Modernization or Fossilization?

Assessment of Grid Reform Efforts in New York and Massachusetts

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Acadia Center

Advancing the Clean Energy Future

Background

Many states envision a clean, consumer-friendly energy future using distributed energy resources (DERs) to optimize the electric grid. In 2015, Acadia Center released UtilityVision, a collection of recommendations for decision-makers and stakeholders, outlining the specific steps we can take to create a fully integrated, flexible, and low carbon energy and grid network. Change is coming to every state, and several states in the Northeast are undertaking strategic, formalized regulatory processes to advance this evolution. In this memo, Acadia Center assesses whether proposals and activities in New York and Massachusetts will advance the UtilityVision future. Additional details on Massachusetts utilities' grid modernization plans are available in companion analyses.[1]

The states are taking different approaches. New York's Reforming the Energy Vision (NY REV) is a comprehensive initiative designed to speed up the transition to a clean energy economy by reforming the regulations that govern utilities and designing new energy markets. REV calls for reducing peak demand, a proliferation of distributed energy resources and increased consumer engagement in energy markets, and utility business model reform.

Unlike New York, the Massachusetts Department of Public Utilities (DPU) is not initially asking utilities to fundamentally rethink their business model.[2] The foundation of Massachusetts' distribution grid overhaul, described in an order from the DPU, calls for distribution utilities to develop 10-year Grid Modernization Plans (GMPs) and deploy advanced metering. A separate order calls for time-of-use (TOU) rate, with critical peak pricing, to be the default energy supply rate for customers. The DPU envisions that advanced metering, other grid-facing and customer-facing investments, and rates that more closely align with the real cost of delivering power will help achieve the DPU's four major goals: reducing the impact of outages, optimizing demand, integrating distributed resources, and improving workforce and asset management.

The vision and guidance put forth so far by the Massachusetts DPU should drive progress on some elements of grid modernization, but it is less ambitious than the holistic reforms proposed in New York. Notably, the DPU fails to tie utility earnings to grid modernization outcomes- as proposed in the NY REV- and as such is unlikely to shift utilities' current financial incentive from building infrastructure to meeting system needs at the lowest cost. Acadia Center's assessment is that the DPU's grid modernization order is not comprehensive enough to reshape the grid, and furthermore the GMPs filed by the Massachusetts utilities in August fall short of the DPU's direction and fail to embrace the opportunities presented by new clean energy technologies. The DPU has not taken action on the GMPs. In New York, the Public Service Commission (PSC) proposes bold and unprecedented reforms to the role of the distribution utility, the utility business model, grid planning, rate design, and compensation for DERs,[3]

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[1] Available at: http://acadiacenter.org/document/grid-modernization/

[2] The Massachusetts' DPU Order 12-76-B describes in detail that the direction provided in the Order should only be considered the first stage in a longer process.

[3] New York Department of Public Service Case 14-M-0101- Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision. Staff White Paper on Ratemaking and Utility Business Models, July 28, 2015 and Staff Proposal Distributed System Implementation Plan Guidance, October 15, 2015.

but New York utilities are responding by recommending a transition to harmful fixed charges, the elimination of net energy metering (NEM), and resistance to strategic deployment of DERs in order to reduce, defer, or avoid costly capital projects.[4]

UtilityVision organizes recommendations for reform into 4 categories that tie the utility business model, rate-making, and DERs together. The following is an evaluation- organized according to UtilityVision's categories- of whether regulatory and utility proposals will advance a consumer and environmentally friendly energy future for Massachusetts and New York.

Strategic Planning for a Consumer-Focused Power Grid

Traditionally, utilities have focused on maintaining the power grid for one-way power flow using infrastructure and engineering tools like new circuits, new substations, new power lines, or larger conductors to support growing energy demand and maintain reliable service. Increasingly, cleaner and more cost-effective customer-side tools like energy efficiency, load control, and distributed generation can be used instead of- or in combination with- traditional infrastructure projects. New utility planning that merges the traditional world of "poles and wires" with new technologies and modern strategies is central to advancing grid modernization.

New York

In October 2015, the New York PSC issued Distributed System Implementation Plan Guidance that proposes an integrated distribution system planning process that has the potential to shape a more optimized- not larger-electric grid, and represents a significant step towards having utilities consider an array of diverse energy resources and strategies to maximize benefits to New York's energy system. A key focus is to defer or avoid the need for traditional infrastructure investments through the strategic use of DERs that can resolve or reduce grid stresses. Acadia Center supports the PSC guidance for integrated system planning and finds it consistent with UtilityVision's recommendations.

