

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

Proceeding on Motion of the Commission to
Consider Demand Response Initiatives

PSC Case No.

**PETITION OF
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
FOR APPROVAL OF CHANGES TO RESIDENTIAL DEMAND RESPONSE
PROGRAMS**

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OF NEW YORK, INC.

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I. INTRODUCTION

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) hereby petitions the New York State Public Service Commission (“Commission”) for increased funding and approval of changes to its residential demand response (“DR”) programs to address specific program challenges and integrate emerging initiatives. The Company proposes: 1) to increase funding for its Direct Load Control (“DLC” or “Rider L”) program; and 2) to continue its Residential Smart Appliance Program (“RSAP”) as a pilot with increased funding through 2015.

Con Edison’s residential DR programs are an increasingly important part of how the Company provides services to its customers and are consistent with the goals of the Commission’s Reforming the Energy Vision (“REV”) proceeding.¹ The residential DR programs are designed to help meet system planning criteria by utilizing distributed energy resources (“DER”) as a system resource. The programs enable the Company to reach beyond the meter to interact with customers as well as monitor customer energy usage and patterns through “smart devices,” such as “smart thermostats” and “SmartAC kits.”² These smart devices reside on the customer’s side of the electric meter and are used by the programs to communicate with customers’ air conditioning systems. The programs provide the Company with increased customer contact opportunities and the ability to facilitate customers’ shift of their energy usage to reduce peak system loads. The programs engage customer participation through interactive communication and by offering the customers tools to manage their energy consumption. The

¹ Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, *Order Instituting Proceeding*, issued and effective April 25, 2014.

² “SmartAC kits” have at times been referred to by the Company as “Modlets.” The Company is now using the “SmartAC kit” terminology to more accurately reflect that multiple pieces of equipment are included in the kit, rather than just the Modlet.

programs have been steadily evolving to increase DR capacity within the Company's service territory and will continue to evolve as they are tailored to better meet customer needs, increase customer choice and engagement, integrate new and existing technologies, and respond to changing system needs.

The Company proposes increased funding so DLC can capture a greater share of its market potential, address failing paging thermostats ("Legacy Thermostats") and incorporate the Bring Your Own Thermostat ("BYOT") option as a permanent customer choice. In addition, the Company proposes a one-year extension and enlargement of RSAP through 2015, with increased funding. Extending and enlarging the RSAP will allow the Company to: 1) continue to manage existing, distributed, DR-enabled SmartAC kits and other smart devices that have not yet been integrated into the DLC program; 2) enlarge the RSAP by distributing new DR-enabled SmartAC kits and enrolling other smart devices; 3) diversify the program offerings with a Bring Your Own Device ("BYOD") option; and 4) integrate new customer engagement strategies to encourage increased customer participation.

II. BACKGROUND

Con Edison's DLC program is a peak load shaving and contingency program that targets residential and small business customers with central air conditioning units. The Company's 2008 Callable Load Study³ estimates that there are approximately 120 MW of callable load that can be accessed through DLC.

RSAP is a pilot program that is authorized and funded through December 31, 2014.

RSAP was created to be a platform to capture emerging "Smart Appliance" technology and test

³ Con Edison's Callable Load Study is a ten-year forward looking study prepared by Summit Blue Consulting LLC and filed in May 2008.

concepts for incorporating that technology into the DLC program. Due to the unexpectedly slow introduction of Smart Appliances into the market, until recently, RSAP concentrated on a means to obtain DR resources by controlling conventional room air conditioner (“RAC”) unit loads at their plugs. With Smart Appliance and smart device technology beginning to emerge in the retail markets, RSAP is expanding its focus and is currently branded and marketed as the “coolNYC program.”

A. The Relationship of the Residential DR Programs to REV

The Department of Public Service Staff (“Staff”), in its REV Proceeding Straw Proposal, found a “large potential for the integration of Distributed Energy Resources (DERs) into the New York electricity market, via a Distributed System Platform (DSP) framework.”⁴ The Straw Proposal outlined several critical near-term objectives to lay a foundation for the transition to REV including: (1) [i]ncrease “the DER asset base in the state” by increasing “the number and kind of DER projects,” increasing “the number of customers employing DER and developing the capacity of service companies and utilities to deliver additional DER;” and (2) building “customer and market confidence in the expanded role of DERs” by increasing “utilities’ experience relying on DER for expanded uses in distribution planning and operations,” increasing “customer awareness, interest, and confidence in DER,” and developing “service company familiarity with new DER-oriented markets.”⁵

⁴ Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, *Developing the REV Market in New York: DPS Staff Straw Proposal on Track One Issues*, August 22, 2014, p. 3.

⁵ *Id.*, pp. 3-4.

Con Edison's residential DR programs, along with other programs such as commercial DR and the Brooklyn Queens Demand Management Program,⁶ are among the initial steps taken by the Company towards integration of DER into its distribution system operations. Expanding and extending existing residential DR programs, as requested in this Petition, will permit the Company to continue to engage customers and animate the market through proven technology while also continuing to pilot newer technology (as described below).

As part of a broader long-term strategy, the Company plans to integrate its residential energy efficiency and DR programs to provide comprehensive offerings to its customers. The Company's goal is to develop a holistic approach that maximizes benefits and efficiencies for both the Company and customers. The Company plans to elaborate upon this concept in the energy efficiency transition implementation plan ("ETIP") that it plans to file with the Commission on or before March 31, 2015, consistent with Staff's Straw Proposal on Track One Issues. Under Staff's Straw Proposal, ETIPs are to serve as a "bridge between the utilities' current energy efficiency program efforts and their expanded demand-side efforts envisioned under REV."⁷

B. The DLC Program

1. Problems with the Existing Paging Thermostats

During the summer, the power grid can experience peak loads forecasted to be near or at system capacity. When this occurs, DLC can shave the peak loads by communicating directly

⁶ Case 14-E-0302, Petition of Consolidated Edison Company of New York, Inc. for Approval of Brooklyn Queens Demand Management Program, *Order Establishing Brooklyn/Queens Demand Management Program*, issued and effective December 12, 2014.

