



January 17, 2014

Mark D. Marini, Secretary  
Department of Public Utilities  
One South Station- 5<sup>th</sup> Floor  
Boston, MA 02110

**RE: Department of Public Utilities Order, D.P.U. 12-76-A**

**Dear Secretary Marini,**

Please accept the following comments on the Order filed on December 23, 2013 in D.P.U. 12-76, the Investigation by the Department of Public Utilities on its own Motion into Modernization of the Electric Grid.

Boston Community Capital (BCC) is a community development financial institution whose mission is to build healthy communities where low-income people live and work. We accomplish this mission primarily by investing in projects that provide: affordable housing, good jobs, needed goods and services, and new opportunities in low-income communities, connecting these neighborhoods to the mainstream economy. To-date, BCC has made more than 400 loans and investments totaling more than \$967 million to support organizations and businesses that benefit underserved communities.

BCC's interest in the Straw Proposal stems from the work of two of its affiliates, BCC Solar Energy Advantage (SEA) and WegoWise. SEA is a third-party solar developer and one of the largest solar providers for low income communities in the country. SEA has installed more than 12,000 panels, which serve 1,873 affordable housing units and generate 2.7 million kWhs of solar electricity annually - equivalent to the energy needed to power 500 homes. With its next round of solar projects under construction, SEA's project portfolio is expanding to more than 4 MWs of solar across 30 projects.

WegoWise is a company that provides online, automated utility use tracking and benchmarking to affordable housing and other property managers, owners and funders. WegoWise is one of the largest databases of its kind in the country. Its tracking and benchmarking tools allow property owners to manage and reduce their energy use.

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**Affiliates**  
Boston Community Loan Fund  
Boston Community Venture Fund  
Boston Community Managed Assets  
Solar Energy Advantage  
NSP Residentz LLC  
Aurora Mortgage Advisors LLC

For example, in 2011, WegoWise identified \$137 million in lifetime energy savings for Mass Save's Low Income Multifamily Program, which invests in energy efficiency upgrades in low income housing facilities across Massachusetts.

## **I. Introduction**

Grid modernization, as the Department of Public Utilities (the DPU or Department) recognized in opening this investigation (D.P.U. 12-76), represents nothing less than an opportunity to fundamentally change the way we generate, use and pay for electricity. Done right, it will lead to the development of a flexible and dynamic energy system that is more reliable and resilient, is capable of operating at new efficiencies, enables the transition to a 100% renewable energy and empowers all ratepayers to be buyers and sellers of electricity and to better manage their energy use. It will also reshape utility business models, reform ratemaking and create space for the development and use of novel third party applications. This last piece is especially important in Massachusetts where we have a history of cultural, economic, and financial innovation and entrepreneurship. Local companies could very well help shape the future of the modern grid.

The need for grid modernization is obvious. Our current grid infrastructure along with the business model of the utilities that own and maintain it are from a bygone era- conceived of in the 19<sup>th</sup> century and designed only to accommodate the one-way flow of electricity, from centralized fossil fuel and nuclear power generators to customers. Today, and especially in light of the Commonwealth's renewable energy and climate change goals, we need something different. In addition to becoming increasingly obsolete, the grid is aging and in need of replacement. Billions of dollars will be invested in grid infrastructure in the coming years. The question for the DPU's grid modernization effort then becomes, what is the vision of the grid we want to achieve?

The Straw Proposal outlined in D.P.U.12-76-A begins to answer that question but the framework it creates is incomplete. The comments offered below, focus on several ways in which BCC believes the DPU should alter its approach to grid modernization to deliver the kind of comprehensive regulatory response that is needed to modernize the grid.

In summary, BCC believes that this grid modernization effort must:

- (1) Establish a broad vision for the modern grid that, at a minimum, is aligned with existing energy policy goals, such as those established in the Green Communities Act and Global Warming Solutions Act, and addresses the challenges the Massachusetts energy system is currently facing, including overreliance on a single (i.e. natural gas) fuel source and the anticipated retirement of one third of the region's generation resources;
- (2) Set forth clear metrics and timetables for achieving the goals of grid modernization and, where appropriate, penalties for failing to meet them;

- (3) Include a new cost recovery paradigm for all grid modernization investments; and
- (4) Address cybersecurity, privacy and access to meter data as part of this proceeding.