New York utilities including have been generally supportive of the PSC's distribution system planning guidance.[5] However, Acadia Center is skeptical of these utilities' claims that reducing or optimizing peak demand has limited value in terms of reducing, deferring, or avoiding system upgrades and capital projects. The utilities argue that a very small portion of planned capital projects are driven by load growth or growth in system peak, and do not acknowledge that energy efficiency and other DERs can help extend the useful life of distribution equipment and play a crucial role in deferring infrastructure upgrades.[6]

Massachusetts

The Massachusetts DPU provided less detailed guidance than New York regulators, directing the state's utilities to develop grid modernization plans to meet the Department's objectives that include a short-term investment plan for capital investments and an approach to achieving advanced metering functionality within 5 years. In response, the utilities propose investments in grid-side technologies to enhance utility awareness and control

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[4] 14-M-0101, the Joint Utilities Comments on Staff White Paper on Ratemaking and Utility Business Models at 32-35.

[5] Consolidated Edison Company of New York, Orange & Rockland Utilities, Central Hudson Gas & Electric Corporation, National Fuel Gas Distribution Corporation, National Grid, New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation.

[6] 14-M-0101, the Joint Utilities Comments on Staff White Paper on Ratemaking and Utility Business Models at 12.

that will likely improve system performance. National Grid outlines the most ambitious investment plan, with cost-effective deployment of advanced meters to enhance consumer energy options and control, and optimize the operation of the system. National Grid fails, however, to adequately prepare for integration of DERs and the transition from a one-way power delivery model to a multi-directional, networked system. Eversource focuses on upgrading grid-side infrastructure rather than focusing on consumers and lacks a strategic plan for adapting to shifts in the energy system and using distributed technologies to deliver lower, more stable energy costs. Unitil also presents a modest proposal, predicated in part on prior installation of metering infrastructure with limited functionality. Without improvements in their grid modernization plans, Massachusetts utilities will struggle to adapt to accelerating trends toward an increasingly networked, electrified, and low-carbon energy system.

Aligning Utility Incentives with Consumer and Environmental Goals

A common way for utilities to earn revenue is by making capital investments on which the utility earns a specified rate of return that is set by the regulators. This system gives utilities incentives to build or upgrade traditional infrastructure projects. This model is increasingly at odds with new technologies, clean energy policy goals, system needs, and consumer desires.[7]

New York

In July, the New York PSC issued a unique and unprecedented proposal for comprehensive reform to align utilities' financial interest with consumer interests. The new utility business model envisioned in the Staff White Paper centers on the creation of "distributed system platforms," (DSP) which will function as a marketplace for energy, services, and value on the distribution grid. Initially, utilities will earn revenue from a combination of: 1) base rates; 2) existing and new performance incentives tied directly to market, customer, and environmental goals; and, 3) "market-based earnings" (MBEs), which is revenue that utilities will earn in their capacity as DSP providers. This may include, for example, fees paid to utilities for data analysis or platform access, or payments for energy services financing or engineering services for micro-grids. The Staff envisions that eventually most of utility revenue will be earned through platform service revenues and other MBEs, and regulatory incentives will be phased out.[8]

Acadia Center supports the PSC's vision and proposal for transitioning away from traditional cost-of-service regulation and to an innovative revenue model that incorporates traditional cost of service elements together with performance incentives and market-based earnings. Since this model has not been tried before, Acadia Center will monitor its development and implementation.

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[7] Acadia Center has also evaluated the proposed frameworks for measuring the costs and benefits of grid modernization investments in New York and Massachusetts. 14-M-0101 Acadia Center comments on Benefit Cost Analysis Staff Whitepaper, http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={61A452DA-EAF4-4DCE-8EE3-313D7F1164A7}, and MA DPU Docket No. 12-76 Comments of ENE on the Business Case Filing Requirements, http://web1.env.state.ma.us/DPU/FileRoomAPI/api/Attachments/Get/?path=12-76%2fENE_BusinessCase_Comm.pdf

[8] The Staff Whitepaper on Ratemaking and Utility Business Models explains that market-based earnings are intended to supplement rate-based revenues, but utilities will continue to have a statutory obligation to provide reliable service and receive fair compensation. MBEs are an opportunity for utilities to earn revenue, but will not entirely replace cost-of-service regulation.

Massachusetts

Unlike New York, the Massachusetts DPU's order does not link utilities' revenue to grid modernization goals and, as such, misses an opportunity to align utility decision-making criteria with the Commonwealth's consumer, energy, and environmental goals. The Department required the utilities to develop statewide and company-specific metrics to track- but not yet reward- progress towards, 1) investing in modern technologies and strategies and, 2) achieving the objectives of grid modernization.

In the Grid Modernization Plans submitted in August 2015, the utilities rejected the majority of the infrastructure and performance metrics proposed by the Department, including two metrics aimed at measuring reductions in system peak demand. National Grid offered the most comprehensive description of the process used to develop the metrics, and proposed four performance metrics linked to technology deployment. National Grid proposed to submit qualitative, written reports on research, development, and deployment, customer load management, and marketing, education, and outreach efforts in lieu of quantifiable metrics. Unitil is the only company that included customer satisfaction and empowerment metrics as suggested by the Department.

