Energy Efficiency in Rhode Island's System Reliability Planning

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ABSTRACT

Rhode Island's 2006 energy law contains an innovative requirement as part of its overarching least cost procurement mandate. RI's utility is required to develop an electric "system reliability plan" that strategically considers an array of customer-sited energy resources to maximize their benefit to RI's energy system. These "non-wires alternatives" (NWA) include cost-effective energy efficiency measures targeted to reduce peak loads; distributed generation at or near loads; and demand response measures that reduce peak loads on the electricity grid. The utility is asked to assess whether an array of such resources could be deployed to defer or avoid expensive distribution (and transmission) system investments. In 2010-2011, Rhode Island's Energy Efficiency and Resource Management Council (EERMC) and National Grid developed a framework, planning guidelines, and funding options for systematically identifying customer-side and distributed resources that, if cost-effective, defer or avoid distribution and transmission upgrades, improve system reliability, and provide for better utilization of distributed resources. The process enables an objective assessment of alternatives as the utility integrates the analysis of NWAs into distribution planning. This framework was ultimately approved by the Public Utilities Commission and adopted by the utility as internal operating procedure. This paper describes RI's effort to incorporate energy efficiency and NWAs into the utility's distribution planning. The recent success of this effort will be illustrated by a description of the Tiverton/Little Compton pilot project, which is designed to utilize targeted efficiency, demand response, and distributed generation to defer the need for a new substation feeder until at least 2017.

Introduction

Rhode Island's Comprehensive Energy Conservation, Efficiency, and Affordability Act of 2006 contains an important and innovative requirement as part of its overarching least cost procurement mandate (R.I.G.L § 39-1-27.7).[1] As the primary distribution utility in the state, National Grid is required to develop an electric "system reliability plan" that strategically considers an array of customer side energy resources to maximize their benefit to Rhode Island's energy system.[2] These "non-wires alternatives" (NWAs) include cost-effective energy efficiency

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[1] Rhode Island's Comprehensive Energy Efficiency, Conservation, and Affordability Act established Least Cost Procurement as an economic strategy to reduce the state's energy costs by requiring National Grid to invest in all cost-effective energy efficiency before more expensive energy supply. The Least Cost Procurement and System Reliability Procurement mandate applies to electric and natural gas distribution utilities in Rhode Island. National Grid serves 96.5% of Rhode Island electric customers and 100% of natural gas customers. Pascaug Utility District (2.27%) and Block Island Power Company (1.14%) are exempt from the mandate.

[2] R.I.G.L. § 39-1-27.7 requires standards and guidelines for "system reliability" that includes the "procurement of energy supply from diverse sources," including, but not limited to, renewable energy resources, distributed generation, including but not limited to, renewable resources and cost-effective combined heat and power systems,

measures targeted to reduce peak loads; distributed generation at or near loads; and demand response measures. These strategies would be combined with actions that can squeeze more out of the existing distribution system. In the context of this legislation, the utility is asked to assess whether an array of such resources can be deployed to avoid additional generation and enable the utility to defer or avoid expensive distribution (and potentially transmission) system investments. Deferring or avoiding distribution system investments can provide savings over time for customers and lower the volatility and cost uncertainty of the larger energy and capacity markets in New England by securing sources of energy and capacity from local, customer side resources.

In 2010 and 2011, Rhode Island's Energy Efficiency and Resource Management Council (EERMC) and National Grid developed a process and framework for considering NWAs as possible solutions to grid planning and reliability issues.[3] The framework establishes a procedure and funding options for systematically identifying customer side and distributed resources that can be deployed to defer distribution system upgrades, improve system reliability, and provide for better utilization of the grid. The Rhode Island Public Utilities Commission ("RI PUC") approved this planning framework, formally establishing a process that enables an objective assessment of the alternatives as National Grid integrates the analysis of NWAs into distribution planning (RI PUC 2011b).

Subsequently, the RI PUC approved National Grid's proposal for a system reliability pilot project designed to test the use of targeted energy efficiency and demand response to defer the need for a new substation feeder in the municipalities of Tiverton and Little Compton, RI (RI PUC 2012c). The pilot commenced in 2012 and, if successful in providing sustained load relief over its planned lifecycle it will result in in deferred construction of the feeder, originally estimated to cost $2.9 million, until 2018. It is possible that the feeder may be avoided altogether if localized load patterns change in significant ways. Deferring the new feeder through the use of energy efficiency and demand response allows the utility to better utilize its capital and construction resources and provides for a more effective use of the distribution system (RI PUC 2013b).