## **II. The Straw Proposal Must Set Forth a Broad Vision for the Modern Grid That Aligns with the Commonwealth's Renewable Energy and Climate Goals and is Responsive to the Challenges the Massachusetts Energy System is Currently Facing**

In response to the Departments query on whether the Straw Proposal provides the correct directives to electric distribution companies on grid modernization, BCC believes it has not. This is because the Straw Proposal, as currently drafted, lacks a broader vision for the modern grid. Such a vision is critical to guide the discretion of the utilities as they draft their Grid Management Plans (GMP) to meet the Department's four grid modernization objectives: "(1) to reduce effects of outage; (2) to optimize demand, which includes reducing system and customer costs; (3) to integrate distributed resources; and (4) to improve workforce management."<sup>1</sup>

This broader vision must, at a minimum, align with the Commonwealth's renewable energy and climate change goals. The Commonwealth has legislatively-mandated renewable energy targets that dictate an increasing percentage of our electricity come from renewable resources and the Governor has set goals technology-specific goals of 1600 MW of solar and 2000 MW of wind by 2020. Between now and 2050, Massachusetts is committed to reduce its greenhouse gas emissions 80% below 1990 levels. This can be viewed as effectively mandating a renewable electricity target of 100% by 2050 as such reductions can only be achieved by decarbonizing the electricity sector.<sup>2</sup>

Taken together, it's clear that the Commonwealth's public policy goals dictate a transition away from fossil fuels in favor of renewable energy. Grid modernization should too. It's simply not enough, for example, to establish a goal of "integrating distributed resources" because distributed resources include fossil fuel as well as renewable energy technologies. Instead, the DPU needs to provide the utilities with a vision that makes clear that instead of investing in modernization efforts that will keep us locked in to a largely fossil fuel-based energy system, they must prioritize investment in infrastructure that enables an increasingly renewable energy future.

This broader vision must also account for challenges the Massachusetts energy system is currently facing. This includes increasing overreliance on a single fuel source, natural gas, to keep the lights on heat our homes as well as the anticipated retirement of one third (i.e. about 8300 MWs) of the regions oil and coal generation resources by 2020.<sup>3</sup> We are currently at risk of doubling down on

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<sup>1</sup> D.P.U. 12-76-A at 3.

<sup>2</sup> As recognized by the Massachusetts Clean Energy and Climate Plan, 2010. Available at: <http://www.mass.gov/eea/air-water-climate-change/climate-change/mass-clean-energy-and-climate-plan.html>.

<sup>3</sup> Natural gas presently accounts for 68% of Massachusetts' electricity generation and heats about half of its homes. See, US Department of Energy at: <http://apps1.eere.energy.gov/states/residential.cfm/state=MA#sources> and US Energy Information

natural gas in the near-term as plans to expand gas pipelines are approved and permits to build new gas-fired power plants are issued.

Grid modernization has a role to play in avoiding the need for continued investment in such centralized, inefficient and long-lived fossil fuel infrastructure by, for example, facilitating the seamless integration of distributed renewable resources, enabling greater levels of energy efficiency and further encouraging demand response.<sup>4</sup> State level investments in energy efficiency, for example, have already deferred the need for transmission upgrades that would have cost ratepayers hundreds of millions of dollars.<sup>5</sup> Without a broader vision, however, the ability to leverage utility grid modernization investments to their fullest potential in response to these challenges could be lost.

Anchoring the Department's grid modernization objectives in a broader vision will also better inform the appropriate pace of grid modernization efforts as well as the metrics by which the utilities should be evaluated. In BCC's view, the utilities must be required achieve more than "measurable progress" in all four of the grid modernization objectives with each GMP. The Department should outline concrete, and where possible, quantitative, targets for each goal as well as timetables to meet them. Where appropriate, the Department should also consider implementing penalties for failing to meet them. This will provide a clear and transparent framework under which progress towards grid modernization can be readily evaluated and provide the utilities with the incentive to meet them.

