with clear responsibilities for effective working across continents, cultures, and time zones. Key capabilities, such as regulatory management and auctioning, will need to be deployed globally, which will require a deep understanding of the specifics of individual markets and regulations—as well as the ability to coordinate auction processes to enable competitive bidding. Winners will develop sophisticated asset-allocation and pipeline-management capabilities to ensure that they focus on the projects that create the most value.

- **Flexible operating and delivery models.** Success in a competitive environment requires companies to perform well in every part of the value chains they serve, whether through in-house excellence or outsourcing to third parties. In addition to well-defined make-or-buy decision-making processes, essential elements include a clear perspective on the role of OEMs (especially with respect to operations and maintenance), a lean model for site operations that covers elements such as insourcing and collaboration, and an explicit strategy for aging assets that includes end-of-life operating models.
- **Technology and digitization.** Continuous innovation—including the ability to launch new technologies, such as floating offshore installations and turbine platforms, in collaboration with OEMs—will be essential to reducing costs. Companies will also need strong capabilities in hybrid technologies and storage to counteract intermittency, meet future regulatory demands, and optimize their top lines in an increasingly merchant-oriented environment. Digital tools and skills will be key to competitiveness along the asset life cycle, from site identification to project EPC, predictive maintenance, and revenue analytics.
- **Partnering and ownership strategies.** To secure competitive financing and sufficient access to capital, companies will need clear strategies that include capital recycling and

structured products. They will also need to take an active approach to managing their operating assets over their life cycles, including continuous divestment and repowering consideration.

- **Commercial management.** As companies increasingly supplement long-term, guaranteed feed-in tariffs and PPAs with merchant revenues, they need to understand how much risk they can absorb in their balance sheets or project-financing structures. Then they can work to maximize the risk-adjusted value of the electricity they produce—a process that may involve off-loading some merchant risk via corporate PPAs or other channels.³

Decision time

Given the factors outlined, few players will be able to rely on a strategy of “business as usual.” Companies need to decide which archetype to embrace, if they haven’t already done so, and then execute flawlessly along all critical dimensions.

Renewables supermajors are thriving, growing, and operating profitably but may be struggling to establish global operating models appropriate to their newly attained scale. Even so, their experience along the integrated value chain and their ability to benefit from scale economics and balance cyclical

ity across regions and technologies means they are in a strong position to address industry challenges.

On the other hand, **geography specialists** will survive only if they can derive competitive advantages from their deep local connections. Although well positioned to develop excellence along the value chain in their chosen regions, they will need to find ways to reach sufficient scale and manage cyclical

Specialized, agile players must use their distinctive skill sets to create strong positions in clearly defined niches. They should be able to benefit from cyclical

ity but will need to find a sustainable operating model to ensure profitability. Players not embodying one of these archetypes are unlikely to survive. They will not be able to compete with the supermajors on scale or to match the distinctive geographical and value-chain capabilities of geography specialists and specialized, agile players.

As the renewable sector enters an era of global competition, it’s time for industry participants to reflect on their positions, define their aspirations, and ensure that they are on the right path to realize their objectives.

³ See Sven Heiligtag, Florian Kühn, Florian Küster, and Joscha Schabram, “Merchant risk management: The new frontier in renewables,” November 2018, McKinsey.com.

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