Case No. 14-E-0423
Proceeding on Motion of the Commission to Develop Dynamic Load Management Programs

ORANGE & ROCKLAND UTILITIES, INC. ANNUAL REPORT ON PROGRAM PERFORMANCE AND COST EFFECTIVENESS OF DYNAMIC LOAD MANAGEMENT PROGRAMS - 2017

December 1, 2017

Contents

1.0 Introduction

Orange and Rockland Utilities, Inc. ("O&R" or the "Company") submits this evaluation of its Dynamic Load Management ("DLM") programs pursuant to the New York Public Service Commission's ("Commission" or "PSC") June 18, 2015 *Order Adopting Dynamic Load Management Filings with Modifications* ("June Order").[1] The June Order requires that the Company submit a report to the Commission by December 1 of each year assessing the three O&R DLM programs approved in the June Order. This report covers the Company's DLM programs for the 2017 program year, which is January 1, 2017 through December 31, 2017.

O&R implements three types of DLM programs, a direct load control program, a peak shaving program, and a contingency program. The Direct Load Control Program ("Rider D" or "DLCP") is a direct load control program that remotely controls central air conditioning ("AC") equipment in customers' homes and small businesses during peak shaving or contingency events. The Commercial System Relief Program ("Rider E" or "CSRP") is a peak shaving program that can be called on a day-ahead basis when the next-day forecasted load approaches the forecasted summer system peak load. The Distribution Load Relief Program ("Rider F" or "DLRP") is a local distribution reliability program that can be called to address local reliability issues in specific defined circuits or geographic areas. The programs operate during the summer period May 1 through September 30 and are summarized in Table 1.

Table 1: Summary of DLM Programs

Program	General Information	Incentive
DLCP	Activated by O&R in system critical contingency situations or peak shaving events. Participation limited to O&R residential, religious, and small business customers with central AC. Allows O&R to remotely control the device (smart thermostat) settings.	**Company Provided Thermostat Option:** customers receive a free or low-cost controllable device (smart thermostat). **Bring Your Own Thermostat Option:** customers enroll an eligible smart thermostat through a Service Provider and receive an enrollment payment of $85 and an annual Participation Payment of $25 starting the second summer.
CSRP	Activated by O&R when the day-ahead forecast is 92 percent or greater of forecasted summer system peak to relieve system peak loads. Events last four-hours. Reservation and Voluntary Payment Options.	**Reservation Payment Option:** customers receive $3 per kW-month pledged and performed for months with fewer than five events and $4 per kW-month for months with five or more events. Performance payment is $0.50 per kWh provided during a Planned Event or $1.00 per kWh for Unplanned Events. **Voluntary Participation Option:** customers receive a Performance Payment of $1.00 per kWh provided during Planned Events or $1.50 per kWh provided during Unplanned Events.
DLRP	Activated by O&R in response to a system emergency or voltage reduction of five percent or greater. Events last four or more hours. Reservation and Voluntary Payment Options.	**Reservation Payment Option:** customers receive a $3 or $5 per kW-month pledged and performed depending on location for months with fewer than five events and $4 or $6 per kW-month pledged and performed depending on location for months with five or more events, and a Performance Payment of $0.50 per kWh provided during events. **Voluntary Participation Option:** customers receive a

[1] Case 14-E-0423, *Dynamic Load Management Programs*, Order Adopting Dynamic Load Management Filings with Modifications (issued June 18, 2015).

		Performance Payment of $1.00 per kWh provided during events.

The DLM programs are divided by customer type and application type, peak shaving or contingency. The DLCP targets smaller business and residential customers. The CSRP and DLRP programs are designed for larger commercial customers who are able to achieve a pledged reduction amount through their own demand reduction strategies. The CSRP and DLRP programs each have a mandatory Reservation Payment Option and Voluntary Participation Option with separate obligations and incentive rates. The segmentation by customer type is important, as the programs require specific operational processes, equipment, communication, and education. This report is structured to reflect the segmentation.

