Recognising the potential of storage, the US Federal Energy Regulatory Commission and a number of states throughout the country have recently taken steps to promote the technology. The success or failure of these programmes may inform the decisions of other regulators as they formulate their own policies.

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**Incentivising energy storage**

The ongoing technological development and expanding implementation of electric storage is poised to drastically change the face of modern energy markets. Among other things, electric storage devices help manage peak demand, increase the viability of widespread intermittent renewable energy, and provide valuable grid support through frequency regulation. Recognising this potential, the Federal Energy Regulatory Commission (FERC) and a number of states throughout the US have recently taken steps to promote storage technology through procurement mandates, financial incentives, and inclusive market rules. In November of 2016 FERC issued a proposed rulemaking that, if adopted, will significantly expand the ability of energy storage resources to participate in wholesale electricity markets. The proposal, described as a “continuation of [FERC’s] efforts to promote competition in organised wholesale electric markets by removing barriers to the participation of new technologies,” would require regional transmission organisations and independent system operators (RTOs/ISOs) to update their market rules. The update would allow energy storage resources to sell all of the electric services they are technically capable of providing, including capacity, energy, and ancillary services. FERC hopes to address the fact that, in many cases, the regulations under which participation model policies do not recognise the unique physical and operational characteristics storage can provide. Even where storage-specific participation models have been developed, some organised wholesale markets have imposed requirements that hinder broad participation (e.g., minimum operating times, prohibiting injecting power onto the grid, restricting participation to the regulation market only, etc.). The proposed energy storage rule would significantly increase the potential for a growing class of energy storage providers, ranging from flywheels and batteries to pumped-storage hydropower facilities, to more fully participate in, and receive payment from, organised energy markets. The rule would also likely result in greater uniformity across US wholesale energy markets with respect to energy storage, promoting additional investment. In another proposed rulemaking, FERC requested comments to its pro forma Large Generator Interconnection Agreement that would require transmission providers to clarify its applicability to storage resources. Although some transmission providers have already met this requirement, FERC has argued that the policy would “ensure that all transmission providers have interconnection procedures and agreements applicable to electric storage resources,” resulting in just, reasonable, and non-discriminatory rates.

In January of 2017 FERC issued a policy statement designating participation by storage resources in wholesale markets. In this statement, FERC provided guidance and clarified its precedent related to cost recovery for storage resources. The policy statement specifically establishes the ability of electric storage resources to concurrently provide separate services at, and seek to recover costs through, both market-based and market-based rates. This provides storage resources with more flexibility with respect to how they participate in wholesale markets and, potentially, allows for greater financial returns for savvy project developers.

Specifically, FERC’s policy statement addressed concerns raised in prior proceedings. First, FERC determined that double recovery of costs by storage resources can be avoided by crediting market-based revenues back to cost-based ratepayers. This can be accomplished by either recovering the full cost of the storage facility through the cost-based rate, but crediting all market-based revenues to cost-based customers, or by offsetting the revenue requirement used to develop the cost-based rate by the anticipated market-based revenues. Second, FERC explained that it did not share commenters’ concerns regarding adverse market impacts. Instead, it analogised allowing multiple revenue streams for storage resources to the multiple revenue streams already available to generation resources and vertically integrated utilities.

Finally, regarding independence of market participants from RTOs/ISOs, FERC stated that some amount of coordination between storage resource owners or operators and RTOs/ISOs will be necessary. FERC explained that when cost-based services must be provided, RTO/ISO dispatch should receive priority, with penalties for any failure to perform. Market-based services, however, may be implemented according to parameters provided by resource owners or operators, just as is the case for other market participants.

Although FERC’s recent efforts have been substantial, it should not be forgotten that the proposed rules and policy statement discussed were issued by a Democratic-majority FERC, the majority of whom have now left the agency. Moreover, Commissioner LaFleur, who will remain on the Commission, dissented from the policy statement, voicing concerns about its lack of clear guidance for evaluating particular filings and its potentially broader implications with respect to generic multiple-payment stream issues, including state policy initiatives. It remains to be seen how a Republican-led FERC will address electric storage.

Ryan: The proposed energy storage rule would significantly increase the potential for a growing class of storage providers.

Outside of FERC, states have also been testing tax credits and mandates as a mechanism to promote the deployment of energy storage. California and Oregon have imposed specific requirements on investment owned utilities to ensure a certain minimum level of capacity in energy storage facilities. In the past year both Massachusetts and Nevada have passed laws directing state regulators to consider adopting similar energy storage requirements. Pursuant to the Massachusetts law, the Massachusetts Department of Energy Resources determined that it would be prudent for the state to adopt such a requirement, and on June 30, 2017, announced the adoption of an “aspiration” 200 MW annual energy storage target to be achieved by January 1, 2020.

Other state policies provide financial incentives to utilities and customers to implement advanced energy storage technology. States such as California and North Carolina have promoted research and development in energy storage technology through the creation of pilot or demonstration projects. To reduce the impact of the anticipated closure of the Indian Point nuclear facility in New York, Consolidated Edison and the New York State Energy Research and Development Authority partnered to provide a schedule of incentive payments to customers and developers based on implementation of different storage technologies, with bonus payments for larger scale projects.

Likewise, California’s Self Generation Incentive Program allows customers to receive payments for implementing a number of advanced technologies, including the installation of energy storage capabilities on a customer’s facilities. Funding for the program was recently increased in a manner that heavily favours payments for energy storage projects.

Other states are testing tax incentives as a mechanism to promote the deployment of energy storage technologies. For example, the Maryland General Assembly, with broad bipartisan support, passed S.B. 758, which Governor Hogan signed into law on May 4, 2017. The legislation provides income tax credits for taxpayers who install certain energy storage systems, making Maryland the first state to offer such a dedicated energy storage incentive.

The law provides credits for energy storage systems that are located at or linked to stores electrical energy, or mechanical, chemical, or thermal energy that was once electrical energy. Thus, it covers more than just battery storage systems. The tax credits are equal to 30 per cent of the installed cost of the energy storage system, with a $5000 cap on systems installed on residential property and a $75,000 cap on systems installed on commercial property.

Credits are non-refundable, and unused credits are not carried over to other tax years. The credits are only available for energy storage systems installed between January 1, 2018 and December 31, 2022. To receive credits, taxpayers are required to apply to the Maryland Energy Administration for tax credit certificates, and the total incentives are subject to a combined $750,000 cap per year.

Applications for tax credit certificates are reviewed on a first-come, first-served basis.

Given the variety of policies that have been implemented or proposed, other energy regulators, including those in US states without storage-promoting policies and those in international markets, may find it beneficial to look to the experience to date in the US. FERC’s policy of promoting equal-footing participation for storage providers in wholesale markets through, to an extent, uniform rules, could easily be borrowed in other markets.

Jurisdictions that are more directly involved in determining which new resources will ultimately be developed should, and could, borrow from the policies in Oregon and California that direct minimum levels of storage procurements. A less heavy-handed approach could use tax incentives or incentive payments to broadly promote storage or, as in New York, to target specific resource planning concerns. Examining the successes and failures of these programmes as they mature may inform the decisions of other regulators as they formulate their own policies.

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