⁷ *Id.*, p. 53. The Staff Straw Proposal refers to current energy efficiency program efforts in its discussion of a proposal that utilities prepare ETIPs. Con Edison is in a unique position since it already has existing residential DR programs and its bridge will likely include these programs.

with enrolled customers' smart thermostats to reduce the run time of their air conditioning systems.

The DLC program has generally relied on a direct install delivery model to provide customers with thermostats and any necessary peripheral equipment to enable the Company to communicate with these thermostats. In addition to a free thermostat (including installation and setup), participants are given a one-time incentive of \$25 or \$50 for enrollment in the residential and business programs, respectively. As of August 31, 2014, approximately 27,500 customers were enrolled in the program representing 34,500 thermostats and 39 MW of enrolled electric energy load.⁸ By the end of 2014, the DLC program is expected to have approximately 40 MW enrolled.

When the DLC program began, the Company installed and used Legacy Thermostats, which operated on two-way, radio paging, communications technology. In December 2012, the Company petitioned the Commission for authorization to replace the Legacy Thermostats with thermostats utilizing Wi-Fi communications technology ("Wi-Fi Thermostats") because a significant number of Legacy Thermostats had ceased to respond to DLC program communications and because of generally aging communications equipment and infrastructure.⁹ The significance of the problem is highlighted by the fact that despite the 39 MW of enrolled load, as of August 31, 2014, the DLC program could only produce 27 MW of DR capacity as a peak load reduction resource because of a significant number of non-responding thermostats ("NRTs").

⁸ Due to the seasonality of the data involved in the analysis for this filing, August 31 was chosen as a cutoff date. Using a later date would skew the results because customers begin the shift from cooling to heating equipment during the month of September.

⁹ Case 09-E-0115, Proceeding on Motion of the Commission to Consider Demand Response Initiatives, *Revised Petition of Consolidated Edison Company of New York, Inc. for Approval of Changes to Demand Response Programs*, December 14, 2012.

In its April 2013 *Order Adopting Modifications and Tariff Revisions Related to Demand Response Programs* (the “April Order”), the Commission concluded that the Company had “not presented a convincing case for the total replacement of the installed thermostats [the Legacy Thermostats],” noting that the Company had not met its goal for new thermostat installations in 2012.¹⁰ Instead of total replacement, the Commission determined that “the Company should only replace existing thermostats that fail with Wi-Fi enabled units.”¹¹ The Commission concluded, “[t]his would allow Con Edison to determine how receptive existing customers will be to the new technology, while maximizing the life of the current installed base of thermostats.”¹² The April Order only addressed failed thermostats and did not address or authorize the replacement of functioning Legacy Thermostats that ceased to communicate with the program due to failures in the paging communications system.

The Company has monitored the performance of the program’s remaining Legacy Thermostats closely. In 2014, the Company observed a sharp increase in the number of NRTs. The Company has been locating failed or malfunctioning Legacy Thermostats and replacing them with Wi-Fi Thermostats; current projections indicate that 850 failed Legacy Thermostats will be replaced within the existing program budget during 2014. However, based on the DR Order and to remain within DLC’s current funding authorization, the Company has not been replacing NRTs that result from failures in the paging communications system. Since the Commission’s April Order, the Company has met its new thermostat installation goal for 2013 and is on track to meet its goal in 2014. Since the manufacturer of the Legacy

¹⁰ Case 09-E-0115, *Order Adopting Modifications and Tariff Revisions Related to Demand Response Programs*, issued and effective April 19, 2013, p. 11.

¹¹ *Id.*

¹² *Id.*

Thermostats stopped producing thermostats with radio paging communication after the April Order, the Company now only installs Wi-Fi Thermostats.

2. Wi-Fi Thermostats

The Wi-Fi communications technology offers benefits to customers and the Company that the legacy paging technology cannot provide. For example, Wi-Fi Thermostats provide customers increased visibility and control of their energy use through their mobile devices and Apps. Not only does this benefit customers, it also offers the Company opportunities to engage more tech-savvy customers. Such additional engagement provides an increased potential for program capacity growth as well as alignment with the REV proceeding goal of engaging greater numbers of tech-savvy customers in DR and demand management programs. In a more direct sense, the Company benefits because it can communicate with customers on their mobile devices through “push” notifications (messages sent to the customers through their Apps), potentially making it possible for the Company to send price signals to customers and receive responses from them. Operationally, the Company will be able to surgically call the program by feeder or block to manage demand. The Legacy Thermostats can only be controlled by customers through a less user friendly website and cannot receive “push” notifications. In addition the Legacy Thermostats and paging communications system limit the Company’s ability to call events on a network by network basis and provide less communication capabilities than Wi-Fi Thermostats.

According to Honeywell’s publication, *Structuring a Residential Demand Response Program for the Future*, “(a) smart thermostat should provide an appealing messaging interface for customer communication.”¹³ A messaging interface that appeals to customers eases

¹³ Structuring a Residential Demand Response Program for the Future, Honeywell Building Solutions, June 2011, Available online at: <https://www.honeywellsmartgrid.com/Resource%20Library/Structuring%20a%20>

company/customer communications. The Wi-Fi Thermostats provide an appealing interface that the technologically limited Legacy Thermostats cannot.

Based on studies conducted in the Company's service territory, the annual market potential for cost-effective Wi-Fi Thermostat installations to new customers is approximately 5,500.

3. Bring Your Own Thermostat Option

In 2014, the Commission approved the Company's proposal to increase the numbers of DLC customers by offering a BYOT delivery option to "leverage changes in communication technology and the growth in the market of smart, internet-connected thermostats."¹⁴ BYOT offers customers the opportunity to enroll their own thermostats in the DLC program via a Company-approved Service Provider.¹⁵ To encourage enrollment, customers who use this option receive a sign-up bonus and annual incentives.