Customer-Side Alternatives to Traditional Electric Utility Capital Projects

The electric distribution grid is a complex system of substations: a substation receives power from the transmission network, the power is stepped down with a transformer and sent to a bus from which feeders carry power in various directions throughout a community. A major component of the work of any electric distribution utility includes capital investments to maintain system reliability and deliver electricity safely and reliably while responding to changes in load, generation, and consumer expectations.

Traditionally, the solutions to problems such as overloaded facilities, low voltage, stability response, contingencies, loss of load, asset condition, and system losses have been provided by configuration changes, operating changes, and capital projects that enhance utilities'

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and demand response, designed to, among other things, provide local system reliability benefits through load control or using on-site generating capability.

[3] The Comprehensive Energy Efficiency, Conservation, and Affordability Act established the EERMC as a stakeholder oversight council with the statutory responsibility to oversee National Grid's energy efficiency and system reliability programs, guide planning and budgeting, and provide stakeholder involvement in monitoring and evaluating the effectiveness of efficiency programs. The EERMC has seven voting members representing various rate payer sectors and interests. The lead author of this paper holds the appointed position representing environmental interests pertaining to energy.

delivery systems: new circuits, new substations, or larger conductors. As developing technologies continue to make improvements in energy efficiency, load management, and distributed generation, the range of possible alternative solutions to traditional utility infrastructure can now increasingly consider customer side measures such as targeted energy efficiency, direct load control, distributed generation, demand response, and dynamic pricing. As technologies and markets continue to mature and gain momentum, these NWAs are becoming increasingly cost-effective.

Rhode Island's law recognizes that, consistent with the critical mission of safe, reliable, and cost-effective energy delivery, NWAs may provide cleaner, lower-cost alternatives to traditional "wires" projects. The impact of Rhode Island's Least Cost Procurement policy to invest in all cost-effective energy efficiency that is less costly than supply is predicted to avoid transmission and distribution costs (RI PUC 2010, 2011a, 2012a, 2013a; Synapse Energy Economics 2013).[4] As a result, the EERMC and National Grid developed a framework for proactively assessing the costs and benefits of NWAs and incorporating consideration of the alternatives into plans for future system needs.

A Framework to Compare Wires and Non-Wires Alternatives

For 18 months beginning in 2009, National Grid collaborated with members of the state's EERMC to develop a framework for considering NWAs as possible solutions to planning and reliability issues. The resulting "Standards for System Reliability Procurement" ("Standards") are designed to guide the utility in fully integrating analysis of NWAs into the utility's planning functions and evaluating the specific costs, benefits, and comparability of traditional solutions and NWAs. The EERMC and National Grid collaborated at great length to develop this planning framework and as a result, the Standards are uniformly supported by both parties. National Grid also incorporated the NWA planning guidelines into its internal distribution and transmission planning procedure.

The Standards have become a key factor in fulfilling the state's system reliability procurement mandate because they lay out a clear procedure and funding options for systematically identifying customer side and distributed resources that, if cost-effective, defer or avoid grid upgrades, improve system reliability, and provide for better utilization of distributed resources. The Standards are intended to guide the utility as it evaluates NWAs. Key aspects of the Standards include:

1) *Definition of Non-Wires Alternatives*: The Standards define that NWAs may include, but are not limited to: energy efficiency, including peak demand and geographically-targeted energy efficiency; combined heat and power; distributed generation, including renewable energy resources; demand response; direct load control, energy storage, and alternative tariff options.[5]
2) *Criteria for determining suitability for NWAs*: The Standards advise that system conditions that meet the following criteria should be evaluated for NWA solutions: the

[4] The value of avoided transmission and distribution costs due to Rhode Island's energy efficiency investments from 2009 through 2012 are $17.8 million (transmission) and $54.1 million (distribution). In 2013, the avoided cost value for transmission and distribution in National Grid's Rhode Island service territory was $20.62 per kW-year.

[5] At the time of writing, the EERMC is proposing revisions to the Standards to the RI PUC for review and consideration. The EERMC is proposing to amend the list of non-wires alternatives to include electric vehicles, advanced metering, and time varying rates , in addition to the resources listed in (1) above.

need is not based on asset condition; the traditional solution is likely to cost at least $1 million; the necessary load reduction is less than 20 percent of the relevant peak load for the targeted area; and, the date of need is at least 36 months in the future.

