

**State of New York
Public Service Commission**

Case 07-M-0548 - Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard.

**Comments of the
New York Independent System Operator, Inc.
On Staff's Preliminary Proposal For
Energy Efficiency Program Design And Delivery**

I. INTRODUCTION AND SUMMARY

The New York Independent System Operator (NYISO) is pleased to submit its comments on fast track proposals for new or expanded programs that could begin immediately achieving additional reductions in electricity demand in New York. The NYISO is also participating in each of the four working groups established by the Administrative Law Judges in this proceeding to propose those long term efforts that will be needed to reach the goal of reducing New York's electricity consumption by 15 percent from forecasted levels for the year 2015 ("15 x 15 Initiative").

Although the Department of Public Service Staff has included efforts with regard to transmission and distribution equipment and metering in its description of activities that could provide significant energy efficiency savings in the long term, the NYISO believes discrete projects under these headings can also provide significant energy efficiency savings in the short term and should be pursued as part of this fast track effort.

Specifically, local distribution system line loss mitigation and the adoption of standards for a comprehensive advanced metering infrastructure have the potential to quickly move New York in the direction of increased efficiency. Accordingly, in Point 1 below, the NYISO recommends that efficiencies in local distribution systems be considered as an additional fast track option. In Point 2, the NYISO urges the PSC to adopt measurement and verification requirements for its fast track efforts and suggests specific methodologies. Finally, the NYISO recommends in Point 3 that the New York Public Service Commission (“PSC”) adopt advanced metering standards in the short term in this proceeding, in combination with the PSC’s Advanced Metering Initiative to move that initiative ahead quickly.

II. COMMENTS

1. Reducing Line Losses Can Increase the Efficiency of New York’s Electrical Distribution Systems, thereby Assisting in Achieving the Goals of the 15 X 15 Initiative.

Repairs to and upgrades of local distribution systems can significantly increase the efficiency of the New York State electric system. Accordingly, the NYISO recommends that the PSC direct individual utilities throughout New York State to assess their distribution systems for ways to improve power flow efficiency and voltage quality and to submit plans for such improvements within the context of this proceeding.

Line losses are the energy that dissipates, or never reaches its destination, due to inefficient flow of electricity. Upgrading the voltage levels of local distribution systems reduces line losses and increases through-put to end use customers, thereby delivering to end users more of the energy produced at the bulk power system level. Such distribution

system upgrades are often lower in cost, faster to accomplish, and physically easier to carry out than upgrades to the bulk transmission system. Repairs and upgrades to certain types of distribution system components can also improve voltage quality and reduce line losses. Some of the types of distribution system equipment that should be considered and evaluated for line loss mitigation are shunt capacitors, switch capacitors, feeders, inductors, distribution circuits, distribution line regulators and distribution lines.

Published information has documented the benefits achieved by utilities that have executed programs to improve voltage quality on their distribution lines.¹ It is the NYISO's understanding that at least one New York State utility has also conducted a local distribution voltage analysis and implemented a capacitor upgrade program. As the literature suggests, these programs can result in a significant increase in system efficiency and consequent savings per megawatt hour (MWh). Snohomish County PUD, for example, pursues ongoing efforts to improve the efficiency of its distribution system, focusing on optimizing its distribution system through voltage reduction. These efforts have produced significant efficiency increases and cost savings, both to the utility and its customers.²

In summary, the NYISO recommends that the PSC direct the New York utilities that have not already done so to file plans in the short term to undertake local distribution

¹ B.W. Kennedy and R.H. Fletcher. "Conservation Voltage Reduction (CVR) at Snohomish County PUD." IEEE Transactions on Power Systems. Vol 6. No. 3. August 1991. pp. 986-998.; R.H. Fletcher and A. Saeed. "Integrating Engineering and Economic Analysis for Conservation Voltage Reduction." IEEE Power Engineering Society Summer Meeting, 2002. Vol.2. July 25-25, 2002. pp. 725-730; H. Fletcher and A. Saeed. "Integrating Engineering and Economic Analysis for Conservation Voltage Reduction." IEEE Power Engineering Society Summer Meeting, 2002. Vol.2. July 25-25, 2002. pp. 725-730.

² *Id.*

system voltage analyses, and to make the identified equipment upgrades that will improve the voltage profile of their loads. The NYISO also recommends that these utilities also undertake periodic inspection programs.³ These measures have the potential to make more efficient use of the electricity actually produced, thereby assisting in the goals of the 15 x 15 initiative.

2. The NYISO recommends that the Public Service Commission Adopt Measurement and Verification Requirements for Fast Track Programs

It is essential to the success of New York's 15 x 15 Initiative that energy savings achieved in the short term be measured and verifiable. To that end, the NYISO proposes that an evaluation program be included in the plan for short term energy efficiency savings. The NYISO proposes an evaluation program consisting of direct metering of a small but representative sample of homes and businesses that participate in fast track energy efficiency programs, together with the analysis of a control group in each instance, in order to measure the efficiency gains obtained. Effective measurement and verification of efficiency and demand response efforts also allow for an effective redistribution of resources to more successful programs.

A. Metering of Fast Track Efforts

The NYISO proposes that fast track program impact evaluation consist of direct interval metering of electric usage for the residential, commercial and industrial customers participating in fast track programs. Advanced metering technologies now being

³ Periodic, routine inspection of voltage quality or line loss mitigation equipment does not tend to be a function of ongoing line repair and maintenance which is, as a rule, largely a reactive process.

considered in the PSC's parallel proceeding on this topic offer newly developed opportunities to measure usage that could prove to be very valuable in this proceeding.⁴

1. Residential Sector

Residential appliance and usage patterns are fairly consistent across large numbers of homes. Therefore, for residential programs, effective evaluation can measure participant usage and use non-participant usage as a control. The NYISO proposes that a total of 125 meters be placed on a representative stratified sample of single family detached residences, with 75 meters for participants and 50 for non-participants. These sample sizes should be sufficient to obtain 90% confidence and 10% accuracy for this segment of the residential sector.

