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

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

By its Attorney,

Daniel W. Rosenblum
Associate Counsel
Consolidated Edison Company
of New York, Inc.
4 Irving Place, 1875-S
New York, NY 10003

December 14, 2012
# TABLE OF CONTENTS

INTRODUCTION ....................................................................................................................................................... 1  
BACKGROUND .......................................................................................................................................................... 2  
NECESSARY PROGRAM IMPROVEMENTS ....................................................................................................... 5  
CONCLUSION .......................................................................................................................................................... 13  
APPENDIX A ............................................................................................................................................................. 15  
APPENDIX B ............................................................................................................................................................. 16  

INTRODUCTION

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) hereby petitions the New York State Public Service Commission (“Commission”) for approval of changes to its demand response (“DR”) programs to make the programs more customer friendly, allow for greater innovation, and help increase enrollment by simplifying program rules and launching user friendly technology. The Company proposes: 1) changes to its Commercial System Relief Program (“CSRP” or “Rider S”), Distribution Load Relief Program (“DLRP” or “Rider U”) and Direct Load Control Program (“DLC” or “Rider L); and 2) and completion of the Residential Smart Appliance Program (“RSAP”) pilot. This petition also provides supplemental support for revised tariffs Rider S, Rider U and Rider L, and the filing letter, dated December 14, 2012, describing the revised tariffs.

Well designed DR programs, in particular “Peak Shaving” programs that can be called upon on the hottest days of the year when demand for electricity is at its highest, are an increasingly important component of Con Edison’s efforts to cost-effectively reduce peak load
related economic, social and environmental costs. The Company looks forward to continuing its collaborative efforts with Department of Public Service Staff (“Staff”) and other parties to design and implement DR program improvements.

BACKGROUND

Pursuant to the Commission’s February 17, 2009 Order Initiating Proceeding (“DR Order”), on June 1, 2009 the Company proposed its CSRP, RSAP, Critical Peak Rebate Program (“CPRP”) and Network Relief Program (“NRP”) peak shaving programs to complement its existing DLRP, DLC and Targeted Demand Side Management (“Targeted DSM”) programs. On October 23, 2009, the Commission issued its Order Adopting in Part and Modifying in Part Con Edison’s Proposed Demand Response Programs in this proceeding (“October Order”). To comply with the October Order, the Company filed tariff revisions, Rider S for the CSRP and Rider T for the CPRP.¹

Since filing the programs approved by the October Order, the Company has worked collaboratively with Staff and stakeholders to increase enrollment in its various DR programs and improve response to events requiring DR. At the conclusion of each summer, the Company has carefully reviewed the performance of its DR programs and proposed changes to improve program design, participation and performance the following summer.

Following the summer of 2010, the Company proposed modifications to address limited enrollments and disappointing performance. In response, the Commission approved substantial

¹ No tariff provisions were filed for the remaining programs, RSAP and the NRP, as RSAP did not pay for performance and NRP will be contracted via a Request for Proposal (“RFP”).
modifications to the Company’s CSRP, CPRP and DLRP programs in its January 20, 2011 Order Adopting Modifications to Demand Response Programs.²

Following the summer of 2011, the Company proposed additional changes to its DR programs, designed to make the programs more customer friendly, allow for greater innovation, and help increase enrollment. The Commission approved modifications to the DLC, CSRP, CPRP and RSAP programs in its March 15, 2012 Order Adopting with Modifications Tariff Amendments Related to Demand Response Programs.³