How Consumers Pay for the Power They Use

Most residential electricity prices are flat: the same price per kilowatt-hour any time of day or season. Rate innovations like time-varying rates provide better economic incentives to reduce generation and distribution costs and create opportunities for consumers to save money by taking advantage of low-cost hours.

Massachusetts

The Massachusetts DPU took an important step by requiring utilities to establish default TOU rates for energy supply with a critical peak pricing component. The DPU cites benefits including increasing system efficiency, incentivizing peak load reductions, and promoting DER. Acadia Center supports the DPU's determination on TOU rates, but finds that the utilities' distribution rate design proposals will reduce customer control over energy bills, discourage adoption of DER, reduce incentives for energy efficiency, and undermine the objectives of grid modernization.

National Grid proposes an opt-out TOU rate structure that appears to conform to the DPU's grid modernization objectives, but the utility also proposes to impose tiered fixed charges, add new fees on stand-alone solar projects and other types of distributed generation, and reduce per kilowatt-hour rates and net metering credit values for solar. Eversource did not comply with the DPU order, proposing instead limited, opt-in TOU pricing. Eversource estimates that only 5% of its customers will adopt this option. Unitil proposes opt-in time-varying rates (TVR) and critical peak pricing.

New York

The NY PSC has proposed studying coincident peak demand charges for mass-market residential customers. The demand charges would replace portions of the fixed and per kilowatt-hour charges on customers' electric bills. Acadia Center strongly disagrees with the assertion of several utilities that "the transition of fixed cost recovery away from volumetric rates" is in the best interest of customers. Excessive fixed charges run counter to the consumer-friendly rate design principles that are at the heart of UtilityVision and NY REV.

Acadia Center is encouraged by the PSC's proposed rate design reforms, but urges the PSC to avoid reliance on fixed charges that have been gradually increasing in New York State over the years. Acadia Center recommends

that the PSC strictly limit fixed charges to the costs of connecting the customer to the distribution system, and consider public policies that justify even lower fixed charges.

How Consumers Get Paid for the Power They Produce

Across the United States, a debate is underway about proper rate design and compensation models for distributed energy resources generally and distributed solar generation specifically. In many states, customers with solar panels, wind turbines, or other power generation receive credits for excess electricity they provide to the grid when they generate more power than they need. In some cases, the customer pays the utility retail rate for her net electricity consumption and gets credited at the retail rate for the power she sends back to the grid. The value of solar power –or wind power, or power stored in a battery or electric vehicle- however, is not necessarily the same as the retail price. It may be higher or lower depending on location, time of day, and many other factors. Acadia Center's UtilityVision lays out a full agenda for long-term rate reform to ensure that customers with distributed generation pay the amount that reflects the costs of staying connected to the grid and get credited for the benefits they provide. Acadia Center's Next Generation Solar Framework presents balanced reforms to net energy metering (NEM) credit value that can be implemented in the near-term.[9]

Massachusetts

The MA DPU's orders on grid modernization did not provide specific guidance to the utilities to address compensation to distributed generation customers. Nonetheless, National Grid's proposed rate design in Massachusetts will negatively impact customers with distributed generation. National Grid proposes to decrease per kilowatt-hour rates, which will reduce compensation to customers sending power back to the grid. Reducing the per-kWh rate will decrease the credit value received by distributed generation customers under the net metering rules in Massachusetts, undermining the economics of DG. In addition, National Grid proposes to establish new fees on distributed generation projects without on-site consumption. The fee would arbitrarily discourage new solar projects across their service territory, and undermine community shared solar projects.

New York

The goal of the NY PSC's proposed ratemaking reforms is to properly compensate DER customers and to provide accurate price signals. The PSC acknowledges the simplicity and functionality of NEM and recommends that it continues to be used and possibly expanded to new DER technologies. The PSC also addresses the rate at which DER customers should be compensated, stating that "[t]he current convention of crediting at the average retail rate may be either too little or too much based on the nature of the resource and its location." The PSC suggests a new method of calculating the value of DERs, based on a formula called LMP + D (location-based marginal price plus distribution value). Acadia Center supports this approach, but recommends that it is crucial that the PSC expand the list of benefits included in the calculation of the "the value of D" to ensure that all relevant ratepayer benefits are captured.

Several utilities responded to the PSC's proposal with adamant opposition to NEM in general, and NEM for community-based distributed generation in particular. Incorrectly alleging that net metering shifts overall costs from NEM to non-NEM customers, the utilities call on the PSC to "move expeditiously to eliminate the existing

[9] Available at: http://acadiacenter.org/document/nextgensolarframework/

NEM distribution rate subsidy."[10] Acadia Center finds the utilities' claims flawed and does not support ending the longstanding NEM policy before a more granular mechanism for valuing DER is developed.

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[10] 14-M-0101, the Joint Utilities Comments on Staff White Paper on Ratemaking and Utility Business Models at 34.