

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service
Commission held in the City of
Albany on March 25, 2015

COMMISSIONERS PRESENT:

Audrey Zibelman, Chair
Patricia L. Acampora
Gregg C. Sayre
Diane X. Burman

CASE 15-E-0012 - Petition of Consolidated Edison Company of New
York, Inc. for Approval of Changes to
Residential Demand Response Programs.

ORDER MODIFYING RESIDENTIAL DEMAND
RESPONSE PROGRAMS

(Issued and Effective March 27, 2015)

BY THE COMMISSION:

INTRODUCTION

On December 24, 2014, Consolidated Edison Company of New York, Inc. (Con Edison or Company) filed a petition seeking approval of its proposed modifications to both of its Residential Demand Response (DR) programs, i.e., the Direct Load Control (DLC) program and the Residential Smart Appliance Program (RSAP). The Company proposes to increase the number of customers participating in its DLC and RSAP programs, address the growing number of non-responsive paging-communicating (legacy) thermostats, and expand the range of wireless-communicating controllable appliances investigated in the RSAP.

Pursuant to the State Administrative Procedure Act (SAPA) §202(1), a Notice of Proposed Rulemaking was published in the State Register on January 28, 2015. The SAPA comment period expired on March 16, 2015. No comments were received. In addition the Company complied with newspaper publication as

required pursuant to Public Service Law §66(12)(b) and 16 NYCRR §720-8.1.

BACKGROUND

The DLC Program

The DLC program allows customers to participate in demand response by using a Company Provided Thermostat (CPT) or through a Bring Your Own Thermostat (BYOT) option. Con Edison provides and installs an internet-communicating controllable thermostat (thermostat or control device) at no cost to customers who enroll in the DLC program through the CPT. Customers who participate through the BYOT option purchase and install their own control device, and enroll in the DLC program through a Company-approved service provider. All of the control devices enrolled in the DLC program are capable of being remotely controlled by the Company to cycle the customer's central air conditioner's compressor in order to provide load relief during an event called by Con Edison, as defined in its tariff. As of August 31, 2014, there were approximately 34,500 control devices enrolled in the DLC program providing a total potential demand reduction of 27 megawatts (MW).

The Company began the DLC program in 2002 following a successful 2001 pilot program, installing control devices which communicate with the Company by pager (legacy thermostats).¹ The DLC program was made permanent by the Commission in 2010.² In

¹ Case 00-E-2054, In the Matter of a Status Report on the Demand/Supply Component of the Department's Electric Price and Reliability Task Force Including Recommendation for Specific Utility Actions on the Demand Side, Untitled Order (issued March 22, 2002).

² Case 10-E-0229, Petition of Consolidated Edison of New York, Inc. for Approval of Direct Load Control Program, Untitled Order (issued September 22, 2010).

2013, the Company started using internet-connected wireless control devices (Wi-Fi thermostats).³ Customers who enroll in the CPT option receive a control device free of charge, plus a one-time sign-up incentive payment. Customers billed under Service Classification 1 (Residential and Religious) receive a \$25 sign-up incentive payment. Customers taking service under other service classifications and customers billed under the Public Authority State of New York (PASNY) delivery service receive a \$50 sign-up incentive payment. The BYOT option was introduced to the DLC program in April 2014.⁴ Customers enrolled in the BYOT option receive an initial \$85 sign-up bonus, after the Company has confirmed that it can communicate with the customer's control device. During the third summer that the customer is enrolled in the BYOT option, and each summer thereafter, customers receive a \$25 annual incentive payment provided that such customer allows the Company to control the control device for at least 50% of all event hours declared by the Company during each summer period.

RSAP Program

The RSAP was introduced in 2009 as a pilot program to explore opening the residential DR market by expanding the number of "smart" appliances able to be enrolled in DR programs.⁵ Due to a number of circumstances, until 2014 the Company reports that it was not able to successfully maintain enrollment in the

³ Case 09-E-0115, Proceeding on Motion of the Commission to Consider Demand Response Initiatives, Order Adopting Modifications and Tariff Revisions Related to Demand Response Programs (issued April 19, 2013).