Case 09-E-0115, Proceeding on Motion of the Commission to Consider Demand Response Initiatives, Order Adopting Modifications to Demand Response Programs, issued and effective January 20, 2011. Key changes for both CSRP and CPRP included: 1) removal of restrictions on participation by customers enrolled in the Company’s programs in the New York Independent System Operator’s (“NYISO”) Special Case Resource (“SCR”) program; 2) the 8-hour call window (11 a.m. to 7 p.m) was changed to two five-hour call windows (12 p.m. to 5 p.m. and 5 p.m. to 10 p.m.) that reflect individual network peaks, to addresses customer concerns that the existing window was too long (customer fatigue) and allow the Company to better address individual network peak loads; 3) in order to reduce call frequency and make the DR programs more attractive to customers, the Company was authorized to call DR events when the day-ahead forecasted load level is at least 96 percent of the forecasted summer system-wide peak load, instead of the previous 92.5 percent; 4) advance notification of a planned event was reduced from 24 hours to 21 hours, to avoid possible confusion when the Company issues both day-of and day-ahead notifications in close proximity; 5) the Summer Capability Period was expanded to May 1 to October 31 from the previous June through September; 6) applications would be accepted throughout the year, replacing the requirement that customers sign up the previous year and risk incurring penalties for non-performance because of unanticipated changes in load or operations the following year; 7) reservation payment rates were equalized so customers receive the same payment if load shaving is achieved through generation or through pure curtailment; and 8) performance for purposes of determining penalty assessments would be based upon average performance, as opposed to minimum performance, providing customers with an incentive to improve their performance and better aligning CSRP with the NYISO SCR program.

In addition, the Commission approved a substantial increase in the CSRP payment for emergency events, with elimination of the per kWh energy payments and the cap on the number of events for which participation is required.

Additional changes to CPRP included: 1) the previous requirement that customers with loads greater than 100 kW provide a minimum of 10 kW of load relief, while smaller customers were required to provide at least 1 kW, was changed so that the 10 kW requirement would apply to customers with loads greater than 250 kW; 2) aggregators, who previously could not participate, were permitted to do so if they contract to provide at least 100 kW of load relief in one or more networks; and 3) the payment structure was modified to eliminate the previous tiered payments, providing an incentive for smaller customers to participate in the program.

Changes to DLRP included: 1) Rider U would have the same call window approved for CSRP and CPRP; and 2) energy payments were simplified by specifying a rate of $0.50 per kWh, instead of the lesser of $0.50 per kWh and the real-time, zonal LBMP per kWh of load relief.

Case 09-E-0115, Proceeding on Motion of the Commission to Consider Demand Response Initiatives, Order Adopting with Modifications Tariff Amendments Related to Demand Response Programs, issued and effective March 15, 2012. Key changes included: 1) customers enrolled in the DLC program could participate in both system critical situations and peak shaving situations, increasing the potential benefits of the program and decreasing
The March 15, 2012 order authorized a major expansion of the Company’s ModLet program, increasing the RSAP (the Company’s current room air conditioning pilot) budget by $1.8 million, funds re-allocated from the retired CPRP program, so the Company could add 10,000 residential air-conditioning units. The end of year analysis, which is included in the Consolidated Edison Company of New York, Inc. Evaluation Of Program Performance and Cost Effectiveness of Demand Response Programs (“Evaluation”) filed on December 14, 2012, indicates that the pilot was successful, meeting its goals and garnering positive customer feedback. The average demand reduction during a DR event was 24% per unit, consistent with last year’s numbers. This provides an actual, measured kW number, which will be used for planning and forecasting purposes. Customer engagement metrics were significant, showing active use and acceptance of the technology and program/event design. The Company also gained demographic and behavioral insights regarding the participant base, which should prove useful in continuing and growing the program in the coming years.

---

4 The RSAP program uses a Modern Outlet (“ModLet”). The Modlet is a simple plug-in smart outlet that can be controlled by a smart air-conditioning thermostat and a user’s online Modlet account, allowing customers to control the temperature setting of any window air conditioner. Customers can remotely set the temperature and turn on/off their air-conditioner from any smart phone or browser. The Company can use the Modlet to remotely reduce room air-conditioning energy demand when necessary, providing it with the opportunity to reduce demand from room air-conditioners comparable to its ability to reduce central air conditioning energy demand through the DLC Program.
**Necessary Program Improvements**

The Company carefully reviewed DR program performance during the summer of 2012 and, as in past years, has considered whether changes could be made that would improve customer satisfaction and program benefits.\(^5\) In discussions with customers and other stakeholders it has become clear that the selection of programs, conditions within each of the programs, and the opportunities presented by new technologies can appear complex to our customers, thus discouraging customer engagement and participation in the DR programs. Customers have finite time to concentrate on energy related issues as they make complex strategic decisions about new technologies, and new program opportunities that allow them to use energy more efficiently while meeting their business or personal needs.