As directed in the June Order, this report will address the following subjects for each program:

- Tariff Provisions: Recommended changes that the Company plans to propose to DLM program tariff provisions to be implemented for the 2018 summer Capability Period;
- Program Costs: A detailed breakdown of DLM program costs, including incentive payments made to customers, program operation costs for both the Company and vendors engaged in these programs, equipment costs including software and any equipment provided to customers (such as Control Devices), measurement and verification costs, and DLM marketing costs;
- Program Enrollment: Total and new program enrollment for the summer Capability Period;
- Program Performance: Summary of demand response program performance during each called event; and
- Program Cost Effectiveness: Evaluation of the cost effectiveness of each program using the Societal Cost Test, Utility Cost Test, and Ratepayer Impact Measure.

As directed by the PSC's April 21, 2017 *Order Modifying Dynamic Load Management Filings and Making Other Findings ("April Order")*[2] this report will also address:

- Improvements to the batch enrollment process, process improvement suggestions, program administration optimization, or other adjustments to facilitate greater participation.
- Updates to the Company's newly adopted 50 kW aggregate direct enrollment threshold (including number of customers and accounts aggregated in this manner, the effectiveness of aggregation, and potential process improvements).

As directed by the PSC's May 18, 2017 *Order Approving Subject To Modifications Tariff Amendment for Battery Discharge in Brooklyn/Queens Demand Management Program and Making Other Findings ("May Order")*[3] this report will also provide an update on the impacts of allowing distributed energy resources ("DERs"), including battery storage, participating in the Company's DLM programs to export onto the primary and secondary distribution systems during those programs' events.

This report will provide a full evaluation of the DLM programs operating in 2017. Performance evaluation for each program for summer 2017 is based upon Test Event data for both peak shaving

[2] Case 14-E-0423, Dynamic Load Management Programs, Order Modifying Dynamic Load Management Filings and Making Other Findings (issued and effective April 21, 2017).

[3] Case 17-E-0104, Dynamic Load Management Programs, Order Approving Subject To Modifications Tariff Amendment for Battery Discharge in Brooklyn/Queens Demand Management Program and Making Other Findings (issued and effective May 18, 2017)

contingency based programs. No peak shaving or contingency based events were called during the 2017 Capability Period.

A summary of key program terms covered in this report can be found in Appendix A.

2.0 Commercial DLM Portfolio

The commercial DLM portfolio consists of CSRP and DLRP. Proposed tariff provisions, costs, enrollment, and performance will be provided for each program. The portfolio cost-effectiveness results assess DLRP and CSRP jointly at the end of this section.

Detailed tariff changes to CSRP and DLRP are being filed contemporaneously with this report as directed by the April Order. A summary of the proposed tariff changes is provided in the Proposed Tariff Provision section 2.1.1.

O&R's 2017 approved budget for the commercial DLM portfolio is $648,879. The Company estimates that it will spend $479,604 or 74 percent of the approved budget through year-end. The Company was able to underspend the budget by closely managing operational and marketing costs. Additionally, several enrollments were rejected as a result of the CSRP diesel cap restriction, which coupled with the absence of an actual event in either the CSRP or DLRP program, resulted in reduced incentives paid out during the 2017 Capability Period. A detailed breakdown of program costs, including customer incentives, is included in each Program Costs section below.

This is the second full Capability Period for both DLM commercial programs. O&R estimated that 28 megawatts (MW) would enroll for 2017. The Company accepted thirty-seven applications from Direct Participants and Aggregators, and enrolled 24.5 MW from thirty-seven customers, while having to reject an additional 7.8 MW due to CSRP diesel cap generation restrictions. The total represents a two percent increase from enrollment in 2016. A detailed summary of program enrollment is found in each Program Enrollment section below.

Performance evaluation for CSRP and DLRP for summer 2017 is based upon Test Event data for both DLRP and CSRP. A summary of event performance is detailed in each Program Performance section below.