⁴ Case 14-E-0121, Tariff Filing of Consolidated Edison Company of New York, Inc. to modify Rider L - Direct Load Control Program contained in P.S.C. No. 10 - Electricity, Order Approving Tariff Revisions (issued July 25, 2014).

⁵ Case 09-E-0115, supra, Order Adopting in Part and Modifying in Part Con Edison's Proposed Demand Response Programs (issued October 23, 2009).

RSAP of any smart devices other than in its SmartAC kit room air conditioner program. The SmartAC kit allows customers to plug a non-communicating room air conditioner into an internet communicating device which allows the Company to remotely turn off the window air conditioning units during a called event. The Company reports that it made a number of improvements to the SmartAC kits between 2013 and 2014, including SmartAC kit functionality, improvements to the application used by customers to control their room air conditioners, using installers to help increase the setup rate for SmartAC kits provided to customers, and the introduction of a machine learning pilot program to maximize customer performance during called events. During the 2014 summer capability period the Company began testing room air conditioners with built-in internet connectivity as part of a Bring Your Own Device (BYOD) program, and began investigating gameification, a method of incentivizing customers to maximize load reduction performance while also reducing the Company's need to provide annual performance incentives. The Company reports that as of December 2014 there were approximately 10,000 SmartAC kits under management, 310 internet-communicating room air conditioners enrolled in the Bring Your Own Device option, and 200 customers participating in the gameification pilot study providing a total potential demand reduction of one to three MWs.

Customers enrolled in the RSAP using a SmartAC kit are provided the kit at the Company's expense, and are paid an annual \$25 performance-incentive payment. Customers who enrolled in the BYOD option are given a \$50 rebate toward the price of their controllable room air conditioner as well as a \$25 annual performance-incentive payment. Customers who participate in the Company's gameification pilot forego the \$25 annual performance incentive, and instead during DR events can

earn the opportunity to participate in raffles of increasing value depending on how long the customer participates.

Authorization and funding for RSAP lapsed on December 31, 2014.

Company Proposals

The Company claims that the major challenge the DLC program currently faces is the increasing rate at which pager communication thermostats are becoming non-responsive and the rapidly deteriorating reliability of the paging system used to communicate with the legacy thermostats. Con Edison states that of the nearly 31,700 legacy thermostats enrolled in the DLC program, as of June 2014 over one-third are non-responsive. The effect of these non-responding thermostats (NRTs) is that, as of August 31, 2014, of the 39 MW enrolled in the DLC program only 27 MW of DR capacity was available as a peak load reduction resource.

According to Con Edison, another challenge facing the DLC program is the growing number and diversity of devices that are controlled during a DLC program event. Currently, in order to call a DR event the Company must coordinate with the DLC program's implementation contractor. The implementation contractor then uses its proprietary communications systems to engage the legacy paging communications system as well as its own Demand Response Management System (DRMS) to control the internet-communicating control devices. The Company pays the implementation contractor a per-device fee for its services. With the introduction of the BYOT option in 2014, a greater variety of thermostats and service providers are able to enroll their customers into the DLC program, necessitating the implementation contractor to negotiate and maintain sub-contracts to integrate each service provider into its DRMS. As the scope and depth of the DLC program continues to broaden, the number of service providers to be integrated into the

implementation contractor's DRMS will continue to expand, and will likely result in a more expensive and complicated control scheme ultimately costing ratepayers more to maintain.