Program design must reflect the fact that strong customer engagement is essential for the Company’s DR programs to be both cost-effective and operationally effective. DR participation will be encouraged and customers will benefit as they better understand program offerings and the new control systems being developed to help them better control and manage their energy use. With the plethora of suppliers and solutions creating layers of complexity for the customer, it is important that the Company continue its role of credible “go to” partner for a range of energy related opportunities, both energy efficiency and demand response.

The following discussion of proposed changes to the Company’s DR programs reflects the Company’s careful balance of the need to control costs, at a time when its customers are experiencing considerable economic pressure, with the importance of encouraging customer engagement by making available understandable DR programs that take advantage of new technology. Effective the 2013 summer capability period, the Company will no longer enroll its

---

\(^5\) The Company provided a full evaluation of DR program performance in its Evaluation filed with the Commission today.
central air-conditioning customers in the NYISO Special Case Resources, Small Customer Aggregation program (‘‘SCR Program’’). While the Company has enrolled its customers in the SCR Program since 2005, with all revenues from the program flowing back to the Company’s customers through the Market Adjustment Clause (‘‘MAC’’), the Company has determined that it is not advantageous to do so in the future for two reasons.

First, participation in the SCR Program has the counterproductive impact of increasing demand during the time when residential networks generally already experience peak demand. The SCR Program is intended for commercial customers and will normally call its events from 12:00 pm to 6:00 pm. After SCR Program events end, customers’ air-conditioning usage can spike as customers make up for the reduced cooling during the event. The result is increased demand in a residential network that is already peaking at that time.

Second, enrolling the customers in the SCR program results in the need for customers to respond more often and for longer time periods, which results in increased customer fatigue. The Company’s goal is to minimize customer impact where possible, and this is especially pertinent where customers are required to respond under the SCR program at times which are not coincidental with their specific network peaks.

Rider L - Direct Load Control

The DLC program has grown substantially over the past decade and, as of September 2012, includes approximately 25,000 customers whose central air conditioning can be remotely cycled during DR events. The 25,000 DLC customers represent approximately 35 MW of peak load reduction across the Company’s service territory. DLC customers receive a thermostat for their central air-conditioning that enables the Company to remotely cycle the air-conditioning on
and off and also allows customers to preset and remotely control their air-conditioning from either a personal computer or smart phone. All DLC customers allow the Company to reduce the energy demand from their air-conditioning at times of system contingency or for peak shaving. At all times, under all conditions, each customer may over-ride any control condition the Company has applied to its air-conditioning operation.

**Thermostats**

While the DLC program has been successful, the Company cannot simply continue with business as usual. First, the DLC program is using thermostats which are aging, utilize a technology which may be becoming obsolete, and need replacement. Second, the Company has an excellent opportunity to expand the DLC program to encompass the Modlet program that has been piloted as part of RSAP. Both issues, and their budget implications, are discussed below.

The DLC program has been operating for over 10 years and warranties are beginning to expire on the earliest thermostats installed. While increased equipment failures are not yet occurring, the Company must prepare for the likelihood that the need to replace out of warranty thermostats will soon increase in number. Appendix A shows the projected growth of thermostats without warranty coverage.

The Company cannot simply replace failing thermostats with the same model thermostat. The DLC program and the current thermostat model it utilizes only have the capability to communicate via a proprietary pager communication signal, while the majority of thermostats now being developed utilize other wireless communication platforms (Zigbee, for example). The competitive challenge from the wireless carrier market is resulting in market reduction and competitor consolidation in the pager industry. Since there is little competition among thermostats using the pager technology, competition cannot be relied upon to hold down prices. Longer term, while the contract with the Company’s current pager provider continues through
2015 with an option to extend the contract on a yearly basis, the Company is concerned about the long term viability of paging as a communication pathway. The Company is evaluating new communication technologies and is positioning itself to be in line with the utility DR industry.

