

Breaking Down Barriers

“REVolutionizing” the Use of Distributed Energy Resources

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Introduction

Distributed energy resources (DER) are smaller-scale clean energy resources, such as renewable energy and energy storage resources, located near customer load. In recent years, DERs have made great strides due to market reforms, advanced technologies, and declining costs. Despite these advances, DERs serve less than 1% of electricity load nationally. Many barriers exist to greater deployment of DERs. These barriers include the utility business model, market structure, and regulatory policies.

New York is making great strides to eliminate these barriers. The New York Public Service Commission (Commission) opened a proceeding earlier this year, known as “Reforming the Energy Vision” (REV), that will re-examine the utility business model and the market barriers to greater deployment of DERs. In order to support its bold vision of reforming the state’s utility business model, New York will have to take into account the increased role of DERs and properly value their costs and benefits.

Recommendations

The REV case is in its early stages, but the Commission Staff has provided guidance recommendations for eliminating these market barriers. The following is the “Top 20” list for eliminating these barriers, compiled by EDF from the Staff’s filings in the REV case. If adopted, these recommendations would result in a sea change for incorporating DERs into New York’s electric system and would provide a template for other states to follow.

1. *REV Policy Objectives* –REV sets out six policy objectives, with the common theme of promoting greater deployment of DERs. Having well-defined policy goals will increase DERs because they will drive specific strategies and action items. The policy objectives are: (1) enhanced knowledge and tools to enable customers to better manage their energy bills; (2) animating the market and leveraging ratepayer contributions; (3) more efficient usage of the distribution system; (4) fuel and resource diversity; (5) improving system reliability and resiliency; and (6) reducing carbon emissions.
2. *Focus on System Efficiency* –The Commission’s focus on system efficiency will increase DERs because doing so will result in a more efficient use of the bulk power system. The Commission noted that the peak demand on the bulk power system is 75% higher than the average retail load. This inefficiency results from how the bulk power system was designed – using large central power plants to meet peak demand. Increasing DERs can improve system efficiency because DERs are smaller and not as “lumpy” as large central station plants. Also, DERs can be used to manage load, thus shaving demand during peak periods.
3. *A New Entity: the Distributed System Platform (DSP)* – REV introduces the DSP as a new entity to deliver energy products and services. The DSP will be an open platform to enable DER owners to bid their services into the retail and bulk power markets. The DSP will also have a mandate to evaluate DERs for use in distribution system planning. Utilities have been notoriously slow in integrating DERs into the energy delivery system. Establishing this new entity, with well-defined responsibilities, will make it easier for DERs to provide services, even if the utility serves as the DSP.
4. *Changing the Regulatory Paradigm* – State utility commissions typically regulate utility revenues using cost-of-service ratemaking. This focuses on utilities’ historic investment and provides little opportunity to use incentives to motivate desired outcomes. REV proposes to change the regulatory paradigm to outcome-based incentive ratemaking. This will allow the Commission to establish specific metrics tied to increased adoption of DERs.
5. *Social Cost of Criteria Pollutants* – “Criteria pollutants” are the six air pollutants – ozone, carbon monoxide, particulate matter, nitrogen oxides, sulfur dioxide, and lead – for which the Environmental Protection Agency (EPA) sets national air quality standards. The EPA is also developing rules to regulate carbon dioxide as a criteria pollutant. Today, utilities include their actual compliance costs with these rules in evaluating their supply plans, but the social costs inflicted by these pollutants is much greater than the costs utilities comply with federal emissions regulations. REV provides for consideration of social costs for these pollutants when planning for utility supply portfolios and for distribution system planning. This will increase adoption of DERs, most of which have no air emissions.
6. *Focus on Fuel Diversity* – Typically utilities design their supply plans using a cost-benefit test to identify the least-cost plan. The fuel cost for each supply resource is a major element in the cost-benefit plans, and the utilities evaluate the forecasted cost of fuel during the planning horizon. Unfortunately, the planning typically does not account for the risk that actual future fuel costs may greatly exceed the projected fuel costs. REV changes this by seeking greater fuel diversity as a means to lower the forecasting risk in developing supply plans. Renewable energy has no fuel costs so the increased emphasis on fuel diversity will lead to greater use of DERs.
7. *Enabling Technologies* – REV identifies the functional requirements for the DSP to operate properly. The DSP must have functionalities in three categories: grid-related, market-related, and third party-related. These functionalities are essential to integrate DERs into the electric system. By defining these functionalities, the Commission will ensure that each DSP has the basic capabilities needed to optimize the use of DSPs.