C. The RSAP Program

The Commission's April Order approved and funded \$4 million over two years for RSAP to continue as a pilot through 2014, with the goal of continuing to refine the program and product offering while remaining open to other technology options.¹⁶ Currently a customer can enroll his or her RAC in RSAP's coolNYC program and receive a free SmartAC kit and up to \$25 in

[Residential%20Demand%20Response%20Program%20for%20the%20Future.pdf](#), last accessed November 14, 2014.

¹⁴ The Company filed tariff modifications to Rider L on April 3, 2014 in 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 ("April 2014 Filing"). The Company proposed to increase the number of customers participating in the DLC program by allowing customers to install and connect their own control devices (thermostats) and enroll in the DLC program through a Company-approved service provider (i.e., a provider registered with the Company to develop, maintain, and operate a communications portal that enables Internet-connected control devices to participate in the DLC program). The Commission approved the Company's petition in *Order Approving Tariff Revisions*, issued and effective July 25, 2014.

¹⁵ April 2014 Filing, p. 2.

¹⁶ April Order, p. 12.

annual performance incentives for participating in DR events. As of the end of September 2014, there were approximately 5,000 customers with 10,000 SmartAC kits under management. Expressed in terms of capacity, the 10,000 SmartAC kits represent 10 MW enrolled with 1-3 MW operationally available.¹⁷

Between 2013 and 2014, coolNYC experienced continued growth in customer interest, improvement in program technology and implementation, and the incorporation of important pilot initiatives. Over 10,000 customers applied for 20,000 SmartAC kits, while only 10,000 kits were available for the pilot. The Company worked closely with its vendor to improve the SmartAC kit technology through both hardware and software upgrades as well as overall program implementation improvements. The most notable improvements include: the introduction of a Wi-Fi DR-enabled SmartAC kit; the release of an improved customer-facing App; the use of installers so that distributed kits are properly set up and operable; and the integration of machine-learning software to custom tailor DR event calling. The improvements are resulting in increased kit installation and setup rates (over 70 percent in 2014) as well as greater customer engagement and DR participation.

In 2014, coolNYC piloted two new initiatives. The first initiative used the BYOD delivery model to enroll 310 web-enabled RACs.¹⁸ The second initiative enrolled 200 customers in a behavioral test of alternative strategies for reducing overall incentive payouts by piloting a “gamification” test through a research and development (“R&D”) initiative with Cornell University. The coolNYC App was utilized as the interface of a “game” in which participants

¹⁷ As of September 8, 2014, a net total of 18,697 devices have been distributed (all devices distributed less the number of devices returned to the vendor). Of the 18,697, 9,942 devices have been set up. The total load under management is equal to the number of SmartAC kits set up times 1 kW per RAC. The total load operationally available is equal to the number of SmartAC kits currently reporting online times the average load reduction per RAC achieved during 2012-2013 program, which was 311 Watts per unit.

¹⁸ See Case 09-E-0115, *Consolidated Edison Company of New York, Inc. Report on Program Performance and Cost Effectiveness of Demand Response Programs*, December 1, 2014, pp. 46-47.

agreed to forgo the traditional \$25 annual participation payment in exchange for the opportunity to participate in raffles. Customers qualified for various raffle reward levels based upon the duration of the customers' participation in the DR event. Customers who remained in the event for longer periods qualified for greater raffle payouts than customers who opted-out early in the event. The test resulted in fewer overall opt-outs and longer participation times (as well as reduced overall incentive payments because not every participant received a payment) for the "game" population as compared to the traditional population.¹⁹

III. PROGRAM CHALLENGES

A. The DLC Program

The DLC program faces its greatest challenge in the area of maintaining operational capacity. Operational capacity can be defined as the expected electric demand reduction capable of providing load relief when and where necessary. Maintaining and increasing the program's operational capacity is hampered by an increasing number of NRTs resulting from the aging Legacy Thermostats and paging communication system. During the 2014 demand response capability period of May 1 – September 30, the paging communication systems experienced 40 outages. Although the Program continues to meet its established goal of 3,500 new annual Wi-Fi communicating thermostats, program growth is being offset by increasing numbers of Legacy Thermostats that become NRTs.

Attached to this Petition as Exhibits A and B are graphic depictions of actual and forecasted NRTs through time. Exhibit A, *Projected Growth of NRTs*, depicts NRT forecasts through 2020 if DLC continues business as usual, with no additional funding or expense changes. As can be seen in Exhibit B, *Historical Growth of NRTs*, between the beginning of

¹⁹ *Id.*, p. 54.

2011 and the 2014 summer capability months (May through September), the number of NRTs grew over 400 percent, from less than 2,500 to over 10,000, resulting in a loss of 12 MW of capacity out of the 39 MW currently enrolled in the program.

The projected enrollment in the Program is expected to reach 40 MW by the end of 2014. However, as depicted in Exhibit C, *Operational Availability*, the operational capacity associated with these resources will continue to decline until 2019. Exhibit C assumes that the DLC annual installation goal for new thermostats will remain at 3,500 through 2019 (as previously noted, DLC met that goal in 2013 and is on target to meet it again in 2014). The resulting reduction in available resources will have real impacts on Con Edison's electric distribution system.

Utilizing funds from its current budget, DLC will replace approximately 850 failed Legacy Thermostats in 2014 (bringing approximately 1 MW of operationally available capacity back into the program). However, with the current funding constraint of \$4 million, DLC can only replace a limited number of failed Legacy Thermostats without impairing its ability to meet its annual installation goals. At the rate of 850 thermostats per year, it will take until 2050 for the Company to replace all of the Legacy Thermostats. This timetable virtually assures that participants who own Legacy Thermostats that are not replaced will not remain engaged in energy efficiency through the DLC program.

In addition, the DLC program currently has no choice of service providers for paging communications services or any potential backup for communications with the Legacy Thermostats in the event of default, since there is only one remaining paging service provider within the Con Edison service territory. This circumstance leaves the Company exposed to the potential that all remaining Legacy Thermostats will become incapable of providing MW reductions when needed.

