Advancing the Clean Energy Future

Acadia Center

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Debra A. Howland
Executive Director, NHPUC
21 S. Fruit St.
Suite 10
Concord, NH 03301-2429

RE: Docket IR 15-296 Investigation into Grid Modernization

Dear Executive Director Howland,

As set forth in the Order of Notice, dated July 30th, 2015, this docket seeks to inform the stakeholders about grid modernization and to explore the opportunities for grid modernization in New Hampshire. To this end, the Commission is seeking comments on the definition, or elements, of grid modernization that should be included in this investigation.

Acadia Center is a non-profit, research and advocacy organization based in the Northeast. Acadia Center is at the forefront of efforts to build clean, low carbon, and consumer friendly economies. Acadia Center's approach is characterized by reliable information, comprehensive advocacy, and problem solving through innovation and collaboration.

Grid modernization forms a core part of the opportunity in New Hampshire to build a more resilient, reliable, cleaner and economically productive energy system that embraces new, increasingly cost-effective energy options and positions the state for a more efficient and consumer friendly energy future. Acadia Center's views on these issues are incorporated into documents including EnergyVision[1] and UtilityVision[2]. Acadia Center has participated in grid modernization proceedings in other states in the region, including ongoing involvement in Massachusetts, Rhode Island and New York's *Reforming the Energy Vision* process, which "aims to reorient both the electric industry and the ratemaking paradigm toward a consumer-centered approach that harnesses technology and markets."[3]. Acadia Center also served on the stakeholder steering committee and as an expert witness in the Massachusetts Department of Public Utilities' grid modernization investigation.[4] We thank the Commission for this opportunity to provide comments.

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[1] EnergyVision: A Pathway to a Modern, Sustainable, Low Carbon Economic and Environmental Future. Available at http://acadiacenter.org/document/energyvision/

[2] UtilityVision: Reforming the Energy System to Work for Consumers and the EnvironmentAvailable at: http://acadiacenter.org/document/utilityvision/

[3] Case 14-M-0101 New York Public Service Commission Order Adopting Regulatory Policy Framework and Implementation Plan, Feb. 26, 2015.

[4] Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid (D.P.U. 12-76).

Articulating Key Goals and Outcomes

Policy reforms and regulatory changes around modernizing the grid and transitioning to the world of "two way" power flow between consumers and the grid should assessed around a set of key goals that are clearly articulated. These can include goals such as: maintaining a reliable grid; removing rate and other barriers to customer-side energy resource investments; facilitating markets for distributed energy technologies; meeting climate and clean air goals; optimizing the grid at the distribution level with the full array of available technologies such as energy efficiency, dynamic load control, and distributed clean energy generation like rooftop solar and community wind; and preparing the grid for increased market penetration of electric vehicles, other storage technologies and high efficiency electric heating from heat pumps. Consumer interest in these technologies is growing quickly and the proceeding should focus on ways to appropriately facilitate the evolution of the energy system to one where consumers and our homes and businesses play a leading role in siting and using energy.

The rapid development of cost-competitive, cleaner locally based energy resources offers consumers and communities far greater opportunities than ever before to select energy resource options, but only if the rules that govern rates and revenue evolve to facilitate a decentralized energy future. Drawing on the recommendations in its publication, UtilityVision, and from lessons learned in other states, Acadia Center recommends that the New Hampshire Public Utilities Commission should address the following five areas in the grid modernization investigation:

1. Comprehensive, multi-year strategic grid plans;
2. Consumer stakeholder advisory council;
3. Realigning utility incentives;
4. Reform retail rates to improve customer incentives and maintain customer control;
5. Better align compensation for distributed generation with value.