3) *Basis for comparing alternatives*: NWAs should be compared to traditional solutions on the basis of the following: ability to meet the identified need; anticipated reliability; risks associated with each alternative (including risk associated with licensing and permitting, stranded investments, sensitivity to load forecasts, and emergence of new technologies); potential for synergies; operational complexity and flexibility; implementation issues; and customer impacts.
4) *Financial analysis*: Financial analysis of the NWAs may include a determination of deferred investment savings, deferred revenue requirement savings, and an evaluation of costs and benefits according to a Total Resource Cost test modified to account for the value of reliability and other site-specific and NWA-appropriate costs, benefits, and risks.

The utility is directed to undergo this screening annually and submit an implementation plan to the RI PUC for review and consideration each year. When the utility determines that a NWA is the preferred solution to a distribution system need the utility is directed to develop an implementation plan that includes:

- A description of the magnitude of the peak demand savings or operational functionality needed to avoid the system upgrade;
- The shape of the load curve;
- The year and season by which a solution is needed, and;
- The sensitivity of the need and investment plan to load forecast assumption.

The implementation plan must also include a description of the proposed NWA in terms of technology, reliability, capital and operation and maintenance costs, net present value, timing and implementation schedule, and ownership and contracting considerations. A similar description of the traditional solution that would otherwise be constructed in a business-as-usual scenario must also be included.

The Standards also propose several funding sources for NWA investments, including capital funds that would otherwise be applied towards traditional upgrades, where the costs for the NWA are properly capitalized and placed in rate base for recovery along with other ordinary infrastructure investments. Other funding options include energy efficiency funds for cost-effective efficiency investments, utility operating expenses, and customer or third party investments.

Utility Implementation of Rhode Island's NWA Planning Framework

Based on the guidance provided by the Standards and its internal guidelines for NWA planning, National Grid was able to identify a capital investment project for which a NWA solution seemed viable. This project was a substation upgrade in an area that was experiencing steady load growth and was on pace to outgrow the infrastructure in place to serve it.

The identification of this distribution system need was the result of a two-tiered review process used by National Grid to review capital investments in all of its service territories. The first tier of review is completed by the engineering departments that manage transmission and distribution (T&D) infrastructure. As they review the utility's capital investment plan each year, the T&D engineers evaluate each project for NWA potential according to the criteria described in (2) in the preceding section.[6]

Any projects that fit meet these criteria are subject to a second review completed by the project managers on the customer-focused side of the utility. The second review takes a more in-depth look at the customer profile within the defined area of need to determine if and how an NWA might be developed to defer or eliminate the need for the capital project.

Some of the factors considered in the second review include the number of customers in the affected area by rate class, the season and time of day of the typical peak load, and the geographic layout of the area. The objective of the second review is to determine, given the specific characteristics and customer profile of the affected area, whether the amount of load reduction necessary to defer the wires project can be cost-effectively be achieved before the date of need.

Description of the Wires Project: Tiverton Substation Upgrade

The electric load in Little Compton and southern Tiverton, Rhode Island is served by two feeders from a substation in Tiverton which is part of the Providence Power Supply Area (PSA). The rate of electric load growth on these two feeders had been higher than the statewide average for more than a decade. It was projected that the peak demand would grow by approximately 2.6 percent annually on a weather-adjusted basis (RI PUC 2012b). As a result, one of the two feeders was projected to be over capacity by 2014 and the second by 2021. To address this issue, construction of a third feeder at the Tiverton substation was planned for 2014. At the time of the initial analysis, the upgrade was estimated to cost $2.93 million in that year (RI PUC 2013b).