Program Expansion

While the DLC program currently only targets central air conditioning, the success of the Modlet pilot combined with years of DLC operation has shown general customer acceptance of the Company’s air conditioning DR programs, whether central or room air conditioning. In essence, from a customer perspective, there is little distinction as to whether the cooling is provided by a central or room unit. Consolidating aspects of the branding, communications and operations of the residential and small commercial air conditioning programs would provide substantial economic benefits.

The Company proposes that 1) the tariff language be expanded to allow for any communication pathway and that 2) any air conditioning solution, including, but not limited to, central, room and packaged terminal air units, be covered. Consolidation of the DLC and RSAP programs is consistent with the Company’s plans for the progression of both programs, as noted by the Commission in the October Order, “For its DLC program, the Company anticipates that, if the new RSAP is successful, the DLC program will become part of RSAP.”

Proposed DLC Budget

The DLC program has an annual budget cap of $4 million, which is not sufficient for both replacement of old equipment and meaningful program growth. The Company proposes that the budget be increased to $5.1 million for 2013 to provide adequate funding for equipment replacement and the management of multiple communication pathways (pager and WiFi), while

---

6 Rider L specifically states that the program is for customers with central air conditioning.
7 October Order, p. 10.
transitioning to a more ubiquitous solution and an increased deployment rate as equipment with 
expired warranty needs replacement at a higher rate than the Company has experienced to date.

The $5.1 million budget for maintaining existing customers and acquiring new customers 
includes replacement of 2,000 thermostats in 2013 at an estimated cost of $2.9 million and the 
targeted installation of 1,500 thermostats for new customers at a cost of $2.2 million.

The Company intends to increase the rate of replacement of existing customer 
thermostats to 6,000 per year over the next five years. It is expected that this will result in an 
annual cost of $4.8 million during the years 2014 through 2018. In addition, the Company plans 
on installing 3,500 new thermostats on a yearly basis, once the new program solution 
(thermostats and communication pathway) is fully deployed. The installation cost for the new 
program solution is expected to be approximately $3.1 million per year, for a total budget of $7.9 
million per year for the years 2014 through 2018. A detailed forecast of this expense is 
provided in Appendix B.

The Company is in the process of issuing a Request for Proposal (“RFP”) to determine 
how best to address these issues in an innovative and cost effective manner. The Company 
expects to complete the RFP process in the middle of the first quarter of 2013. Vendor transition 
and implementation of the new program solution will likely result in an initial delay in new 
customer acquisition, which is why lower acquisition levels are factored into the 2013 budget.

Including the room air conditioning options in the DLC program provides tremendous 
on-going operational opportunities, especially to target key load pockets that have a high density 
of room air conditioning. Expanding the DLC program to take advantage of such opportunities 
will require additional funding. Currently the room air conditioning program is funded through 
the RSAP program at the level of $4.9 million. The Company requests that the RSAP funding be 
re-allocated to the DLC budget to create a consolidated budget, without generating additional
customer cost impact for the room air conditioning element. The Company has completed the pilot program under RSAP for utilizing customer’s Automated Meter Reading (“AMR”) meters as a potential communications pathway. Since the AMR meter solution has not demonstrated as strong an economic outcome as the Modlet solution, re-allocation of funds will maximize customer benefits. This re-allocation would result in a total DLC (room and central air conditioning) program budget of $10 million.

The $4.9 million cost for the room air-conditioning element in 2013 covers the expected cost for 25,000 new unit installations and the on-going maintenance of the existing 10,000 enrollees. The $4.9 million continues the momentum and growth of the program with an aggressive, yet attainable goal of 25,000 units for 2013. At the 25,000 unit scale, the cost per unit lowers significantly and other program costs reach efficiencies of scale.