### **III. Grid Modernization Requires a New Cost Recovery Paradigm for All Grid Modernization Investments**

In the Straw Proposal, the DPU states that "[a]fter consideration, we have determined that grid modernization should become part of normal business practices for electric distribution companies, and the Department expects to evaluate many grid modernization investments in base distribution rate proceedings pursuant to the same standards as other capital additions."<sup>6</sup> BCC urges the Department to reconsider this decision.

Requiring utilities to modernize the grid while not reforming the cost recovery mechanisms that would ultimately pay for them constrains the grid modernization effort from the outset. The DPU

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Administration at: <http://www.eia.gov/state/?sid=MA>. See also, Rourke, S. ISO-NE's Strategic Transmission Analysis. ISO-NE, June 14, 2013 and Sheilendranath, A. Strategic Transmission Analysis: Generation Retirements Study. ISO-NE, December 31, 2012.

<sup>4</sup> At the most basic level, grid modernization means moving away from a centralized energy system to one that is more distributed means avoids transmission losses. According to Lawrence Livermore National Laboratory, in 2012, 40% of the primary energy used in the United States went into electricity generation. Of that, two-thirds was lost as waste heat in generation or line losses associated with transmission and distribution. See, LLNL 2013. Available at:

[https://flowcharts.llnl.gov/content/energy/energy\\_archive/energy\\_flow\\_2012/2012new2012newUSEnergy.png](https://flowcharts.llnl.gov/content/energy/energy_archive/energy_flow_2012/2012new2012newUSEnergy.png).

<sup>5</sup> See, Environment Northeast, Energy Efficiency & Electric System Planning - ISO New England Update, March 2012. Available at [http://www.env-ne.org/public/resources/pdf/ENE\\_ISO-NE\\_EEUpdate\\_033012\\_Final.pdf](http://www.env-ne.org/public/resources/pdf/ENE_ISO-NE_EEUpdate_033012_Final.pdf)

<sup>6</sup> D.P.U. 12-76-A at 18.

has itself acknowledged the barrier that traditional cost recovery is to the pace and depth of utility investments, stating that,

“under the current regulatory regime, we are concerned that an electric distribution company will limit large investments in advanced metering functionality, concluding that the benefits will accrue in large part to the customers and not the company. We are concerned that, under our traditional ratemaking precedent, electric distribution companies may hesitate before making investment beyond what they deem is necessary to ensure safe and reliable service. This reluctance may exist, for example, even when the investments are cost-beneficial for a company but involve high capital costs combined with regulatory lag for potential disallowed costs.”<sup>7</sup>

This is precisely why the grid modernization requires a new cost recovery paradigm as well as fundamental rate restructuring. Traditional cost recovery focuses more on avoiding excessive costs and less on driving innovation. The success of grid modernization is heavily dependent on innovation and motivating the utilities to evaluate and adopt technologies that significantly depart from traditional grid investments. Further underscoring the need for a new cost recovery paradigm is the fact that many new technologies have benefit streams that extend many years beyond when the initial costs have been incurred and/or provide benefits that are difficult to quantify. Investments in such technologies might be difficult to justify under traditional rate recovery. This consideration could unnecessarily bias investments away from new and innovative technologies and slow the pace of modernization.

In adopting a new cost recovery paradigm for grid modernization, the DPU will need to determine the appropriate balance between providing the appropriate incentives for utility investment in innovation and protecting ratepayers from higher costs and excessive risks. In BCC’s view, the Utility of the Future Framework successfully strikes that balance and the Department should give it further consideration.<sup>8</sup> BCC believes that within this Framework, the Department can also determine which grid modernization benefits are most likely to provide benefits and cost savings to low-income ratepayers and ensure costs are allocated appropriately. Properly managed, modernizing the grid and maintaining affordable electricity rates are not mutually exclusive.

#### **IV. The Department Should Address Cybersecurity, Privacy and Access to Meter Data as Part of This Proceeding.**

BCC supports the Department’s requirement to achieve advanced metering functionality (AMF). However, to ensure a comprehensive and holistic approach to the implementation of AMF, issues related to cybersecurity, privacy and access to meter data must be dealt with in this proceeding. Failure to do so could result in missed opportunities to maximize the potential for the AMF to serve

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<sup>7</sup> D.P.U. 12-76-A at 9.