The load reduction necessary to defer the construction of the third feeder would gradually increase from 150 kW in 2014 to 1 MW in 2018, as shown in Table 1. In order to be successful, any NWA would need to deliver this amount of sustained load relief on the two existing feeders. Load shape curves showed that the days in which the load peaked were primarily weekday afternoons and evening during the summer. The cumulative net present value of deferring construction of the new substation feeder for four years is $653,273 (RI PUC 2013b).[7]

National Grid designed a pilot project using a combination of targeted energy efficiency measures and demand response to reduce peak energy consumption; the pilot is estimated to cost $3.4 million over its 6 year life and generate $6.3 million in benefits to Rhode Island customers from lower energy and capacity costs and savings from the deferred substation feeder (RI PUC 2013b).[8]

[6] Since March 31, 2012, National Grid has screened 141 new distribution projects according to the criteria contained in the Standards. The majority of projects (105) were immediately discounted from NWA criteria review based on their primary driver (asset condition, damage/failure, or new business and public works). Seventeen projects were determined to be not suitable for NWAs because the scope of the projects included issues such as EMA expansion, volt/var experimental projects, and storm hardening projects. National Grid screened the remaining 19 projects for NWAs; in many cases NWAs were ruled out because the project budget was less than $1 million and the date of need was immediate. In other cases, asset condition was the primary driver of the upgrade (RI PUC 2013b).

[7] While the potential deferral value of the feeder is less than the total cost of the pilot, the pilot is valuable to determine the appropriate levels of administration, customer outreach, and evaluation necessary to acquire participation in load response events.

[8] The pilot is cost-effective over its 6 year life, with a benefit/cost ratio of 1.86, as well as within each year. The cost-effectiveness of the pilot is calculated according to the Total Resource Cost test. The energy efficiency benefits include the benefits of energy efficiency measures deployed in the affected area that are also available to all customers throughout the state, as well as the benefits of enhanced energy efficiency measures that are only

Table 1. Load reduction necessary to defer upgrade by year

Year	2014	2015	2016	2017	2018
Cumulative annual kW from energy efficiency	218	373	512	667	823
Cumulative annual kW from demand response	105	138	183	236	289
Total cumulative kW reduction	323	511	695	903	1,112
Load reduction needed (kW)	150	390	630	860	1000

Characteristics of the Affected Area

Tiverton and Little Compton are two small towns in Rhode Island that form a peninsula and border Massachusetts. The two feeders in need of load reductions serve approximately 5,200 electric customer accounts in these two towns.[9] About 80 percent are residential customer accounts and the remaining 20 percent are small commercial accounts. There are few large commercial accounts and of those, only three have maximum summer demand greater than 100 kW. There are no industrial customer accounts in the affected area.

Both towns are largely rural residential, but are distinct in their makeup and have unique qualities. While the number of total eligible accounts in split somewhat evenly between Tiverton and Little Compton, most of the commercial accounts in the affected area are in Tiverton. The three schools and a number of municipal buildings are some of the highest electricity consumers in the area, followed by several restaurants. Little Compton's municipal buildings, a vineyard, and a golf club make up its largest consumers and there are few other commercial accounts. Additionally, Tiverton has more year-round residents and Little Compton has many part-time summer residents. Public data shows that the income levels in Little Compton are slightly higher than Tiverton (USA.com).

Tiverton/Little Compton DemandLink™ Pilot Design

Since the driver of the system need in Tiverton and Little Compton was summer loading, National Grid focused on deploying energy efficiency and demand response technologies related to air conditioning and named this pilot initiative DemandLink. In its initial proposal for the DemandLink, National Grid cited a high prevalence of homes with central air conditioning (AC), based on a recent saturation survey of the state. In the first year of the DemandLink pilot, the utility offered incentives for demand response-capable, Wi-Fi programmable controllable thermostats (PCTs) for homes with central AC. The Wi-Fi feature of the PCTs provided

available to customers in the affected area participating in the pilot. The demand response benefits include energy and capacity savings.

[9] Excludes accounts for street lights and other scenarios where load reduction would not be possible through customer outreach.

customers with more control over heating and cooling set points and preferences than typical programmable thermostats by delivering information to customers through a smart phone app and personalized Internet portal. This allows customers to re-program their PCT and change settings remotely. The Internet portal provides information on run times and graphically illustrates the relationship between appliance run time, indoor and outdoor temperature, set points, and humidity.

The Wi-Fi PCTs were installed in customers' homes or businesses at no cost provided they agree to participate in demand response events for at least two years. Customers had the option to override the PCT and opt-out of each demand response event. Full participation in all demand response events in a year earned the customer a bill credit of $40 or $160 for residential and commercial customers, respectively.