2.1 Commercial System Relief Program

The purpose of CSRP is to reduce the system peak and targeted area peak load. The CSRP is available service territory wide to participants who curtail load or integrate certain on-site generation to reduce their demand by a minimum of 50 kilowatts ("kW") individually, or through Aggregators who can aggregate at least 50 kW of demand reduction, with a minimum of 21 hours' advance notice before a Planned Event. A Planned Event refers to the Company's request for Load Relief when the day-ahead forecasted load is at least 92 percent of the Company's forecasted summer system peak. Customers in CSRP may be called

to participate in Unplanned Events, which are events requesting Load Relief with less than 21 hours' advance notice.

CSRP includes both a Reservation Payment Option and a Voluntary Participation Option. The Reservation Payment Option includes a monthly Reservation Payment and Performance Payments, while the Voluntary Participation Option only provides Performance Payments. Reservation Payments are made to participants at a set dollar per kW per month for the Capability Period, whether or not the Company calls an event. These Reservation Payments compensate program participants for standing ready to supply demand response when called upon by the Company. Performance Payments are made to customers on a dollar per kWh basis during called events. Performance Payments compensate customers for reducing load on the Company's system for the duration of the called event or Test Event hours and can be used to induce participants to voluntarily continue to reduce load during called hours after the mandatory load reduction obligation periods have expired.

Participants enrolled in the Reservation Payment Option receive a monthly Reservation Payment of $3.00 per kW per month. Beginning with the first month during which there have been five or more Planned Events during the Capability Period, the Reservation Payment increases to $4.00 per kW per month. In addition to the Reservation Payment, participants in the Reservation Payment Option receive a Performance Payment of $0.50 per kWh provided during all events. Payment for participation in Unplanned Events is $1.00 per kWh provided during called events. Direct Participants or Aggregators participating in the Reservation Payment Option are required to respond to a CSRP Planned Event for a four-hour period.

Participants in the Voluntary Participation Option do not receive Reservation Payments, but do receive a higher Performance Payment of $1.00 per kWh provided during a Planned Event and $1.50 per kWh reduced during an Unplanned Event.

CSRP has environmental and performance requirements, including a 20 percent cap on the program resources enrolled via the use of on-site diesel generation. Participating diesel electric generating equipment must have an engine of model year vintage 2000 or newer. Enrollment by such generators is accepted on a first-come, first-served basis. All other electric generating equipment is limited to the following: natural gas-fired rich burn electric generating equipment that incorporates three-way catalyst emission controls; natural gas lean-burn electric generating equipment with an engine model year vintage 2000 or newer; or electric generating equipment that has a NOx emissions level of no more than 2.96 lb/MWh. As a result of this diesel generation cap, O&R rejected 7.8 MW of diesel generation during the 2017 Capability Period.

2.1.1. Proposed Tariff Provisions

O&R is proposing the following tariff provisions, tracking those proposed by Con Edison in its November 30, 2017 demand response tariff filing, in order to minimize differences between the Company's DLM programs and Con Edison's programs:

- Require a minimum Performance Factor for all CSRP reservation participants;
- Allow CSRP Test Events to last up to four hours; and

- Adjust the definition of Customer Baseline Load ("CBL") to allow for additional CBLs.

In addition, O&R is proposing housekeeping items not described in this report.

2.1.2. Program Costs

Total costs for CSRP during the program year were $129,121, a decrease of 36 percent over the 2016 total costs of $201,553. The decreased cost for CSRP is largely due to: the lack of a four-hour actual event and corresponding performance payments; steady enrollment numbers that did not increase due to the portfolio diesel cap of 20 percent enrollment; optimized administrative practices; and lower vendor implementation costs, as the bulk of the tracking system was built, and paid for, in 2016. All program costs are recovered through a new line item of the existing Energy Cost Adjustment ("ECA") non-bypassable delivery charge. Table 2 summarizes the costs, by component, associated with CSRP in 2017.