8. *Market Design Principles* – REV proposes several important guiding principles for the new electricity market. The following three guiding principles will promote more adoption of DERs: (1) full valuation of the costs and benefits when analyzing supply portfolios; (2) minimizing barriers to participation in the energy market; and (3) designing DSP incentives to create a level playing field to allow fair and open competition.
9. *Utility Ownership of DERs* – If utilities are permitted to own DERs without limitation, the utilities might have an unfair competitive advantage over DER providers because the utilities might be able to ratebase DER investments at a lower financing cost. REV specifies that utilities can own DERs under clearly-defined conditions or under an approved plan. This will minimize the utilities’ financing advantage and allow for a more robust DER market.
10. *Market Protections –* When utility affiliates participate in energy markets, a risk exists that the utility will discriminate in favor of their affiliates’ products and services or will create obstacles to third-party participation. The REV’s market protection rules will protect DER providers against these abuses.
11. *Data Access* – REV introduces new rules for access to customer usage data. The Commission proposes to give third parties access to customer usage data unless customers choose to opt out. Today third parties can typically access only limited information, and only after the customer gives written consent in advance. The new proposal will simplify data access rules and will better enable DER providers to design and market innovative product and service offerings.
12. *Real-Time Pricing* – The Commission noted that all residential customers have the option to choose real-time pricing, but that customer participation has been very low. REV directs utilities to re-design their real-time pricing plans to make them easy to understand. REV also requires utilities to study how real-time pricing can be offered when a smart meter is not available. Increasing the number of customers on real-time pricing plans will increase the value provided by DERs because they can help customers avoid high peak energy prices.
13. *DERs as Aggregators* – REV will develop new market rules to allow DER providers to aggregate the “dispatchable” energy provided by individual DER resources and to bid the energy into DSP markets and the New York Independent System Operator (NYISO) market. This will better enable DER providers to realize the full value provided by these resources.
14. *New Tariff and Market Options –* REV requires DSPs to develop new tariff and market options to increase DER deployment. These new offerings will give customers an opportunity to reduce their energy bills by sharing in the savings provided by DERs. Examples of these new tariff and market options include solar leasing and community solar programs.
15. *Using DERs to Optimize Energy Supply –* REV directs utilities to optimize use DERs to optimize energy supply either by (1) procuring energy from DERs to meet the utilities’ energy needs for serving system load; and (2) using DERs to reduce system load during peak demand periods.
16. *Using DERs to Optimize Distribution Planning* – REV requires the DSP to use DERs to optimize distribution system planning. Utilities do not effectively do so today. Utilities are incentivized to continuously build a bigger electric delivery system because they can increase their revenues by adding the new investment to their rate base. The DSPs will need to analyze whether DERs are more cost-effective than new distribution system upgrades. A few innovative pilot projects are demonstrating that using DERs can cost-effectively eliminate or defer distribution system improvements.
17. *New Distribution Planning Objectives –* Utilities traditionally design their distribution systems to achieve reliable service as the lowest cost. REV introduces new objectives for distribution system planning, in addition to reliability. The new objectives are energy efficiency, fuel diversity, and environmental stewardship. These new planning objectives will increase DERs because the new planning objectives will add more transparency and objectivity when the costs of DERs are compared to the cost of a distribution system improvement project.
18. *Standardized Market Rules* – REV requires state-wide standardized rules for the DSP platforms, market rules, and practices and procedures. This standardization will greatly simplify DER participation in DSP markets.
19. *Electronic Data Exchange –* REV proposes a bi-directional electronic data information exchange between customer meters and DER assets. The exchange will provide a robust amount of information, which will better enable DER providers to design their product offerings.
20. *Opening the Wholesale Market –* REV will facilitate DER participation in the wholesale markets, which will occur in several ways. DER providers will be able to aggregate DER supply and bid it into the wholesale energy markets. The DSP will work with NYISO, the wholesale market operator, to make DERs “visible,” allowing the operator to include the DERs in its energy forecasting plans. REV also directs the DSPs to work with NYISO to develop uniform measurement and verification plans. These changes will better enable DER providers to participate in the bulk power markets and realize the benefits provided by DERs to the bulk power system.

Conclusions

The groundbreaking REV case has a long way to go before the policy recommendations are finalized, new laws are passed, and utility implementation plans are adopted. Yet it is already clear that REV will “REVolutionize” the use of DERs in the energy system.