Marketing for the DemandLink pilot also encouraged customers to participate in the free home and business energy assessment program available to all Rhode Island electric customers through the statewide energy efficiency program and to complete the recommended efficiency upgrades.[10]

In 2013, the pilot broadened its incentives to include demand response-capable plug load control devices for window AC units. These devices communicate with the Wi-Fi PCTs through Zigbee technology to allow customers to program a seven-day on/off schedule for window AC unites. The DemandLink pilot also added rebates for customers to purchase new, Energy Star-rated window AC units and/or recycle old, inefficient window AC units. Customers received $50 for each new Energy Star-rated window AC and $25 for each inefficient window AC unit turned in for free recycling.

Participation in the DemandLink pilot increased in 2013 over 2012, so the incentive offering was maintained for 2014 with wo small enhancements: 1. subsidies for the cost of installing LEDs in participating homes in conjunction with the home energy assessment and 2. a new plug load device able to control larger window AC units.[11] These changes were made to increase customer interest in the home energy assessment, creating more opportunities to market participation in the DemandLink pilot. The plug load control device for larger window AC units was meant to enable more customers to provide demand response during peak load hours.

Synergies between the DemandLink Pilot and Statewide Energy Efficiency Programs

National Grid's DemandLink pilot reflects significant coordination between the state's comprehensive energy efficiency programs and system reliability planning to achieve its goals. The incentives and products that are offered exclusively by the DemandLink pilot are delivered to participating demand response customers using the same vendor that manages Rhode Island's statewide residential and small commercial energy efficiency retrofit program. This overlap has provided many benefits to the pilot, specifically in three areas: delivery, marketing, and cost-effectiveness.

1) *Customers benefit from a streamlined experience*. Customers receive home energy assessments and DemandLink-specific measures at the same time. The vendor serves as a

[10] The free home energy assessment was included in the same marketing materials promoting participation in the NWA pilot project.

[11] The standard home energy assessment installs CFL light bulbs at no cost; only customers eligible to participate in the DemandLink pilot receive no cost LEDs.

single point of contact for the customer's interactions with energy efficiency and demand response.

2) *Cross-promotion increases participation*. Regardless of the customer's initial entry point (interest in the DemandLink pilot, or the statewide energy efficiency programs), all customers receive a home energy assessment, learn about additional rebates and incentives for energy efficiency measures, and, if eligible, are encouraged to participate in the DemandLink pilot.
3) *Cost savings*. To calculate the cost-effectiveness of the DemandLink pilot, the costs and benefits of both the energy efficiency and demand response efforts in the affected area are considered together. This is appropriate given the extent to which the DemandLink pilot and energy efficiency programs coordinate and provide cross-promotion. Since energy efficiency measures are typically very cost-effective, they increase the overall value that customers in the affected area receive.

DemandLink Preliminary Results

A summary of the preliminary results of the DemandLink pilot is shown in Table 2. Unique account numbers in Table 2 include accounts that received a demand response incentive, a home or business energy assessment, or both. The final pilot results will be determined by a third party firm evaluating the pilot through its six year timeframe.

Table 2. Summary of preliminary pilot results

Year	Unique accounts	Central AC thermostats installed	Window AC plug load devices installed	% of 2014 savings goal achieved	% of total savings goal achieved
2012	158	35	0	31%	5%
2013	437	132	145	201%	30%
Total	595	167	145	233%	35%

National Grid recently reported to the RI PUC that construction of the substation upgrade has been postponed from 2014 to 2015 (National Grid, 2013). This is significant because it means that the magnitude of the peak load reduction at the substation is large enough to defer the investment by one year. It also means that plans to initiate demand response events during the summer of 2014 will be critical to ensure that peak loads do not overload the feeders.

Lessons Learned from the DemandLink Pilot

Though the pilot effort to use NWAs to defer and possibly avoid building an electric distribution feeder is in only its second year of the planned six, a number of lessons have been learned so far, particularly in the area of customer outreach and retention.

The first lesson learned was that when recruiting customers to join a pilot, marketing should be both frequent and direct. Unlike comprehensive statewide energy efficiency programs, the number of geographically eligible customers in this pilot is limited to just over 5,000. When additional eligibility requirements relating to equipment being used are considered (e.g. having central AC, and a broadband internet connection to qualify for a Wi-Fi PCT), the number of potential participants becomes even more limited. In the first year of the pilot, the marketing campaign was both too selective and passive in its outreach. The direct marketing outreach was made only to targeted lists of high electricity use customers and customers who had recently completed an energy efficiency home assessment. The remaining marketing outreach focused on broader Internet advertising through search engine keywords and ads on social network sites such as Facebook and Patch.com. These passive ads were less effective at generating a high level of interest from such a small population.