Table 2: CSRP Cost Components for 2017 Program Year[4]

Component	Cost	Percentage
Customer Incentives	$78,714	61%
Program Operations – O&R	$26,011	20%
Program Operations – Vendor	$13,372	10%
Program Marketing	$6,024	5%
Program Evaluation	$5,000	4%
Total Program Costs	**$129,121**	**100%**

Customer Incentives

Customer incentives consist of Reservation and Performance Payments paid to Direct Participants and Aggregators for their participation and performance in tests and called events. For 2017, there were no Planned Events and one Test Event. Table 3 provides information about Reservation and Performance Payments paid in 2017. The cumulative total of incentives amounted to $78,714 (61 percent of the total program cost).

Table 3: CSRP Customer Incentives Paid in 2017

Type of Payment	Amount Paid
Reservation Payments	$76,392
Performance Payments	$2,322
Total	**$ 78,714**

Program Operations – O&R

Costs in this category consist of Company staff salary associated with CSRP management and support. This includes administration work and training performed by program staff. The costs associated with program administration were $26,011 (20 percent of the total program cost).

Program Operations – Vendor

[4] Costs for December have been estimated.

Costs in this category include expenses related to operating functions performed by O&R vendors. These costs include implementation of a data tracking system and online enrollment portal. The data tracking system tracks and verifies enrollments, measures event performance, and calculates incentive payments. The online enrollment portal allows for the online submission of all applications and supporting documentation and provides access to event performance five business days after an event takes place. Specifically, these costs include implementation, monthly support, and hosting fees. These costs totaled $13,372 (10 percent of the total program cost).

Program Marketing

Marketing costs include all costs associated with the marketing initiatives required to inform and involve customers in the programs. These efforts include sending direct mailers, and webinar hosting to promote CSRP. The total costs for program marketing were $6,024 (five percent of the total program cost). Aggregators provide the majority of program marketing to attract commercial DLM program participants. The Company will continue to provide customer education on the demand response concepts to support third-party aggregators, as well as to inform customers about program requirements.

Program Evaluation

Costs incurred in this category are associated with payment to a consultant to update the Company's existing demand response cost-effectiveness model to conform to the BCA Handbook and incorporate 2017 Capability Period enrollment and performance data. This model is used to calculate cost effectiveness of programs and for program planning, particularly related to setting future incentive rates. The cost to update the model in 2016 was $5,000 (four percent of the total program cost).

2.1.3. Program Enrollment

O&R accepted 29 applications for CSRP enrollment by April 1 for a May 1 start. No additional applicants enrolled after this date. A summary of customer enrollment for the 2017 Capability Period is provided in Table 4.

Table 4: 2017 Summary of CSRP Enrollment

Enrollment Date	Total Customers	Total MW Enrolled
May 1, 2017	29	6.9
Total	**29**	**6.9**

O&R anticipates enrollment to continue to grow for the 2018 Capability Period based on new customer inquiries. O&R plans to conduct a series of marketing and outreach activities in the first quarter of 2018 to raise awareness of the program and encourage enrollment.

2.1.4. Program Performance

This section focuses on evaluation of CSRP performance for the 2017 Capability Period, for which one Test Event was called.

The purpose of CSRP is to encourage customers to reduce their demand when events are called for a peak load shaving event. Customers are expected to reduce load based upon their pledged kW. Accordingly, one of the goals of the program evaluation is to determine whether participants are providing their

pledged demand reductions. Performance of each Reservation Payment Option customer is measured annually via event and/or test performance data. At least one Test Event is conducted per Capability Period.

Customer load reductions are measured using the CBL methodology. The CBL is a representation of a customer's average hourly consumption based on the top five highest days of energy usage within a 10-weekday period selected from the 30 weekdays prior to an event. For weekend events, the CBL uses the top two highest weekend days from the past three weekends. The CBL is used to calculate a customer's performance during a test or event by taking the difference between the CBL and the customer's actual load on the event day. Customers have the choice of selecting an average day or weather adjusted CBL depending on how they believe their load is normally affected by changes in the weather. If a customer does not make a choice in the application, the customer is assigned a weather adjusted CBL.

CSRP uses the CBL methodology to measure load reduction during all tests and events for both Reservation Payment Option and Voluntary Participation Option enrolled customers. The majority of customers in CSRP elected to have their performance measured with the weather adjusted CBL. The weather adjustment allows for a variation range of up to 20 percent in either direction (increase or decrease) from that of an average day assumption. Two customers or eight percent of customers in CSRP elected to have their performance measured with the average day CBL.

