Massachusetts Electric Grid Modernization

Intelligent Illuminations Inc. provides the following statements in response to the Massachusetts Electric Grid Modernization Steering Committee Report to the Massachusetts Department of Public Utilities (DPU):

Notice to add to the following report:

DPU 12-76 Massachusetts Electric Grid Modernization Stakeholder Working Group Process: Report to the Department of Public Utilities from the Steering Committee.

Smart Grid is a term which embraces an enhancement of the power grid to accommodate the immediate challenges of the near future and provide a vision for a future power system in the long term. The main focus is on an increased modernization, monitoring and controllability of the power grid, including all its participating elements.

The Massachusetts Department of Public Utilities opened this proceeding in order to solicit input on how to ensure that the Department's policies facilitate adoption of smart grid modernization technologies and practices.

The committee's efforts to specifically examined policies to ensure that electric distribution companies adopt grid modernization technologies and practices in order to enhance the reliability of electricity service, reduce electricity costs, and empower customers to adopt new electricity technologies and better manage their use of electricity.

When establishing the regulatory framework, the DPU should take into account the following considerations of the Five Fundamental Technologies that will drive the Smart Grid:

1. Integrated communications
    - Connecting components to open architecture for real-time information and control, allowing every part of the grid to both 'talk' and 'listen'.
2. Sensing and measurement technologies
    - Supporting faster and more accurate responses such as remote monitoring, time-of-use pricing and demand-side management.
3. Advanced components
    - Applying the latest research in super conductivity, storage, power electronics and diagnostics.
4. Advanced control methods
    - Monitoring essential components, enabling rapid diagnosis and precise solutions appropriate to any event.
5. Improved interfaces and decision support
    - Amplify human decision-making, transforming grid operators and managers quite literally into visionaries when it comes to seeing into their systems.

(The Smart Grid: An Introduction, Litos Strategic Communication for the U.S. Dept. of Energy, 2010)

The ***Street and Area Lights*** which were not included in the report is an essential element of the Smart Grid. Street and Area lighting consume a significant amount of power which is distributed from the power grid and the method of distribution for street light power is the same as it is for homes and buildings.

Modernization of existing power grids, i.e. creating smart grids, must include roadway and area lighting control using the technologies identified by the U.S. Department of Energy. Based on their assessment the street light is fundamental for technologies that will drive the Smart Grid for the following reasons:

- ***Street and Area Lights*** consume a significant amount of power which is distributed from the power grid.
- Identification of day burners, high current, and high voltage usage can create significant cost and energy consumption savings by having the immediate capability to turn ***Street and Area Lights*** off.
- Empowering rural customers, who own their lights, with the ability to turn their lights on and off as they need them.
- Virtual observation will inform technicians when lamps are broken or are in need of replacement.
- Opportunity to control ***Street and Area Lights*** by using dimming solutions which will result in energy consumption savings.
- Monitors and Controls included on the grid will provide improved reliability, resiliency, and cost savings for businesses and residents.
- Tariff compliance and the ability to know precisely how much energy is consumed by ***Street and Area Lights***.
- Additionally, this ability will decrease the amount of time, cost and fuel expended on the deployment of linemen to rural areas.

Concluding Recommendation:
Grid modernization is an important component of on-going efforts to promote clean energy resources and encourage electric distribution companies to develop more efficient and reliable systems. To responsibly create truly smart grid solutions and systems it is absolutely necessary to evaluate and consider developments and investment in all elements that are a part of the Smart grid. It is essential to add ***Street and Area Lighting*** to design a roadmap to a more sustainable energy future with the future goals of incorporating monitoring and control systems that help reach benefits through the implementation of a Smart Grid.

Intelligent Illuminations Inc. participated with the DPU in the working group process and applauds the Massachusetts Department of Public Utilities for establishing the working committee and the process for input and recommendations.

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