

LAZARD LCOE+

LEVELIZED COST OF ENERGY+

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WITH SUPPORT FROM Roland Berger 

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Executive Summary

Executive Summary—Levelized Cost of Energy Version 17.0⁽¹⁾

The results of our Levelized Cost of Energy (“LCOE”) analysis reinforce what we observe across the Power, Energy & Infrastructure Industry—sizable and well-capitalized companies that can take advantage of supply chain and other economies of scale, and that have strong balance sheet support to weather fluctuations in the macro environment, will continue leading the build-out of new renewable energy assets. This is particularly true in a rising LCOE environment like what we have observed in this year’s analysis. Amplifying this observation, and not overtly covered in our report, are the complexities related to currently observed demand growth and grid-related constraints, among other factors. Key takeaways from Version 17.0 of Lazard’s LCOE include:

1. Low End LCOE Values Increase; Overall Ranges Tighten

Despite high end LCOE declines for selected renewable energy technologies, the low ends of our LCOE have increased for the first time ever, driven by the persistence of certain cost pressures (e.g., high interest rates, etc.). These two phenomena result in tighter LCOE ranges (offsetting the significant range expansion observed last year) and relatively stable LCOE averages year-over-year. The persistence of elevated costs continues to reinforce the central theme noted above—sizable and well-capitalized companies that can take advantage of supply chain and other economies of scale, and that have strong balance sheet support to weather fluctuations in the macro environment, will continue leading the build-out of new renewable energy assets.

2. Baseload Power Needs Will Require Diverse Generation Fleets

Despite the sustained cost-competitiveness of renewable energy technologies, diverse generation fleets will be required to meet baseload power needs over the long term. This is particularly evident in today’s increasing power demand environment driven by, among other things, the rapid growth of artificial intelligence, data center deployment, reindustrialization, onshoring and electrification. As electricity generation from intermittent renewables increases, the timing imbalance between peak customer demand and renewable energy production is exacerbated. As such, the optimal solution for many regions is to complement new renewable energy technologies with a “firming” resource such as energy storage or new/existing and fully dispatchable generation technologies (of which CCGTs remain the most prevalent). This observation is reinforced by the results of this year’s marginal cost analysis, which shows an increasing price competitiveness of existing gas-fired generation as compared to new-build renewable energy technologies. As such, and as has been noted in our historic reports, the LCOE is just the starting point for resource planning and has always reinforced the need for a diversity of energy resources, including but not limited to renewable energy.

3. Innovation Is Critical to the Energy Transition

Continuous innovation across technology, capital formation and policy is required to fully enable the Energy Transition, which we define to include a generation mix that is diverse and advanced enough to meet the ongoing reshaping of our energy economy. The Energy Transition will also require continued maturation of selected technologies not included in our analysis (e.g., carbon capture, utilization and sequestration (“CCUS”), long duration energy storage, new nuclear technologies, etc.). While the results of this year’s LCOE reinforce our previous conclusions—the cost-competitiveness of renewables will lead to the continued displacement of conventional generation and an evolving energy mix—the timing of such displacement and composition of such mix will be impacted by many factors, including those outside of the scope of our LCOE (e.g., grid investment, permitting reform, transmission queue reform, economic policy, continued advancement of flexible load and locally sited generation, etc.).

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