Another challenge facing the program is the need to implement a residential Demand Response Management System (“DRMS”). The DLC program is currently called by a DR platform, which is proprietary to the program’s Implementation Contractor (“IC”) and engages in communications with the legacy communication system at the latter system’s head end.²⁰

The integration of BYOT into the DLC program increases the need for development of a single, Company-owned and operated DRMS for use by all of the Company’s DR Programs.²¹ Communications with various manufacturers’ equipment will be more complicated if the program continues to rely upon ICs to provide the DRMS system. Having the IC negotiate and maintain sub-contracts with smart equipment manufacturers adds an additional layer of administration and cost to the program and reduces the program’s control over calling DR events.

DLC currently relies on two separate communications software platforms: 1) the paging system communications software platform that communicates with the Legacy Thermostats, and 2) a proprietary DRMS owned by the program’s current IC. The Legacy Thermostats and the paging communications system associated with them are not OpenADR compatible. Therefore, communications with this system may only be initiated through a DRMS connected to the system’s head end. The second system and the Wi-Fi Thermostats associated with that system are OpenADR compatible.

²⁰ The “head end” is the Legacy Thermostat vendor’s software platform to communicate with the Legacy Thermostats using paging communications system technology.

²¹ DLC currently utilizes a DRMS that is proprietary to its IC and pays a recurring per thermostat fee to the contractor for that service. RSAP utilizes a DRMS that is proprietary to its IC and pays a per device fee to the contractor for that service. The Company’s Commercial DR Programs have been utilizing an e-mail notification system to call their events. The Company is in the process of developing an in-house DRMS for the Commercial DR programs. The discussion in this petition contemplates building onto the system being developed for the Commercial DR programs so that it would be suitable for all of the Company’s DR programs.

B. The RSAP Program

The Company has confronted several challenges in fulfilling RSAP's role as a test bed to embrace emerging "smart" technologies and as feeder pilot program for DLC. Most important, Smart Appliance technologies did not emerge as quickly as expected. To address this challenge, RSAP developed the SmartAC kit technology to control conventional RAC units at their plugs.

Developing the SmartAC kit technology and implementing its use as a DR resource has also been a challenge, because of issues related to device connectivity and setup, user acceptance, participants' comfort or discomfort with ambient room temperatures during event calls, cost-effectiveness, year-to-year device re-setup, and changes in related technologies (including the public's acceptance of smart phone and mobile device technology). In addition, the most recent and significant improvements to the SmartAC kit and the coolNYC program were only implemented for the 2014 DR capability period, an unusually cool summer with several test events but no actual program events. As a result, testing has been of short duration and did not occur under peak load conditions experienced during a typical DR capability period.

Furthermore, as smart RAC units and other web-enabled devices (e.g., for lighting, ventilation and water heating) are now emerging on the market, being purchased by customers, and being controlled by customers' web and Apps, the Company needs to address customer choice and expand the program's DR capabilities to have two-way communication with multiple manufacturers' equipment and software interfaces, ideally through one DRMS platform.

Finally, the Company needs to pilot initiatives that further develop customer acceptance and test their engagement, participation, and performance in DR programs to determine how they impact both the SmartAC kit technology and other smart technologies.

IV. PROPOSED PROGRAM SOLUTIONS TO CHALLENGES

The Company proposes the following program solutions to address the challenges discussed above.

A. The DLC Program

1. Increased Thermostat Installation Goals and Corresponding Funding

The Company requests authorization to increase the annual new thermostat installation goal from 3,500 units to 5,500 units, with sufficient funding for 2015 to achieve that goal.²² Funding for subsequent years will be addressed in the context of the Company's ETIP filing. With proper funding, the DLC program will continue to be an important communication platform for the Company to access customers' homes and small businesses and maintain existing customer engagement.

2. Increased Funding to Replace Legacy Thermostats

The Company is requesting funding to replace 8,000 Legacy Thermostats in 2015. This aggressive schedule is operationally reasonable and, coupled with the other solutions offered in this Petition, will prevent a substantial further decline in available DLC resources. Funding to replace the remaining Legacy Thermostats will be addressed in the context of the Company's ETIP filing.

The overall value of DLC (which is based upon its ability to provide reliable operational capacity when called upon to do so) is dependent on the proactive replacement of NRTs, regardless of whether the NRTs have resulted from thermostat equipment failures or paging communications system failures. The solution is for the Company to provide the customer the

²² If funding approval and authorization to proceed is not received in March 2015, it would be necessary to appropriately adjust the first year's installation goal.

latest Wi-Fi Thermostat, or for the customer to participate by purchasing its own thermostat and enrolling in BYOT.

3. Increased Funding to Add Additional Bring Your Own Thermostat Customers

The Company requests funding to add an additional 5,000 thermostats in the BYOT program in 2015. Ongoing funding for this purpose in future years will be addressed in the Company's ETIP filing. The BYOT option offers customers important choices regarding thermostat equipment, flexibility, and control, removes barriers to DLC participation, and opens up another market of customers who might not otherwise be willing to participate in the program.

Based on the results of a recently issued BYOT Request for Proposals, the Company projects that, with appropriate funding, it is reasonable to establish and attain a BYOT goal of approximately 5,000 thermostat sign-ups per year.

4. DRMS

The Company requests funding to integrate residential DR into the Company's DRMS system in 2015. DLC would utilize the Company's DRMS system to communicate directly with the existing Wi-Fi Thermostats as well as any OpenADR compatible thermostats and devices that are enrolled in the program in the future. The DRMS would also communicate with the head end of the legacy paging communications system while that system is being phased out.

An OpenADR compatible DR platform would offer operational advantages and would change the cost structure of the program by reducing multiple ongoing charges of outside contractors for the management of their separate DRMS systems. In addition, it would provide the Company with more control over event calls and make them less complex because there would be no need to rely upon outside contractors' DRMS systems.

