
**Massachusetts Grid Modernization Working Group
Steering Committee
Draft Goals¹**

January 18, 2013

1. The Goal of Grid Modernization Working Group²

To help Massachusetts establish regulatory policies and a road-map that will enable Massachusetts electric distribution companies and their customers to take advantage of grid modernization opportunities, both in the short-term and over the long-term.

Specifically, ensuring that electric distribution companies plan for and adopt cost-effective grid modernization technologies and practices that have been demonstrated to achieve their intended purpose in order to:

- enhance the reliability of electricity service; and
- reduce electricity costs; and reduce the rates that Massachusetts customers pay in the short and long term for distribution, generation, and transmission service.
- ~~empower customers to adopt new electricity technologies and better manage their use of electricity~~

2. Grid Modernization Opportunities Identified in the Department in its NOI

~~Grid modernization opportunities include the following~~ Grid Modernization opportunities identified by the Department in the NOI include the following:³

- 1) reduce the frequency and duration of customer outages through automated, remote-controlled grid devices and real-time communication to the distribution companies of outages and infrastructure failures;
- 2) provide customers with the information, price structures, technologies, incentives, and tools to empower them to use electricity more efficiently and reduce their individual energy bills;
- 3) improve the operational efficiency of the grid, particularly during peak times when the grid is most stressed and electricity is most expensive;
- 4) reduce transmission and distribution system operation, maintenance, and construction costs by reducing electricity demands at times of system peaks;
- 5) reduce New England wholesale and retail electricity prices, by reducing electricity demand at times of system peaks;
- 6) facilitate the integration of distributed generation resources and new

Comment [AG1]: Customers adopting “new technologies and managing electricity use” is not an goal in and of itself, rather, it is a means to reach desirable ends such as a reduction of peak load and lowering of energy costs. Therefore, in our view, it’s not appropriately included in the first heading.

Comment [AG2]: Because the document (with the exception of the two edits in the list below) quotes the NOI verbatim, we think the document should make clear that the “opportunities,” is a direct quote from the NOI.

¹ The list of Goals, Grid Modernization Opportunities and Potential Barriers and Challenges is evolving and does not necessarily represent a consensus among the Working Group for the purposes of drafting the Final Report. Instead, it is intended to act as a guide for Working Group members on goals and issues of interest for Working Group discussions.

² Based on DPU NOI.

³ ~~See~~ DPU NOI, pages 3&4.

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technologies, such as renewable energy technologies, combined heat and power, energy storage, and electric vehicles;

- 7) enhance the success of the Massachusetts energy efficiency initiatives, through the use of marketing campaigns and the advancement of technologies that both reduce peak demand and save energy; and
- 8) reduce greenhouse gas emissions from the electric sector by: increasing the operational efficiency of the grid, reducing the need for the high emissions generating plants, which run primarily during times of peak electricity demand; empowering customers to use energy more efficiently; and facilitating the integration of demand resources into the grid.

¹ ~~Based on DPU NOI~~

² ~~See DPU NOI, pages 3&4.~~

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3. **Potential Barriers and Challenges to Implementing Grid Modernization ~~under Current Practices.~~**⁴

~~1) There is insufficient information and reputable studies that document the impact of many Grid Modernization technologies and programs when implemented on a large scale.~~

~~2) Utility financial interests and incentives may not be well perfectly aligned with the goal of taking full advantage of cost-effective grid modernization opportunities.~~

~~2) Current regulatory policies may not provide utilities with sufficient direction regarding grid modernization investments. This is particularly true with regard to regulatory review, cost recovery, and time varying rate policies.~~

~~3) Assessing Accurately forecasting the costs and benefits of grid modernization is challenging, and the framework has not been defined may be impossible. Some of the potential new functionalities and benefits have not been or cannot be quantified. Other benefits 1) are associated with traditional utility ratemaking considerations and relate primarily to wholesale market activities not under the control of state regulators; 2) concern reliability, which cannot be quantified; or 3) reflect societal benefits that are not directly linked to ratepayer customer benefits and can also not be quantified. are difficult to quantify and monetize, and some of the benefits and costs are experienced differently by different stakeholders. Also, a~~