Modern metering capabilities being discussed in the Advanced Metering Initiative can also provide end use profiles for major home appliances. By utilizing these advanced technologies, the PSC (or utility company implementation teams) can determine the energy efficiency impact of whole-house, multiple-measure programs addressed through this fast track effort with high accuracy and low cost. Usage data obtained from this evaluation approach will also enable the PSC to understand the extent to which new home appliances and current HVAC technologies can contribute to energy efficiency. The data can also be instrumental in the design of critical peak pricing programs being discussed in the working groups.

⁴ See: PSC Proceedings in CS94-E-0952, CS00-E-065 and CS02-M-0514, ("the Advanced Metering Initiative")

2. Commercial and Industrial Sectors

The usage characteristics of commercial and industrial facilities are much more heterogeneous than the residential sector. Accordingly, a successful metering strategy should use, as the control, measurements before efficiency measures are installed at specific locations rather than measurements obtained by sampling participant and non-participant groups. While it is possible to install new meters on commercial or industrial facilities, the NYISO suggests that it would be more cost effective to acquire the premise-level hourly load profiles currently obtained from most large commercial and industrial facilities by their load serving entities.

B. Data Access and Confidentiality

In prior New York State conservation initiatives, impact evaluations that relied on billing analysis or metered data analysis were not performed because of a lack of access to electric energy usage data, or because of data confidentiality issues. Verifying the actual performance of energy efficiency measures is too important in the instant proceeding not to overcome these issues. Data collection activities are commonplace across the energy industry. The NYISO encourages the PSC to require metering data be submitted under its Public Service Law Section 66 authority to obtain access to books and records. Similarly, the PSC can assure non-disclosure of confidential metering data pursuant to its authority under Public Service Law Section 15 and related procedures established by the Department Records Access Officer. Adequate measurement and verification of energy conservation measures for fast track projects are fundamental elements in developing New York's Energy Efficiency Portfolio Standard and should be included in the initial, fast track efforts.

3. The NYISO Recommends that the PSC Proceed with Advanced Metering as a Fast Track Project to Promote Energy Efficiency

In the NYISO's response to the questions posed by Judge Stein to the Parties in the Energy Efficiency Portfolio Standard, the NYISO emphasized that market signals (i.e., prices) provide powerful incentives for producing sought-after market behavior.

Wholesale electricity prices established through the NYISO's wholesale markets reflect the cost of electricity, both on a day-ahead hourly and a real-time basis. These prices signal savings that can be achieved through curtailing consumption or shifting energy usage to lower cost periods of the day. Coupling new metering technologies with retail pricing structures that coincide with wholesale marketplace pricing intervals could provide end-users with the requisite cost information and incentives to curtail their usage or at least shift usage to less costly periods of the day when their continued usage is not, in their minds, cost effective. While shifting usage to lower cost periods does not necessarily imply an overall reduction in consumption, it would directly affect peak demand and may reduce power plant emissions to the extent that marginal off-peak facilities have better emission profiles than marginal on-peak facilities.

Although the introduction of new metering technologies into the New York marketplace may be a longer-term endeavor, the development of the standards by which those systems will operate and disseminate information could be fast-tracked through coordination with the PSC's Advanced Metering Infrastructure proceeding, which is currently underway.⁵ Minimum functional standards that recognize the capabilities of currently available advanced metering systems, while encouraging the integration of

⁵ Cases 94-E-0952; 00-E-0165; 02-M-0514

emerging technology, could be adopted. Properly crafted standards can withstand technological and business process evolution, while compelling the integration of emerging technology into New York State's metering infrastructure. Effective minimum standards that provide consistent data formats, common methods of data communications, and practicable data accessibility, in addition to the typical performance and accuracy standards for hardware and firm-ware, would go a long way to fostering appropriate end-user response to price and energy usage signals. Access to high quality data would also equip Energy Service Companies and Demand Response Providers with the information they need to promote energy efficiency and demand response programs throughout New York.

Considering the rate of technological advancement in this area of the energy industry, the PSC may want to take advantage of the expertise in the field to help assure the availability of quality, up-to-date information. Experts in new technologies are often used by NYSERDA to inform it of the latest developments in areas in which it has invested. The same approach could be used here, whether by the PSC or by NYSERDA. Technical and business process experts, knowledgeable in the field of advanced metering could be charged with monitoring, evaluating and reporting on emerging technology and applicable business process effectiveness as these technologies are introduced into the marketplace. Keeping New York's metering and communications infrastructure in step with current industry standards will advance the opportunity not only to measure program success but also to equip New Yorkers with the information necessary to reduce their electricity consumption when it is cost-effective to do so.

III. CONCLUSION

For the reasons set forth herein, the PSC should proceed with the following measures as fast track initiatives to immediately begin achieving the 15 x 15 initiative: (1) direct local distribution utilities to file plans to analyze and, as necessary, upgrade, monitor and maintain voltage supporting equipment on their local distribution systems to minimize line losses; (2) adopt measurement and verification of fast track program performance as suggested by the NYISO; and (3) use the fast track effort to establish standards for advanced metering in conjunction with the PSC's Advanced Metering Initiative.

Respectfully submitted,

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