The Company intends to build on its DRMS system, currently under development for Commercial DR programs, in order to extend its implementation to residential DR programs. This will improve coordination of DLC with other company DR programs and drive economies of scale to increase the cost-effectiveness of the Wi-Fi Thermostats. Expanding the DRMS currently under development for the Company's Commercial DR Programs to a single DRMS for all Company programs would spread the initial development costs over more users and avoid the need to duplicate significant portions of the development work. Additionally, a single DRMS would provide the Company with greater flexibility and control over calling DR events by allowing calls through one system rather than having to activate numerous DRMSs.

B. The RSAP Program

The Company requests that the Commission extend the RSAP pilot for one year to enable expansion and increased testing of SmartAC kits, the range of devices provided through RSAP, and further testing of incentive reduction, gamification, and other behavioral modification pilots.

1. Increased Funding for SmartAC Kits

The Company proposes to increase the number of SmartAC kits in the coolNYC program by an additional 25,000 units. The positive media attention that the program has received since 2013 has resulted in a large increase in customer demand. As discussed above, program signup requests for over 20,000 SmartAC kits have been received, while only 10,000 kits were available for distribution.²³

Testing these concepts, among others, requires a new pool of customers to participate in the program. Increasing the size of the program participant pool will allow use of the existing

²³ See 2014 performance data in: Case 09-E-0115, Proceeding on Motion of the Commission to Consider Demand Response Initiatives, *Report on Program Performance and Cost Effectiveness of Demand Response Programs*, filed December 1, 2014.

pool as a control group against which the results of varying engagement strategies can be compared. Also, the larger size pool offers the opportunity to determine if the results already achieved will be consistently repeated as the pool size increases.

The increase in the number of SmartAC kits must be accompanied by additional testing of the SmartAC kit technology. The SmartAC kit technology has only been deployed in its current form during the 2014 Summer Capability Period, an unusually cool summer without any actual program event calls. Although program test events indicate that the technology appears to be performing as expected, a thorough evaluation of the equipment's performance under actual field conditions must wait until those conditions occur on several occasions. Larger scale testing also needs to be conducted. Part of the equation for determining the effectiveness of a demand management technology is whether it gains customer acceptance and engagement.

2. Expanding the Range of Devices Offered Through RSAP

Manufacturers are currently beginning to come forward with affordable smart devices (e.g., smart RAC units and smart devices for controlling lighting, ventilation, hot water heating) capable of direct interconnection for the purposes of DR.

While RSAP has limited its focus to direct control of RAC units as a DR resource, as new smart appliances arrive in the market place it is important to determine which devices are suitable for achieving cost-effective DR capability.

During 2014, under a separate R&D initiative, coolNYC piloted a BYOD test specifically for smart RAC units.²⁴ The BYOD test allowed purchasers of a particular brand of smart RAC

²⁴ See 2014 BYOD pilot results in the Company's annual evaluation of its DR programs. Case 09-E-0115, Proceeding on Motion of the Commission to Consider Demand Response Initiatives, *Report on Program Performance and Cost Effectiveness of Demand Response Programs*, filed December 1, 2014, p. 54.

to participate in the coolNYC program in exchange for an up-front rebate (to help offset the premium cost of the appliance) and an annual payment for participating in the program.

The Company intends to capitalize upon the successful response to the BYOD test to incorporate a greater suite of devices in RSAP as manufacturers continue to bring more Smart Appliances and smart devices to the retail market and customers adopt them. Program expansion is appropriate to address several issues including: 1) whether multiple manufacturers' equipment and different types of appliances (i.e., appliances other than RACs) can be operationally and economically integrated into the program; 2) how BYOD compares to the SmartAC kit as a cost-effective means to obtain DR at full scale; and 3) whether the choice of BYOD as an entry model expands the pool of potential participants in DR programs.

Further investigation is necessary to determine the incentive reward necessary and appropriate to obtain customer engagement in DR programs and whether behavioral change techniques can be incorporated into customer engagement strategies to increase program participation while decreasing the programs' overall incentive costs.

Further testing and evaluation of the approaches tested in 2014, and discussed above, is necessary to determine appropriate risk-reward levels and how best to encourage participation in the most cost-effective manner (the smallest reward that achieves the best results is the most cost effective).

The extension of RSAP for one year is a logical continuation of its original role as a test bed platform for the orderly vetting of new choices in technologies available to customers prior to their permanent entry into the mainstream DLC program. Because the new technology market took longer to develop than initially envisioned, the additional year is reasonable to provide for

that vetting as well as allowing RSAP to smoothly transition through the ETIP process into the REV program models.

V. FUNDING REQUEST

In order to implement the solutions described above, the Company requests the following funding for the DLC and RSAP programs.

A. DLC Funding Request

The Company requests that the Commission approve DLC funding in the amount of \$14 million for 2015, an increase of \$10 million (the majority of which is to address NRTs) over the current \$4 million per year annual funding. At this funding level, based on projected market potential, the Company anticipates for 2015 being able to: 1) achieve 6 MW of additional operational capacity by directly installing 5,000 Wi-Fi residential thermostats and 500 small business thermostats; 2) achieve an additional 9 MW of operational capacity by replacing 8,000 NRTs, 6,000 residential and 2,000 small business thermostats, respectively;²⁵ 3) achieve an additional 5 MW of operational capacity by enrolling 5,000 residential thermostats in BYOT; and 4) implement a comprehensive residential DRMS system.

In total, the Company expects to have available 47 MW of reliable total DR capacity, a 74 percent increase in available and reliable DR capacity in DLC in 2015 compared to the 27 MW currently available, if this Petition is approved by March 2015. The Company will address funding through the ETIP in order to continue the previously discussed objectives beyond 2015.

²⁵ A funding level of \$10.5 million is necessary to directly install 5,500 new thermostats and replace 8,000 NRTs with Wi-Fi Thermostats. The benefit to cost ratio associated with this effort is 1.04 and can increase depending on the number of NRTs replaced with BYOT.