To address these challenges, the Company requests the Commission approve a 2015 DLC program budget of \$14 million, or a \$10 million increase over the 2014 program. With the proposed budget, the Company intends to achieve four goals. First, the Company plans to install 5,000 residential and 500 small business wireless-communicating thermostats at a cost of \$5.4 million, an increase to the current annual thermostat installation goal of 3,500 units. Second, Con Edison would replace 6,000 residential and 2,000 small business legacy thermostats at a cost of \$5.1 million in order to regain 9 MW of demand response lost due to non-functioning units. Third, the Company would increase the number of BYOT to 5,000 for 2015 at a cost of \$1.8 million, compared to its previous goals of 2,000 units in 2014 and an additional 800 units per year thereafter, resulting in an additional 5 MW of demand response. Finally, Con Edison seeks to add a residential DLC component onto its in-house Demand Response Management System currently being developed for use by the Company's Commercial demand response programs, at a cost of \$1.7 million. The Company notes that it will address program funding after 2015 in its upcoming Energy Transition Implementation Plan (ETIP).

Con Edison requests that the RSAP be expanded and continued for 2015, and proposes a program budget of \$6.8 million. The RSAP budget includes \$350,000 in performance incentives paid to customers, \$150,000 to integrate new vendors, and \$6.3 million for program implementation, including equipment costs. The Company requests flexibility in its RSAP budget to allocate funding among three major initiatives. First, the Company plans to deploy and enroll 25,000 new SmartAC kits.

Second, it proposes to expand its pilot BYOD program to examine whether BYOD is an effective entry model, whether other internet-controllable devices (such as smart appliances) can be operationally and efficiently integrated into the RSAP program, and how the BYOD model compares to the more traditional SmartAC kit. Con Edison plans to enroll 10,000 devices through its expanded BYOD option. Finally, the Company proposes to fund testing of gameification, incentive reduction, and other behavior modification pilots to evaluate effective incentive levels, customer engagement strategies, and program participation. The Company requests flexibility to allocate the awarded funding among its RSAP initiatives as it sees fit. Con Edison estimates that its proposed RSAP initiatives will result in an additional 35 MW of enrolled demand response. The Company notes that it will address RSAP funding beyond 2015 in its upcoming ETIP.

Program Costs and Benefit-Cost Analysis

In its response to a Department of Public Service staff (Staff) information request (DPS-1), the Company submitted a benefit cost analysis demonstrating the Total Resource Cost (TRC) of its proposed changes to the DLC Program. The resulting TRC test for the combined DLC portfolio is 1.19.

DISCUSSION AND CONCLUSION

The DLC program has been successfully providing cost-beneficial demand response capabilities to Con Edison residential customers for over a decade, serving a group of customers who, without this valuable program, would not have been able to participate in demand response. RSAP has similarly brought demand response capabilities to residential customers without central air conditioning, enabling them to engage with Con Edison and actively manage their room air conditioner loads

during periods of New York City summer peak demand. The success of these Con Edison programs has also informed our proceeding to institute a number of DR programs generically at all New York State electric distribution companies. The Commission is very supportive of Con Edison's ongoing efforts to continue to improve the DLC and RSAP programs.

The Commission shares the Company's concern for the long-term efficacy of its DLC program in the face of an increasing failure rate of legacy thermostats, and their associated paging system. It is imperative for the Company to begin rapid replacement of these devices. Therefore, the Commission directs the Company to increase its legacy thermostat replacement goal for 2015 to 8,000, and approves the requested level of funding for this initiative.

The Commission also agrees with the Company's proposal to integrate the DLC program into the commercial DRMS. As utilities transition from their traditional role to that of the Distributed System Platform (DSP) they will need greater control and visibility into the operations of DER on their systems. Since the Company's commercial DRMS is currently under development, now is an excellent time to begin integration of similar functions for residential programs. Furthermore, as noted by the Company, an in-house DRMS owned and operated by it may result in operational savings as an increasing range of devices and manufacturers become commercially viable and available. Therefore, the Commission directs the Company to integrate the DLC program into the commercial DRMS.

Turning to the CPT and BYOT targets, the targets proposed by the Company are modified. The Company has demonstrated in 2014 that it was possible to meet its CPT target of 3,500 thermostats per year, and is well on its way of meeting its forecast of enrolling 2,000 thermostats in its BYOT program.