Event Summary

Performance of each Reservation Payment Option customer is measured annually via event and/or test performance data. At least one Test Event is conducted per Capability Period. All customers in CSRP were enrolled in the Reservation Payment Option. O&R called one Test Event on June 13, 2017. A summary of the event results is detailed in Table 5.

Table 5: 2017 Summary of CSRP Event and Performance

Test or Event	Event/Test Date	Event/Test Hours	Customers Enrolled	MW Enrolled	MW Reduction Achieved	Performance Factor Achieved
Test	06/13/2017	4:00 – 5:00 PM	29	6.9	7.6	110%

The Performance Factor is the average amount of kW Load Relief supplied during an event divided by the contracted kW Load Relief. The Performance Factor is important as it is used to calculate payments and determine resource reliability. Performance data shown in Table 5 is based on achieved MW performance, which captures the MW performance as seen on the system. This may differ from the load performance used to calculate participants payments for Test Events, which is capped between zero and 100 percent of the Direct Participant or Aggregator's pledged level.

CSRP System Impacts

The goal of the Company's peak shaving program is to reduce the level of system peak to decrease capital costs, with the associated benefits of reduced customer costs and improved reliability of service. Table 6 below summarizes the system impact, which is the ratio of CSRP enrollment and performance data to the total summer system peak. "Enrolled" is defined as the total MW pledged in the program without

adjusting for performance. "Achieved" reductions were calculated using Performance Factors from the Planned Event.

Table 6: 2017 CSRP Summary of Enrolled Anticipated and Achieved Impact

Enrolled Reservation Payment Option	Reservation Payment Option Impact (% of summer system peak)	Enrolled Voluntary Participation Option	Voluntary Participation Option Impact (% of summer system peak)	Reservation and Voluntary Option Impact (% of summer system peak)	Achieved Reservation Payment Option Impact (% of summer system peak)
6.9 MW	0.67%	0 MW	0.00%	0.67%	0.73%

While the peak shaving programs are in the early stages of development, the Company anticipates that the CSRP program will continue to grow. O&R will continue to monitor and analyze the system impacts and growth rates for CSRP each year.

Assessment of CSRP Growth

In 2017, the number of participating Aggregators increased from seven to nine, and the number of Direct Participants increased from one to two. Overall, the number of customer accounts increased from 26 in 2016 to 29 in 2017. Despite increased interest from both aggregators and direct participants, the portfolio did not grow from the 2016 enrollment period, remaining at 6.9 MW. The lack of growth was primarily attributed to the 20 percent diesel cap, which resulted in the rejection of several applications. While the total number of enrollees grew from 26 in 2016 to 29 in 2017, two customers from 2016, totaling 0.75 MW, did not return for the 2017 capability period, while several other enrollees who did return reduced their pledge. This attrition was offset by increasing customer engagement and outreach, enabling the portfolio to remain at 6.9 MW.

Below, Table 7 summarizes the MW growth, which includes both the amount of MW enrolled and the amount of MW operationally available. The MW operationally available are the MW reductions demonstrated during events. The MW operationally available in 2016 are based on Actual Event data, while the MW operationally available in 2017 are based on Test Event data.

Table 7: 2017 CSRP Overall Enrollments

2016 MW Enrolled	2016 Operationally Available MW	2017 MW Enrolled	2017 MW Operationally Available	2017 vs. 2016 MW Enrolled % Increase	2017 vs. 2016 Operationally Available MW % Decrease
6.9	8.7	6.9	7.6	0%	13%

O&R is anticipating growth from six potential channels, including increased enrollment by Aggregators, customers who participated in only DLRP that can also enroll in CSRP, customers who only participated in the Company's New Business voluntary curtailment program that can also enroll in CSRP, customers who can increase their 2017 pledged Load Relief for 2018, new customers capable of reducing or shedding peak load, and customers who have participated in the Company's Commercial and Industrial energy efficiency programs that have an existing relationship with O&R. O&R will continue to target all of these channels for growth with increased levels of outreach and marketing.