RSAP Funding Request

The Company requests that the Commission approve RSAP funding in the amount of \$6.8 million for 2015. At this funding level, based on projected market potential, the Company anticipates being able to: 1) deploy and enroll 25,000 new SmartAC kits (creating the potential of up to 25 MW of additional DR resources); 2) enroll 10,000 smart devices in BYOD (creating the potential for up to an additional 10 MW of additional DR resources); and 3) fund testing of incentive reduction, gamification, and other behavioral modification pilots. The requested funding includes program implementation, equipment, marketing, incentives, and administration costs. This funding request is designed to allow the Company flexibility to allocate the funding among the outlined initiatives, with the goal of achieving up to an additional 35 MW of enrolled DR resources by end of year 2015, if approved by March 2015, for a total of up to 45 MW of enrolled DR resources in RSAP. The Company intends to address post-2015 funding through the ETIP in order to continue the previously discussed objectives beyond 2015.

VI. CONCLUSION

For the reasons discussed above, the Company requests that the Commission expeditiously consider and approve the relief requested in this Petition, and direct, to the extent necessary, conforming tariff changes, in order to allow the continued operation of the DLC and RSAP programs at the proposed funding levels.

New York, New York
December 24, 2014

Respectfully submitted,

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

By its Attorney



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EXHIBIT A: PROJECTED GROWTH OF NRTs

The Company analyzed the historical NRT trend and forecasts that 50 percent of all Legacy Thermostats will be classified as NRTs in 2016 and will increase to 100 percent by 2020.

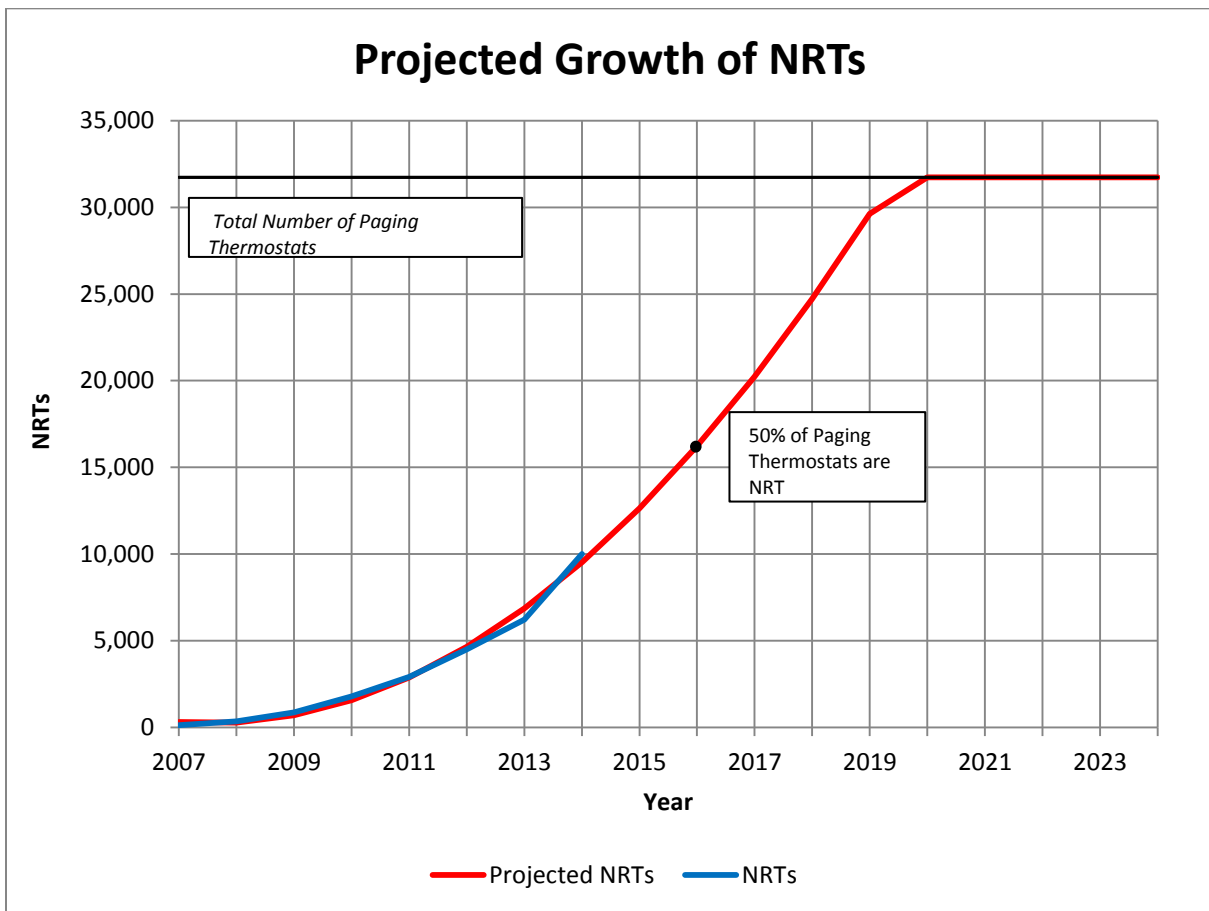
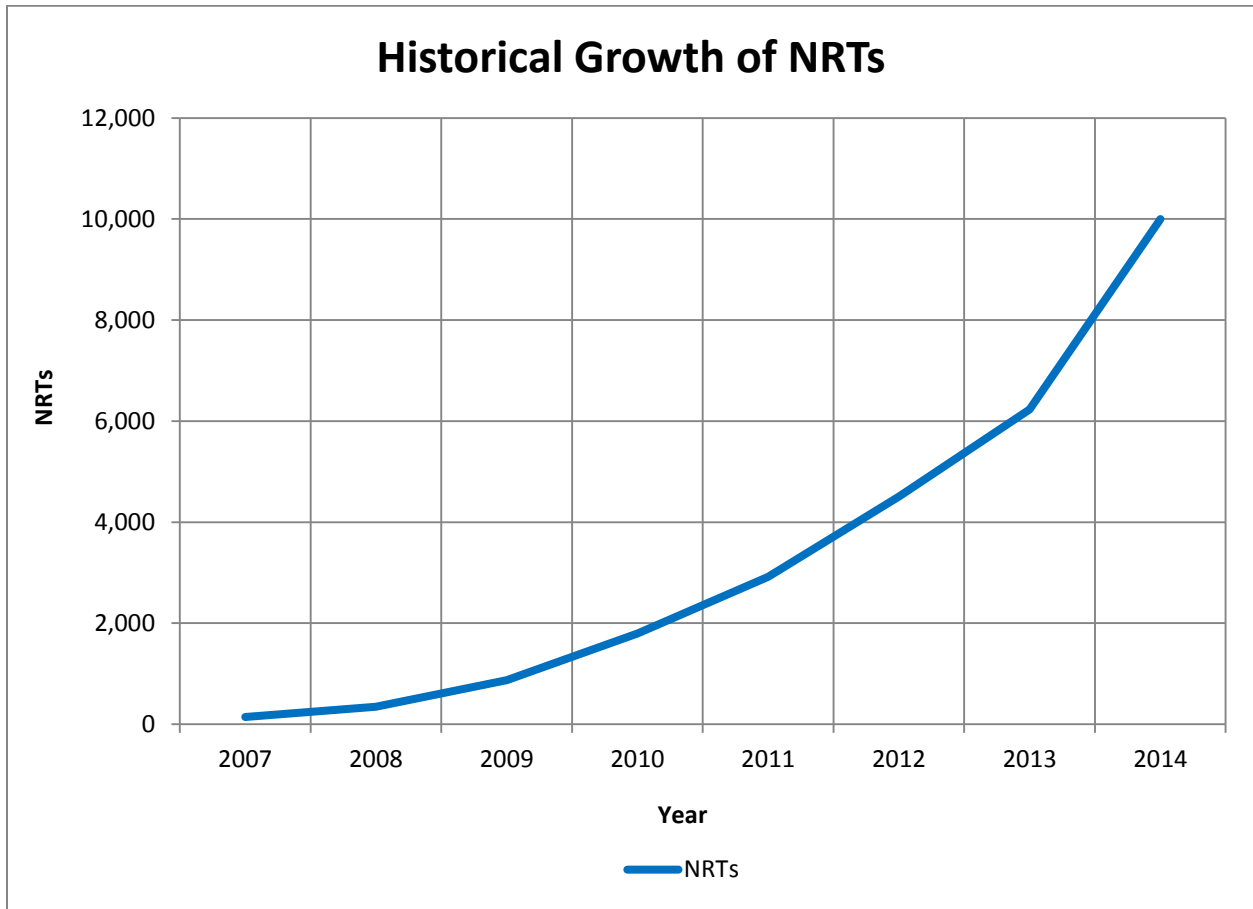


