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Achieving a cost-competitive offshore wind power industry:
what is the most effective policy framework?

Executive Summary

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The promise of carbon-free, utility-scale power generation from offshore wind farms is encouraging a number of governments to implement national policy support frameworks and targets for offshore wind power. However, the high capital cost requirement for deploying offshore wind has proven offshore wind targets to be elusive, and policy support expensive, relative to other low carbon and zero-carbon technologies.

This paper analyses the major capital cost drivers for deploying offshore wind power and the implications of various policy frameworks on achieving long-term cost reductions for the industry. The research attributes capital cost drivers for offshore wind primarily to R&D costs of new technologies, a lack of original equipment manufacturer (OEM) competition, high construction and offshore installation costs, and lack of industry-dedicated infrastructure, such as purpose-built manufacturing facilities and installation vessels. According to the results of the analysis, deployment costs for offshore wind farms will continue to be pushed higher in the medium to long-term as consented seabed lease areas move further from shore and into deeper waters, which will require the mobilization of a myriad of more specialized installation vessels and equipment and the employment of new, unproven technologies.

Whether policy options that promote more scalability and economies of scale within the industry, or more competition for a limited amount of subsidies, will be more effective in driving down industry-wide costs – is, according to our analysis, highly market specific. The analysis contends that competitive policies, such as “reverse auction” frameworks for limited subsidy awards, are likely to be effective tools when the size of the offshore wind market is sufficiently large and competition between and amongst major contractors and component manufacturers along the supply chain is robust. However, our analysis also cautions that the premature introduction of competitive-based policies into nascent offshore wind markets can adversely affect learning curve and efficiencies gains along the supply chain by deterring necessary investments in purpose-built facilities. Therefore, in nascent markets that simply lack adequate infrastructure and a large number of private commercial actors, policies that promote scalability of the offshore wind industry are likely to be more effective in reducing deployment costs.

Nonetheless, the high relative cost of the long-duration feed-in tariffs and other direct support mechanisms currently required to make offshore wind projects viable means that policies to support projects on a utility-scale basis are exorbitantly costly to the public. From a policy standpoint, therefore, our analysis suggests that the substantial public cost of directly supporting the capital-intensive offshore wind industry must be reconciled with the potential of competing technologies that may offer the same benefits at a lower cost to tax payers and ratepayers.

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