In its second year, the pilot focused heavily on direct marketing tactics. An effort was made to reach out to every customer residing or doing business in the affected area in multiple forms, such as mail, email and telemarketing. In addition, a community event was held in Tiverton during the summer which included product demonstrations and project team representatives in attendance to answer questions. Outbound telemarketing calls proved to be the most effective method for generating leads of interested customers.

The pilot's marketing campaign in 2013 also focused on increasing the frequency of outreach efforts both in number and time of year. This was important because while it is easiest to recruit customers in the summer when they're using the equipment for which they can receive incentives, reaching out in the shoulder months helps to maintain a general level of awareness about the pilot among customers who had not yet decided to participate.

A second lesson learned was that the initial message encouraging customers to participate in order to "save money, save energy," was not always effective. A segment of the population may question why a utility is handing out free products. Others hold back from participating because they are wary of the "big brother" aspect of demand response events in which the utility is able to remotely change the settings on their personal air conditioning systems.

It was important to address these concerns with additional transparency and clarity around the pilot's goals. At the community event held in July 2013, customers who listened to additional explanations of the pilot's objectives seemed to be less averse to participating. To implement this finding on a larger scale, the marketing campaign for the pilot in 2014 will vary its messaging to highlight the importance of working together to help keep the community energy efficient and to possibly defer the need for an expensive local infrastructure upgrade. .

A third lesson related to changes made to the suite of incentives offered through the pilot: diversifying incentives broadens the pool of eligible participants. Adding incentives on products that allowed customers with window AC units to participate activated an entirely new customer segment. In future years, the pilot will likely consider the possibility of offering incentives for measures beyond air conditioning to reach households and businesses without these systems but who would nevertheless like to contribute to peak load reduction.

Another lesson learned was that minimizing requirements in terms of both initial registration and on-going participation is vital to maximizing customer recruitment and program performance. Utilizing the same vendor to deliver the pilot measures and home energy assessments streamlined the customer's onboarding and communication experiences. Similarly, using one form for the window AC purchase and recycling simplified the rebate process. It was also found that customers were more willing to dig out their old, inefficient AC units from their basements (which would typically be used during the summer peak) if domestic pick-up was offered as an alternative to salvage yard drop-off. In 2014, the pilot is focusing on increasing the amount of educational information sent to participants so that they can fully understand and feel comfortable with their demand response-capable equipment and demand response events in general when it is time for them to participate that summer.

A fifth lesson learned was that communication is vital even after a customer is recruited. If communication stops after the customer signs up, there is an increased risk many of the things learned about the pilot initially will be forgotten. Consequently, the potential for reliable demand response event performance including any word of mouth advertising are at risk of diminishing. As a result, the DemandLink pilot is focusing on maintaining the flow of useful information to participants after sign up. A Frequently Asked Questions (FAQ) document has been developed and is distributed to each customer at the time of their Wi-Fi PCT and/or plug load installation appointment. The FAQ sheet is also included in mailed marketing materials and is available for download on the DemandLink web page. All information sent to participants includes clear points of contact should they have any further questions.

Beginning in 2014, the DemandLink pilot will take communications one step further by issuing the first of several periodic newsletters. These will contain information about the pilot and its incentives, encouraging increased customer participation; a special page insert will be geared towards current participants with specific information on how to maximize the benefits of their equipment and further increase their understanding of demand response.

A final lesson learned was the importance of running test demand response events prior to the date of need. Two test demand response events were run in July and August 2013 on all DemandLink participants. In addition to providing an indication of potential customer response, the tests identified issues with equipment connectivity and receipt of communications providing advanced notification of an imminent demand response event. The project team is actively working to resolve these issues which will enhance customers' experience during future events and maximize load reductions from participating equipment.

Conclusion

Rhode Island's innovative program is demonstrating that energy efficiency and customer side resources can be deployed to meet system needs cost-effectively and with greater benefits to ratepayers than traditional capital projects. States interested in modernizing planning, management and investments in the electric power grid to facilitate new technologies, decentralized energy systems, and consumer controls can consider adopting Rhode Island's model for forward-thinking system planning.

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