2. Strategic Planning for a Consumer-Focused Power Grid

Traditionally, utilities invested in capital infrastructure, such as circuits, substations, 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, distributed generation, and demand response can be used instead of—or in combination with—traditional infrastructure projects. In order to integrate these options into planning, Acadia Center recommends that the Commission should investigate how to transition to comprehensive, multi-year Strategic Grid Plans. These plans should start with proactive planning, designed to streamline consumer adoption of new energy technologies. Utilities should forecast adoption of customer-side energy resources, proactively plan more efficient and cost-effective solutions to reliability needs at the local circuit level that embrace local energy options, and compare a wide array of "grid-side tools" and "customer-side tools" to optimize the grid. The range of solutions considered should be broad and comprehensive: ranging from traditional "poles and wires" to new grid technologies like voltage management to customer energy efficiency, storage, and distributed generation.

Strategic Grid Plans should also evaluate a range of options and scenarios on the basis of standard and level criteria, such as cost, benefits, risks, and public policy goals and identify a multi-year action plan, coupled with on-going, independent measurement & evaluation and annual reporting to a stakeholder advisory council and regulators.

Decisions about the grid should be based on a calculation of cost-effectiveness that is aligned with state, consumer, energy, and environmental goals. Cost-benefit frameworks should be designed or expanded to fully reflect priorities such as reducing energy bills and reducing consumers' energy burden, addressing climate change, enhancing consumer control and choice, and system-wide efficiency.

Regulators and stakeholders should use the Strategic Grid Plans to provide the utility with up-front guidance with regard to future resources, grid enhancements, and major capital expenditures. This guidance should provide utilities with greater flexibility and incentive to adopt emerging and innovative technologies and practices.

The Commission should also consider how customer-side resources and energy policies that reduce or shift demand can be included in forecasts of energy consumption and peak demand. System needs should be identified, quantified, and described early enough to allow customer-side energy solutions to be proposed and evaluated. Customer-side energy resources should be eligible for funding from the same sources as traditional infrastructure solutions for reliability needs.

Utility incentives should be reformed so that customer-side energy resources are seen as opportunities and not competition for large, capital-intensive projects that build their rate base.. This investigation should explore how customer-side energy resources can be evaluated as part of any economic justification for new infrastructure projects. Proposed infrastructure projects should demonstrate how the project will maintain safe and reliable service, support clean energy goals, and provide the most cost-effective option compared to competing alternatives.

The Commission should also explore how safeguards for consumers can be maintained and extended to new or expanded retail markets for energy services and equipment so that market players operate in a fair, responsible, and consumer-friendly manner. Protections ranging from winter shut-off restrictions to licensing and code of conduct for companies that approach consumers are among the wide range of consumer protections needed.

3. Consumer Stakeholder Advisory Council.

Improving the consumer voice in energy grid decisions is critically important. Consumer interests in the modern grid cover a broad span of energy-related issues, including affordable energy costs, control over energy usage, , simple and accessible energy information, the opportunity to provide system services, degrees of energy independence (such as customer-sited back-up generation or storage). We strongly encourage the Commission to consider the consumers' role going forward in this ongoing effort to shift away from the centralized, one-way power grid of the past.

A consumer stakeholder advisory council can provide meaningful input into utilities' long-term grid plans and ensure that consumer and environmental benefits are maximized. Structured stakeholder participation in the development and review of long-term grid plans can benefit grid modernization efforts in several ways:

- Address the imbalance in resources and information that can lead to utilities' disproportionate ability to influence regulatory decisions and result in the public perception of unfairness.
- Achieve greater buy-in by all affected parties, which can reduce the total time of making and implementing decisions. This reduces the regulatory burden and the potential for litigation or appeals of regulatory decisions.
- Bring together diverse interests to identify, discuss, and address complex issues and provide recommendations. This helps overcome information gaps and assists regulators' evaluation of plans and policies.

- Build a foundation of common knowledge will lead to greater public acceptance. Actively engaging consumer, business, and environmental interests will ensure more balanced and stable outcomes—a process that has worked well in several states to advance energy efficiency investments and could be adopted and expanded.