As enrollment and performance continue to grow, the various benefits from CSRP will continue to grow. Growth in available load reduction will provide increased reliability and reduce the costs and environmental impacts associated with peaking generation, enabling CSRP to become a larger driver of distribution system planning. The Company recognizes that additional enrollment growth is necessary for CSRP to have substantial impacts on capital cost deferrals.

2.2 Distribution Load Relief Program

The purpose of DLRP is to relieve the Company's distribution system during contingencies and emergencies in order to maintain reliability. The DLRP is available service territory-wide to Direct Participants and Aggregators that contract to provide at least 50 kW of Load Relief. Participants are given at least two hours' advance notice for Contingency Events and less than two hours' advance notice for Immediate Events.

DLRP includes a Reservation Payment Option and Voluntary Participation Option. Participants enrolled in the Reservation Payment Option receive a monthly Reservation Payment of $3.00 per kW per month in Tier 1 Areas and $5.00 per kW per month in Tier 2 Areas. Beginning with the first month during which there have been five or more events during the Capability Period, the Reservation Payment increases to $4.00 per kW per month in Tier 1 Areas and $6.00 per kW per month in Tier 2 Areas. The majority of the Company's service territory falls in Tier 1 Areas. Tier 2 Areas are those identified as higher priority and in need of additional demand response resources. Tier 2 Areas are posted on the Company's program website at the beginning of each year. Performance Payments for Reservation Payment Option customers are $0.50 per kWh provided during events in both Tier 1 and Tier 2 Areas. Voluntary Participation Option customers only receive Performance Payments at a rate of $1.00 per kWh provided during events.

2.2.1. Potential Proposed Tariff Provisions

O&R is proposing the following tariff provisions similar to those proposed by Con Edison for the December 1, 2017 tariff filing, in order to minimize differences between the Company's DLM programs and Con Edison's demand response programs:

- Require a minimum Performance Factor for all DLRP reservation participants;
- Allow for DLRP Test Events to last up to four hours
- Adjust the definition of CBL to allow for additional CBLs

In addition, O&R is proposing housekeeping items not described in this report.

2.2.2. Program Costs

Total costs for DLRP during the 2017 program year were $350,360, an increase of five percent over the 2016 total program costs of $333,868. The increased cost for DLRP is largely due to increasing enrollment in Tier II areas by 20 percent and total program enrollment by two percent. All program costs are recovered through the ECA non-bypassable delivery charge. Table 8 summarizes the costs, by component associated with DLRP in 2017.

Table 8: DLRP Cost Components for 2017 Program Year[5]

Component	Cost	Percentage
Customer Incentives	$298,689	85%
Program Operations – O&R	$27,149	8%
Program Operations - Vendor	$13,363	4%
Program Marketing	$6,160	2%
Program Evaluation	$5,000	1%
Total Program Costs	**$350,361**	**100%**

Customer Incentives

Customer incentives consist of Reservation and Performance Payments paid to Direct Participants and Aggregators for their participation and performance in tests and called events. For 2017, there was one Test Event and no Contingency or Immediate Events. Table 9 provides information about Reservation and Performance Payments paid in 2017. The cumulative total of customer incentives amounted to $298,689 (85 percent of the total program cost).

Table 9: DLRP Customer Incentives Paid in 2017

Type of Payment	Amount Paid
Reservation Payments	$290,461
Performance Payments	$8,228
Total	**$298,689**

Program Operations-O&R

Costs in this category include Company staff salary associated with DLRP management and support. This includes administration work and training performed by program staff. The costs associated with program administration were $27,149 (eight percent of the total program cost).

Program Operations – Vendor

Costs in this category include expenses related to operating functions performance by O&R vendors. These costs include implementation of a data tracking system and online enrollment portal. The data tracking system tracks and verifies enrollments, measures event performance, and calculates incentive payments. The online enrollment portal allows for the online submission of all applications and supporting documentation and provides access to event performance five business days after an event takes place. Specifically, these costs include implementation, monthly support, and hosting fees paid to O&R vendors. These costs totaled $13,363 (four percent of the total program cost).