EXHIBIT B: HISTORICAL GROWTH OF NRTs

Exhibit B tracks the cumulative number of NRTs at the end of each year since 2007, indicating a rapid increase in the NRT growth rate, with an increase from approximately 2,500 in December 2011 to approximately 10,000 in August 2014.²⁶



²⁶ In 2010, the Company cleansed the enrollment file to remove NRTs that came into existence before 2007.

EXHIBIT C: OPERATIONAL AVAILABILITY

From 2007 to present, the total number of operationally available thermostats (capacity) in the program has steadily declined from 100 percent available in 2007 to 67 percent available today. Exhibit C shows both the historical availability of all thermostats and a projection of available thermostats using the growth rate shown in Exhibit B. It shows the cumulative effect of meeting the goal of 3500 new installs per year and projected thermostat failure rates. The net effect is a decrease in the total number of communicating thermostats until 2019.

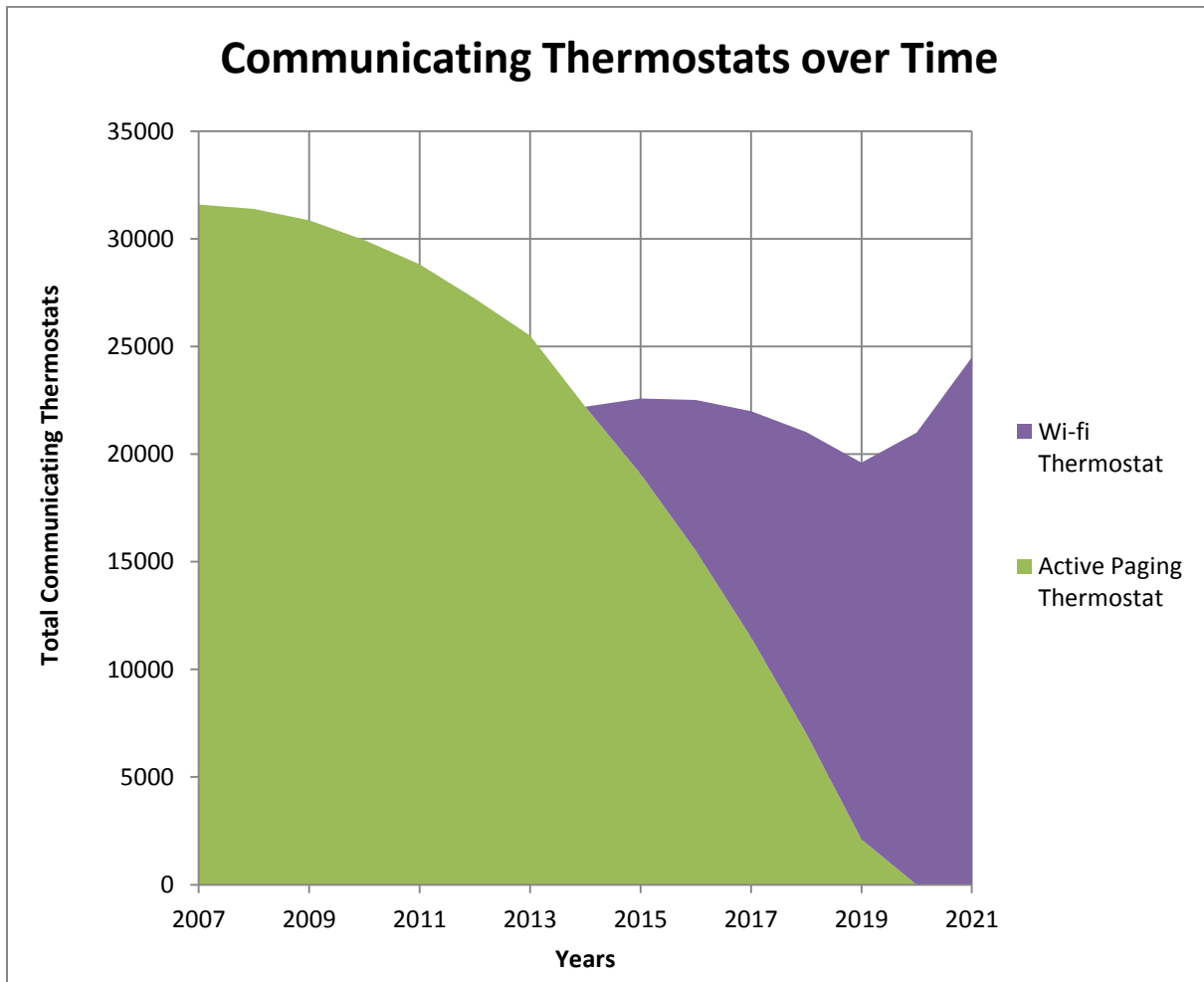


EXHIBIT D: DLC ENROLLMENT BY ELECTRICAL NETWORK

DLC’s enrollment since 2001 has been concentrated in Staten Island and Westchester. This situation aligns with known central air conditioning saturation. The following map indicates DLC’s current enrollment by electrical network.

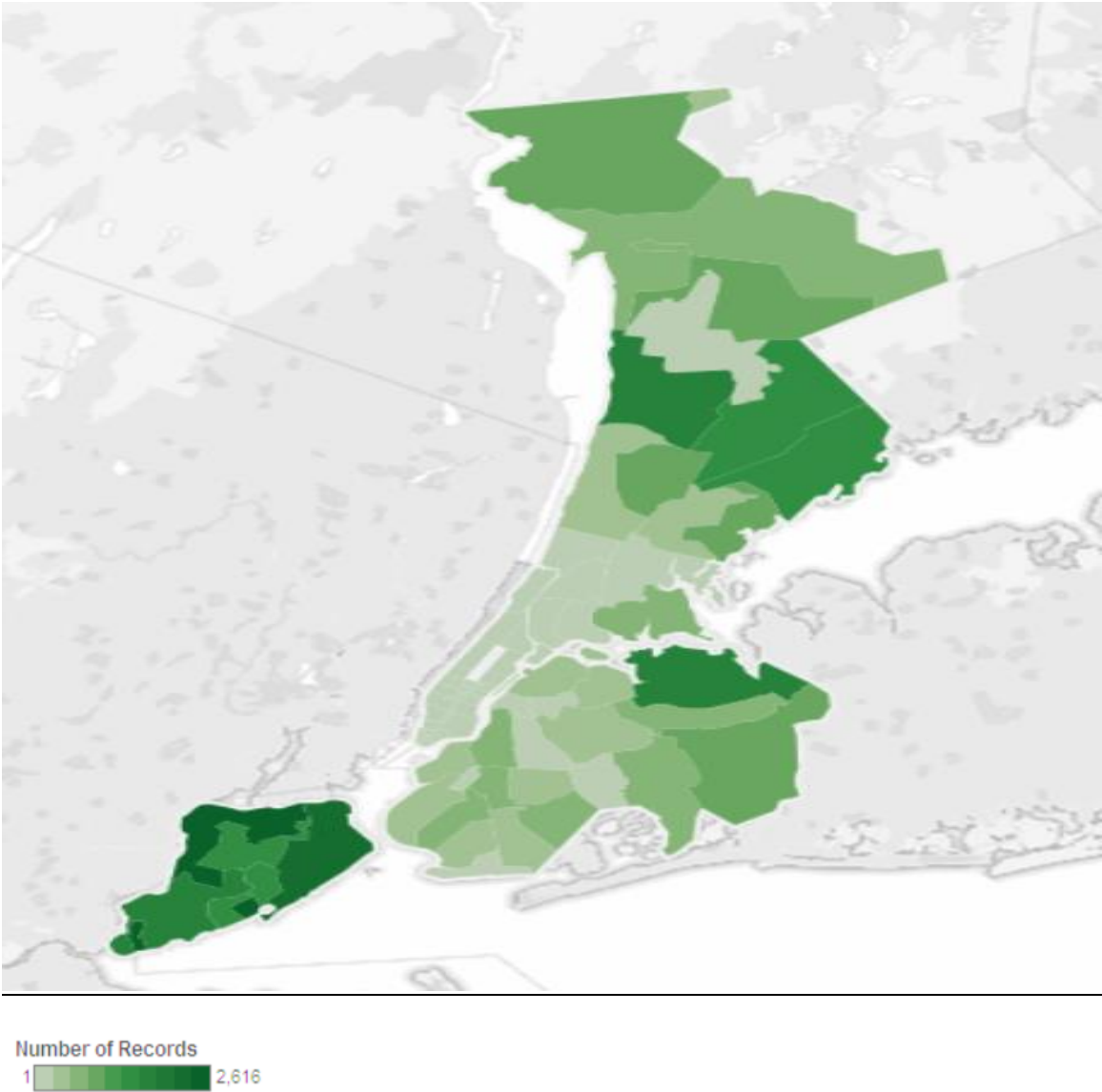


EXHIBIT E: NRTs BY INSTALL DATE

The maps below show the current percentage of NRTs based upon the year of thermostat installation. The thermostats installed in 2006 have a much greater percentage of NRTs than those installed in 2009 and 2013. A color deviation is indicated at the 40 percent NRT per network marker.