The BYOT option provides the same amount of DR capability as does the CPT option per device, however, it does so at a lower program cost. The Commission finds that the Company should place additional emphasis on its BYOT option. The Company is therefore directed to continue its annual goal of distributing 3,500 thermostats through the CPT option. The funding that the Company had proposed to increase the 2015 CPT option installation goal will instead be reallocated to raising the BYOT 2015 installation goal from 5,000 to 7,000 thermostats. The Company notes that currently there are approximately 30,000 BYOT-eligible thermostats already installed in its service territory, therefore, it is not anticipated that the Company will have difficulty in meeting the new BYOT target.

To account for the increase in the BYOT installation goal, it is reasonable to increase the BYOT budget by approximately the unit cost of the BYOT option multiplied by the number of additional BYOT units that the Commission expects to be installed, as discussed above. Similarly, it is reasonable to decrease the CPT budget by approximately the unit cost of the CPT option multiplied by the number of fewer CPT units that we expect to be installed. Therefore, it is anticipated that the Company will enroll 7,000 thermostats in the BYOT option at a cost of \$2.5 million, and will enroll 3,500 thermostats in the CPT option at a cost of \$3.5 million. By focusing the Company's efforts on the less expensive BYOT option, the Commission anticipates that Con Edison will be able to achieve its DLC program load reduction goals at a lower overall cost to ratepayers, resulting in a \$1.2 million in savings and an increased DLC program TRC. This will also help reduce bill impacts to both participating and non-participating customers from whom DLC program costs are recovered through the MAC.

The Commission agrees with the Company's proposal to expand and fund the RSAP for 2015. Given the popularity of the CoolNYC program and the level to which it has been over-subscribed during 2013 and 2014, it is reasonable to increase the availability of SmartAC kits to willing customers. Since room air conditioner load is a major contributor to peak load in New York City, it is in both customers' and the Company's best interests to continue to expand the CoolNYC pilot. While it is important to address the load currently on Con Edison's system, it is also important to recognize and examine the next wave of technology.

While room air conditioners with communicating and remote direct control are now becoming commercially available at a price that is attractive to customers, a new wave of controllable "smart" appliances are clearly on the horizon. Any experience gained with these new and innovative technologies will be invaluable to Con Edison and other utilities in New York State, since they are increasingly expected to integrate new customer-sited technologies into their operations and markets. Therefore, the Company's proposal to expand its BYOD option pilot is adopted. Research and insight gained into how customer behavior can be modified, or how energy efficiency and demand response programs can be designed to gain the greatest amount of customer participation possible is very important. Lessons learned from the Company's gameification and machine learning pilot studies will be of particular value in designing two-way transactive markets for such products and services. Con Edison's proposal to expand both of these programs is reasonable and adopted.

Finally, the Commission grants the Company's request for flexibility in how it allocates RSAP spending between these initiatives, with the caveat that such reallocation shall not

result in a decrease in the projected amount of demand response to be obtained by these initiatives. The Company is authorized to spend up to its \$6.8 million RSAP budget.

In summary, the changes directed by the Commission in this Order should increase the total amount of demand response capacity available under Con Edison's DLC and RSAP programs by approximately 28 MWs.

The Commission orders:

1. Consolidated Edison Company of New York, Inc. is authorized to spend up to \$12.8 million on its 2015 DLC program initiatives.

2. Consolidated Edison Company of New York, Inc. is authorized to spend up to \$6.8 million on its 2015 RSAP initiatives.

3. Consolidated Edison Company of New York, Inc. is directed to file, on not less than one days' notice, tariff amendments to effectuate the changes regarding the residential demand response programs as described in the body of this order.

4. The requirements of Public Service §66(12)(b) and 16 NYCRR §720-8.1 as to newspaper publication for the tariff amendments directed in Order Clause 3 are waived.

5. This case is closed.

By the Commission,

(SIGNED)

KATHLEEN H. BURGESS
Secretary