Program Marketing

Marketing costs include all costs associated with the marketing initiatives required to inform and involve customers in the program. These efforts included sending direct mailers and webinar hosting to promote DLRP. Aggregators provide the majority of program marketing to attract commercial DLM program participants. The Company will continue to provide customer education on the demand response concept

[5] Costs for December have been estimated.

to support the third-party sales process, as well as to inform customer about program rules. These costs totaled $6,160 (two percent of the total program cost).

Program Evaluation

Costs incurred in this category are associated with payment to a consultant to update the Company's existing demand response cost-effectiveness model to conform to the BCA Handbook and incorporate 2017 Capability Period enrollment and performance data. This model is used to calculate cost effectiveness of the programs and for program planning, particularly related to setting future incentive rates. The cost to update the model in 2016 is $5,000 (one percent of the total program cost).

2.2.3. Program Enrollment

O&R accepted 30 applications for DLRP enrollment by April 1 for a May 1 start, and four applications by May 1 for a June 1 start. Customer enrollment for the 2017 Capability Period is summarized in Table 10.

Table 10: 2017 Summary of DLRP Enrollment

Enrollment Date	Total Customers	Total MW Enrolled
May 1, 2017	30	17.55
June 1, 2017	3	0.03
Total	**33**	**17.58**

O&R anticipates enrollment to grow for the 2018 Capability Period based on new customer inquiries. O&R plans to conduct a series of intensive marketing and outreach activities in the first quarter of 2018 to raise awareness of the program and encourage enrollment.

2.2.4. Program Performance

This section focuses on evaluation of DLRP performance for the 2017 Capability Period. The purpose of DLRP is to reduce the impact of load area contingencies by inducing customer load reductions prior to or at the time of an event. The achieved performance is calculated by subtracting customer actual load from CBL. The Performance Factor is the ratio of the achieved load to the pledged load reduction.

During the 2017 Capability Period, there were no DLRP events called. Reservation Payment Option customers were still required to participate in a one-hour Test Event. The performance of participants during the Test Event is assessed in this section.

Customer load reductions are measured using a CBL methodology. The majority of customers enrolled in DLRP elected to have their performance measured with the weather adjusted CBL for events. The weather adjustment allows for a variation range of up to 20 percent in either direction (increase or decrease) from that of an average day assumption. Three customers or 11 percent of customers in DLRP elected to have their performance measured with the average day CBL.

Event Summary

All customers in DLRP were enrolled in the Reservation Payment Option, which requires a one-hour Test Event. O&R called one Test Event on August 16, 2017. A summary of the event results is detailed in Table 11.

Table 11: 2017 Summary of DLRP Event and Performance

Test or Event	Event/Test Date	Event/Test Hour(s)	Customers Enrolled	MW Enrolled	MW Reduction Achieved	Performance Factor Achieved
Test	08/16/2017	4:00 – 5:00 PM	33	17.6	17.4	99%

There were no DLRP events in 2017 to allow measurement of performance for the full four-hour event.

DLRP System Impacts

The goal of the Company's contingency program is to reduce strain on local distribution circuits within targeted load areas when contingencies occur. To assess the potential impacts of DLRP, the Company analyzed the enrollment and performance data by substation to determine the potential impact where reductions are needed for contingency purposes. Table 12 below summarizes the program impact for Tier 1 Areas, Tier 2 Areas, and system wide (All Areas). "Enrolled" is defined as the total MW pledged in the program without adjusting for performance. "Achieved" reductions were calculated using Performance Factors from the Test Event.