<sup>8</sup> See, the Utility of the Future Framework as discussed in the D.P.U. 12-76 Massachusetts Electric Grid Modernization Stakeholder Working Group Process: Report to the Department of Public Utilities from the Steering Committee. Final report, July 2, 2013.

as an open access platform that enables further innovation in the areas of energy services and management.

To some extent, that innovation is already taking place. Consumers can already buy Nest thermostats that automatically adjust the heat down when no one is home; the software company OPower partners with utilities to promote energy efficiency; and Comcast's light switch service allows residential subscribers to remotely control their lights from a smartphone, tablet or computer. Further, companies like vCharge have figured out how to deliver savings to utility customers by coupling distributed electric load to energy storage systems capable of responding to changing grid and market conditions; Solar Grid Storage system that provides localized ancillary services for utilities and financial benefits to host customers; and EnerNOC is using demand response and energy management solutions to save customers money.

This innovation is taking place largely outside the current regulatory framework of the grid. There needs to be space for this type of innovation to occur within the framework of grid modernization such that every customer has access to the range of benefits and services offered by a smarter grid. A more limited or incremental approach runs the risk of creating a two-tiered system whereby those customers unable to afford services offered outside of the AMF construct are left behind, while those that opt-out will resist charges for modernizing the grid for services that they don't need to use.

The potential for these types of applications and those that have yet to be imagined to further reduce energy consumption, strengthen grid resilience increase efficiency and provide other unanticipated benefits is tremendous. In many ways, this opportunity is comparable to the innovation that has been unleashed in the telecommunications field with the deregulation of that industry, spurring applications and benefits that we cannot imagine living without but that were unanticipated as drivers, goals or outcomes at the time of the initial telecommunications restructuring.

Capturing that potential requires wresting the monopoly of ownership and control of utility data away from the utilities and giving it to ratepayers. While the utility must retain rights to access the data, the individual ratepayer should own the data; all such data must be capable of wireless transmission from meters and other utility-owned equipment to the ratepayer in an accessible and manageable format; and the ratepayer should have the option to share data with third parties in order to take advantage of applications and technologies that facilitate better energy management and other energy-related activities. Ensuring that data sharing and open access are part of the modern grid will also mean that every customer will have the ability to access the range of grid services and products enabled by a more modern grid, not just those with the financial and technical capacity to develop or own separate systems.

BCC acknowledges that identifying and resolving the many important questions around cybersecurity, privacy and access to meter data will take time. Nevertheless, it's essential to settle

these issues before utility deployment of the AMF begins to ensure that the significant investment in grid modernization infrastructure is done right.

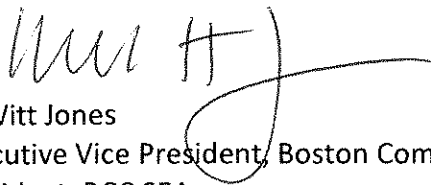
## V. Conclusion

BCC applauds the DPU's efforts to facilitate and guide the direction of grid modernization. A broader vision is needed, however, to guide the grid modernization process. Utility investments in modernization, to meet the Department's grid modernization objectives, must support the Commonwealth's renewable energy and climate change goals and be responsive to the challenges our energy system faces. Similarly, the metrics used to gauge progress towards achieving the goals of grid modernization must be anchored by this broader vision, include clear timetables as well as mechanisms that hold utilities accountable for attaining them.

Moreover, the Straw Proposal's framework for grid modernization is currently incomplete. The Department appears to be aiming to achieve a dramatic transformation of the grid's physical infrastructure largely within the confines of traditional rate recovery mechanisms. This simply won't work. The framework for grid modernization must reform all aspects of the traditional centralized utility model paradigm. Neglecting the business and rate recovery aspects of grid modernization will lead to profound misalignment of interests and investments. Finally, grid modernization must also resolve issues around the ownership of and access to data in a way that further encourages opportunities to innovate outside the utility framework. Put another way, the DPU must ensure that the distribution utilities are not competing with their customers and third party service providers working with their customers.

BCC is grateful for the opportunity to provide its thoughts on the Straw Proposal and looks forward to continued collaboration with the Department and in its efforts to construct a resilient, flexible and renewable energy system for the Commonwealth.

Respectfully submitted,



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