~~4) Any regulatory incentive for grid modernization increases the risk that customers will pay higher costs for investments that do not result in the promised benefits.~~

~~5) A large portion of the costs for Grid Modernization may be experienced in the short-term while most of the benefits, even if realized, may not be experienced until well into the future.~~

~~3)~~

~~4)6) Balancing the benefits of increased reliability against increased costs is complicated given the absence of clear established cost effectiveness methodologies because while reliability performance can be measured, the value that customers may assign to this improvements is not well understood or measured in current cost-effectiveness methodologies.~~

~~5)7) Some customers may be at risk of experiencing higher costs without experiencing comparable benefits. Although the costs of approved grid modernization investments will be paid by all customers, the distribution of the benefits in the form of lower bills or lower prices will not be uniform.~~

~~6) The scope of the issues is broad and complex. There are many overlapping and inter dependent issues to understand and assess. There are many different actors and stakeholders involved, many of whom do not coordinate on these~~

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Comment [AG3]: Item two in the draft goals document is duplicative of item one in the draft.

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Comment [AG4]: This could be more effectively be broken out into a separate bullet.

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⁴ Barriers list is an amalgam of barriers and challenges voiced at the Kick-Off Workshop and first Steering Committee meetings, the NOI, etc.

~~issues.~~

Comment [AG5]: This item is so vague as to be meaningless.

~~7)8) The pace of technological change, and the potential for technological obsolescence, increases the complexity of the issues. Grid Modernization technology is in its infancy. Accordingly, implementation of Grid Modernization technology creates the risk that upgrades will become obsolete in the near term.~~

~~9) In order to obtain some of the benefits of grid modernization it will be important to engage customers: to respond to time varying rates, to install demand response and efficiency technologies, and to install distributed generation and storage technologies. Even with increased education, Customer engagement response to time varying rates may be uncertain, may vary significantly across different groups of customers, and may be highly dependent upon the types of technologies and programs offered them.~~

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~~10) Because some customers will be more responsive to, and in a better position to reduce their peak load in connection with, time varying rates than others, one challenge is to calibrate any roll-out of customer-facing technology only to those customers groups who have the potential to provide benefits that exceed the costs.~~

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~~11) Electric rates paid by Massachusetts customers (electric, distribution and generation rates) are already among the highest in the country and the additions of costs on top of already high rates may present a significant challenge, especially in the short-term.~~

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~~12) The cost to pay for wide-scale deployment of many grid modernization technologies remains uncertain and hard to estimate.~~

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~~13) Empirical data from pilot programs (DOE, MA, etc.) is not available and presents serious limitations on the ability to accurately predict customer reaction to time varying rates, the extent that time varying rates can reduce peak load in Massachusetts, and the extent that time varying rates will impact vulnerable demographic groups.~~

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~~14) Technological barriers may present a challenge, e.g., Grid Modernization technology may not be able to do what stakeholders want it to do.~~

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~~15) Benefits of grid modernization technologies may be difficult to identify and verify. Consequently, customers may not necessarily realize proffered benefits of grid modernization activities.~~

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~~16) Utilities know their own systems, and what improvements are most likely to lead to increased reliability, better than anyone. Accordingly, a "top down" approach to Grid Modernization could result in harmful micromanagement of utility affairs to the detriment of both the utilities and customers.~~

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~~17) Massachusetts' "Service Quality Guidelines." as will likely be revised in the~~

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near future by the Department, set appropriate incentives for improving reliability in Massachusetts. Accordingly, allowing utilities to modernize their systems in a more organic manner to meet stricter service quality benchmarks may provide the most cost-effective approach to Grid Modernization, and additional policies as such may be redundant, unnecessary, and add unnecessary costs to customers.

18) Studies have shown that the impact of Grid Modernization on environmental issues such as greenhouse gas emissions is small, if it exists at all.

19) The implementation of Grid Modernization creates additional privacy and security issues that need to be addressed in any roll-out plan.

20) The trend towards municipalities to aggregate their load could create stranded costs to the installation of advanced metering, because customers within a municipal aggregation are typically supplied by a single generation source and are therefore likely to have flat charges for generation rather than time varying rates.

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