The room air conditioning element of the program should be greatly expanded in the future to provide additional benefits to customers. In 2014, the Company proposes to deploy 32,500 new Modlets, which would bring the total cost for the Modlet program element to $6.6 million for the year. In 2015, the Company proposes deployment of a further 42,250 Modlets raising the total cost to $8.0 million for the year. These costs would be in addition to the central air conditioning program costs of $7.9 million, resulting in a total DLC program budget for 2014 of $14.5 million and for 2015 of $15.9 million.

Such a budget allocation, while clearly an increase, will bring significant and well received tools to the customers. The feedback and engagement from customers, in both the central and room air conditioning segments, has been positive. The customers have not only been able to actively engage in demand response but have also gained energy efficiency benefits by being able to better control their use of air conditioning. Such actions result in immediate customer benefit relating to comfort control and bill reductions from reduced consumption.
In the mass market product space, it is also the case that volume is important in reducing the unit price. Apart from manufacturing economies, a larger market brings more competitive forces to bear. By growing the number of customers covered by this program, the volume impact on the unit price will result in better economies delivered to each customer as the program grows.

Rider L – Incentive Awards

The existing Rider L only had incentive awards for central air conditioning program participants. The Company proposes expanding the incentive awards to include window, wall and PTAC program participants as follows:

- $25 for Residential central air conditioning or PTAC thermostats;
- $25 for Residential or nonresidential window, wall, or PTAC plug-in; and
- $50 for Nonresidential central air conditioning or PTAC thermostats.

Rider U - Distribution Load Relief Program

Modification to Call Time

Most customers participating in DLRP have commercial operations and the need for system relief is focused during the summer. While contingency system conditions do not always occur during the peak times of network operations, it is clear that the greatest relief benefit that the DLRP customers can provide is when they are using the most energy at the same time that increased demand for energy is increasing stress on a network. Following this logic, when a contingency event occurs late at night or very early in the morning, the ability of most customers to contribute is limited because they do not have much load to reduce. The lack of available demand also acts as a constraint on a customer’s motivation to enroll in the program, as it needs to be able to commit a consistent level of response 24/7 under the current program model. At the very least, the customer who does enroll is forced to reduce its enrollment level to that which is
available at its time of lowest energy use, rather than that available during times of higher energy use. In addition, customers are concerned about the inconvenience of having to respond in the over-night hours, when they may not have the experienced building operators or facility managers available.

Recognizing these barriers to customer participation, the Company proposes that the call time for the DLRP program be changed to exclude event initiation or response after 11pm and before 6 a.m. While an event may be called at 8 p.m., and a customer would be required to respond, the customer could cease response at 11 p.m. The proposed change would correspond to network needs, since the vast majority of the Company’s networks have completed peak conditions by 11 p.m. and so load on the network is reducing naturally.8

Riders S and U – Baseline Calculation

The reference document for the Company’s baseline calculation is the NYISO Emergency Demand Response Program (“EDRP”) manual and the Customer Base Line (“CBL”) description contained therein. The EDRP manual is designed and maintained by the NYISO for the operation of its EDRP program. It addresses supply/demand imbalances and was not designed to support the operation of the Company’s DR programs directed at distribution relief. The Company has no control over the contents of the NYISO document. It is not operationally sound to continue use of the EDRP manual as the reference source for the baseline calculation for the Company’s DR programs.

The Company’s intent is to develop an operating procedure that will be available to the public on the Company’s website to provide guidance regarding the baseline calculations. The

---

Riders S and U – NYISO Generator ID Information

The Company proposes eliminating the Rider U and Rider S requirement that participants provide NYISO market participation information, including generator identification information, because only Company employees involved in supply procurement are permitted to have access to NYISO participation information unless customers enroll in NYISO programs through the Company. The Company also proposes eliminating the prohibition that participations in the NYISO demand response events be paid for energy payments in concurrent events with the Company’s demand response events. The NYISO demand response events are initiated for different economic reasons and therefore it is appropriate for Con Edison to have different economic incentives.