4. Aligning Utility Incentives with Consumer and Environmental Goals

The Commission should explore performance incentive mechanisms to provide utilities with appropriate financial incentives to make proactive investments in the grid—such as upgrading circuits to connect more roof-top solar—or to deploy advanced metering or communication systems. These incentives should be designed to reward utilities for meeting energy efficiency and clean energy goals, minimizing the cost of the grid, and providing choices, opportunities, and control to consumers. In particular, this investigation should explore how to fully implement revenue decoupling in the state in order to remove utilities' financial incentive to increase throughput, taking into account the findings of the commission established under SB 60, and how Strategic Grid Plans should be used to set rates and inform performance incentive mechanisms.

Acadia Center recommends that the Commission investigate requiring the utilities to develop statewide and company-specific metrics to track in a grid modernization plan. These could include: 1) Infrastructure metrics that track the implementation of grid modernization technologies and systems; and 2) Performance metrics that measure progress towards the objectives of grid modernization, however they are defined.

The Commission should also explore whether these should be tied to utility earnings and address a broader range of objectives and include categories addressing affordability, energy efficiency, system utilization and efficiency, and market development, among others.

5. How Consumers Pay for the Power They Use

A grid modernization investigation should also explore an electric rate design to empower consumers to make smart energy and economic decisions, and preserve consumer incentives to use electricity wisely.

The investigation should address how best to move towards widespread adoption of rate structures that will give customers the tools to optimize their energy use. Both coincident demand charges and time-varying rates are good options to consider to align rates for transmission and distribution with underlying system costs, while still creating opportunities for consumers to lower their energy bills through energy efficiency and other customer-side resources.[5]

The Commission should explore how to phase-in significant rate innovations on a strategic schedule to ensure maximum consumer benefit and adoption. Consumers should be given time to fully understand the new rate system before it goes into effect. For example, time-varying rates may start as opt-in, transition to opt-out, before finally becoming mandatory. Shadow billing could be used to illustrate to customers what they would have paid under different rate options.

[5] Acadia Center recommends that utilities avoid reliance on fixed charges, which limit consumer options

Advanced metering infrastructure (AMI) should be deployed when and where it is cost-effective. For example, AMI may be geographically targeted based on grid needs; rolled out based on customer size; or installed whenever old meters are retired. New residential rate classes can be created for customers with AMI, or for those who have high energy consumption. In addition to the current requirement under RSA 374:62that customers must give written consent to smart meter infrastructure, customers could also be allowed to opt into new rate structures.

The Commission should also explore the mechanisms for cost-benefit analysis and consumer impact evaluation during the phase-in. Keeping certain consumer segments, such as low income, on existing rate structures, or giving options to opt-in, could be justified by both economics and consumer protection principles.

6. How Consumers Get Paid for the Power They Produce

In New Hampshire consumers with solar panels, wind turbines, or other power generation systems receive credits for excess electricity they provide to the grid when they generate more power than they need. At the end of the year these customers may elect to receive payment for the net excess generation (NEG) at the utility's avoided-cost rate. Each utility's net metering tariff must be identical, with respect to rates, rate structure, and charges, to the tariff under which the customer would otherwise take default service from the utility.

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/or many other factors. Customers with distributed generation should pay the amount that reflects the costs of staying connected to the grid and get credited for the benefits they provide to the grid. In the long term, advanced metering and time-varying rate structures will make it possible to accurately charge and credit consumers for the grid services they use and provide. Until these innovations are widespread, credit values could be set based on the benefits customer-side resources provide to the grid.

Net output from distributed generation should be credited at a price that fully reflects its grid-wide costs and benefits, including reasonably anticipated environmental compliance costs and the value of avoided energy, capacity, transmission, and distribution costs, along with locational value and other components where appropriate. Some jurisdictions are exploring or implementing "value-of-solar" approaches, and this methodology should be applied—and the right value calculated— for other distributed resources too.

Thank you for this opportunity to provide comment.

Respectfully submitted,

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