Riders S and U - Participation under Rider L

Participants under Rider L will not be allowed to participate under Rider U and Rider S to avoid duplication, because the programs may be called during concurrent events.

Riders L, S and U - Tariff Changes

The Company is submitting proposed modifications to Riders L, S and U, to reflect the changes described above, in a filing letter filed with the Commission on December 14, 2012.

CONCLUSION

Demand Response programs are becoming an increasingly important component of Con Edison’s efforts to cost-effectively reduce peak load related economic, social and environmental
costs. The Company is committed to continuing to improve the design of existing programs and to propose changes necessary to make the programs more customer friendly and to increase enrollment, while maintaining strong benefits and mitigating customer cost impact. For the reasons stated above, the Company requests that its proposed changes to its Demand Response programs, as described in this petition, be approved. Proposed tariff language has been submitted in a separate filing.

Dated: New York, NY
December 14, 2012

Respectfully submitted,

CONSOLIDATED EDISON COMPANY
OF NEW YORK, INC.

By its Attorney,

Daniel W. Rosenblum
Associate Counsel
Consolidated Edison Company
of New York, Inc.
4 Irving Place, 1875-S
New York, NY 10003
(p) 212-460-4461
(f) 212-677-5850
e-mail: rosenblumd@coned.com
Appendix A

Thermostat Forecast

![Thermostat Forecast Graph]

- **Total Installed (Existing and Forecast)**
- **Thermostats Past Warranty**
## Appendix B

### Consolidated Edison Co. of NY, Inc.

**Direct Load Control (DLC) Cost Summary 1/1/13-12/31/16**

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Program - Annual New Installation Costs</td>
<td>$1,838,125</td>
<td>$2,645,625</td>
<td>$2,645,625</td>
<td>$7,129,375</td>
</tr>
<tr>
<td>Residential Program - Annual Operations &amp; Maintenance Costs</td>
<td>$2,482,000</td>
<td>$3,930,750</td>
<td>$3,930,750</td>
<td>$10,343,500</td>
</tr>
<tr>
<td>Small Business Program - Annual New Installation Costs</td>
<td>$324,375</td>
<td>$466,875</td>
<td>$466,875</td>
<td>$1,258,125</td>
</tr>
<tr>
<td>Small Business Program - Annual Operations &amp; Maintenance Costs</td>
<td>$438,000</td>
<td>$889,250</td>
<td>$889,250</td>
<td>$2,216,500</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>$5,082,500</strong></td>
<td><strong>$7,932,500</strong></td>
<td><strong>$7,932,500</strong></td>
<td><strong>$22,947,500</strong></td>
</tr>
</tbody>
</table>
# Residential DLC Cost Estimate 1/1/2013-12/31/2016

## Installed Cost Per Thermostat

<table>
<thead>
<tr>
<th>Program Year</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Installs</td>
<td>1,275</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Administration</td>
<td>$233</td>
<td>$99</td>
<td>$99</td>
</tr>
<tr>
<td>Equipment</td>
<td>$275</td>
<td>$273</td>
<td>$273</td>
</tr>
<tr>
<td>Installation</td>
<td>$200</td>
<td>$198</td>
<td>$198</td>
</tr>
<tr>
<td>Customer Incentives</td>
<td>$133</td>
<td>$57</td>
<td>$57</td>
</tr>
<tr>
<td>Marketing</td>
<td>$600</td>
<td>$255</td>
<td>$255</td>
</tr>
<tr>
<td><strong>Total per Thermostat</strong></td>
<td><strong>$1,442</strong></td>
<td><strong>$882</strong></td>
<td><strong>$882</strong></td>
</tr>
<tr>
<td><strong>Total Annual Installation Cost</strong></td>
<td><strong>$1,838,125</strong></td>
<td><strong>$2,645,625</strong></td>
<td><strong>$2,645,625</strong></td>
</tr>
</tbody>
</table>

## Program Operations & Maintenance

<table>
<thead>
<tr>
<th>Program Year</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacements</td>
<td>1700</td>
<td>4750</td>
<td>4750</td>
</tr>
<tr>
<td>Administration</td>
<td>$616,250</td>
<td>$616,250</td>
<td>$616,250</td>
</tr>
<tr>
<td>Service Inventory</td>
<td>$467,500</td>
<td>$1,306,250</td>
<td>$1,306,250</td>
</tr>
<tr>
<td>Service</td>
<td>$871,250</td>
<td>$1,481,250</td>
<td>$1,481,250</td>
</tr>
<tr>
<td>Communication</td>
<td>$442,000</td>
<td>$442,000</td>
<td>$442,000</td>
</tr>
<tr>
<td>Hosting</td>
<td>$85,000</td>
<td>$85,000</td>
<td>$85,000</td>
</tr>
<tr>
<td><strong>Total Annual Maintenance Cost</strong></td>
<td><strong>$2,482,000</strong></td>
<td><strong>$3,930,750</strong></td>
<td><strong>$3,930,750</strong></td>
</tr>
</tbody>
</table>

| Active Thermostats | 23,310  | 24,330  | 26,730  |
| Total kW | 23,310  | 24,330  | 26,730  |
| Cost/kW | $106.48  | $161.56  | $147.05  |
## Installed Cost Per Thermostat

<table>
<thead>
<tr>
<th>New Installs</th>
<th>225</th>
<th>500</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Year</td>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
</tr>
<tr>
<td>Administration</td>
<td>$233</td>
<td>$105</td>
<td>$105</td>
</tr>
<tr>
<td>Equipment</td>
<td>$275</td>
<td>$124</td>
<td>$124</td>
</tr>
<tr>
<td>Installation</td>
<td>$200</td>
<td>$90</td>
<td>$90</td>
</tr>
<tr>
<td>Customer Incentives</td>
<td>$133</td>
<td>$60</td>
<td>$60</td>
</tr>
<tr>
<td>Marketing</td>
<td>$600</td>
<td>$270</td>
<td>$270</td>
</tr>
<tr>
<td><strong>Total per Thermostat</strong></td>
<td>$1,442</td>
<td>$649</td>
<td>$649</td>
</tr>
</tbody>
</table>

### Total Annual Installation Cost

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Installs</td>
<td>$324,375</td>
<td>$324,375</td>
<td>$324,375</td>
</tr>
<tr>
<td><strong>Total Annual Installation Cost</strong></td>
<td>$324,375</td>
<td>$324,375</td>
<td>$324,375</td>
</tr>
</tbody>
</table>

| Total kW | 315 | 700 | 700 |
| Cost/kW | $1,029.76 | $463.39 | $463.39 |

## Program Operations & Maintenance

<table>
<thead>
<tr>
<th>Replacements</th>
<th>300</th>
<th>1250</th>
<th>1250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Year</td>
<td>Year 1</td>
<td>Year 2</td>
<td>Year 3</td>
</tr>
<tr>
<td>Administration</td>
<td>$108,750</td>
<td>$108,750</td>
<td>$108,750</td>
</tr>
<tr>
<td>Service Inventory</td>
<td>$82,500</td>
<td>$343,750</td>
<td>$343,750</td>
</tr>
<tr>
<td>Service</td>
<td>$153,750</td>
<td>$343,750</td>
<td>$343,750</td>
</tr>
<tr>
<td>Communication</td>
<td>$78,000</td>
<td>$78,000</td>
<td>$78,000</td>
</tr>
<tr>
<td>Hosting</td>
<td>$15,000</td>
<td>$15,000</td>
<td>$15,000</td>
</tr>
<tr>
<td><strong>Total Annual Maintenance Cost</strong></td>
<td>$438,000</td>
<td>$889,250</td>
<td>$889,250</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Active Thermostats</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total kW</td>
<td>11,007</td>
<td>11,259</td>
<td>11,819</td>
</tr>
<tr>
<td>Cost/kW</td>
<td>$39.79</td>
<td>$78.98</td>
<td>$75.24</td>
</tr>
</tbody>
</table>