Table 12: 2017 DLRP Summary of Enrolled Anticipated and Achieved Impact

	Enrolled Reservation Payment Option	Reservation Payment Option Impact (% of summer peak)	Enrolled Voluntary Participation Option	Voluntary Participation Option Impact (% of summer peak)	Reservation and Voluntary Option Impact (% of summer peak)	Achieved Reservation Payment Option Impact (% of summer peak)
Tier 1 Areas	14.0 MW	2.54%	0 MW	0.00%	2.54%	2.59%
Tier 2 Areas	3.6 MW	0.74%	0 MW	0.00%	0.74%	0.64%
All Areas	17.6 MW	1.70%	0 MW	0.00%	1.70%	1.68%

While the contingency programs are in the early stages of development, the Company anticipates that the DLRP program will continue to grow. The Company will continue to monitor and analyze the impacts and growth rates for DLRP each year. In 2018, the Company will focus on increasing DLRP impacts in Tier 2 Areas, since those areas provide local benefits and help maintain reliability.

Assessment of DLRP Growth

The majority of DLRP growth is due to new Aggregator enrollments. In 2017, the number of Aggregators participating increased from seven to nine and the number of Direct Participants remained at two. Overall, the number of customer accounts increased from 27 in 2016 to 33 in 2017. Below, Table 13 summarizes the MW growth, which includes both the amount of MW enrolled and the amount of MW operationally available. The MW operationally available are the MW reductions demonstrated during events. The MW operationally available in 2016 and 2017 are based on Test Event data.

Table 13: 2017 DLRP Overall Enrollments

2016 MW Enrolled	2016 Operationally Available MW	2017 MW Enrolled	2017 MW Operationally Available	2017 vs. 2016 MW Enrolled % Increase	2017 vs. 2016 Operationally Available MW % Decrease
17.2	18.7	17.6	17.4	2%	7%

O&R saw minimal growth between the 2016 Capability Period and the 2017 Capability period on a portfolio level, however enrollment in Tier II targeted areas did grow by 20 percent. The lack of growth can be attributed to several large customers having to adjust their pledges after over-pledging in the 2016 Capability Period, which was offset by enrolling new customers. The Company anticipates that it will continue to see rates of enrollment grow as the program matures. O&R enrolled more Load Relief in DLRP compared to CSRP because there is no DLRP cap on diesel-fired electric generating equipment. Therefore, the enrollment goals and growth trajectory for DLRP is much higher than for CSRP.

O&R is anticipating growth from five potential channels, including increased enrollment by Aggregators, customers who only participated in the Company's New Business voluntary curtailment program that can also enroll in DLRP, customers who can increase their 2017 pledged Load Relief for 2018, new customers capable of reducing or shedding peak load, and customers who have participated in the Company's Commercial and Industrial energy efficiency programs that have an existing relationship with O&R. O&R will continue to target all of these channels for growth with increased levels of outreach and marketing.

As enrollment and performance continue to grow, the various benefits of DLRP will continue to grow. Growth in available load reduction will eventually provide system redundancy, decrease distribution congestion, and provide increased reliability. The Company recognizes that additional enrollment growth is necessary for DLRP to have a substantial impact on the system.

2.3 Commercial DLM Portfolio Cost Effectiveness

This section details the evaluation of cost effectiveness for CSRP and DLRP using the Societal Cost Test ("SCT"), Utility Cost Test ("UCT"), and Ratepayer Impact Measure ("RIM"). For this report, O&R incorporated the results of the separate BCA track associated with Case 14-M-0101 into program design and reporting as appropriate.

The Company's consultant, Nexant, created a cost-effectiveness model in 2015 using the Analytica modeling software, and has refined the model each year since 2015. The purpose of the cost-effectiveness model is to assess the cost effectiveness of the Company's DLM programs as a whole, as well as on a marginal basis. The model assesses the cost effectiveness of each DLM program by using program-specific cost and benefit inputs. No major changes to the BCA Handbook were made this year.

The CSRP and DLRP programs are being evaluated jointly since overhead costs are shared, overlap between the programs is substantial, and incentives were designed on a combined basis. Results for all three tests are displayed in Table 14.

Table 14: 2017 Commercial DLM Portfolio Cost-effectiveness Test Results

Cost Effectiveness Test	SCT	UCT	RIM
Benefits	$17,019,888	$15,078,150	$15,078,150
Costs	$5,791,475	$6,774,649	$6,996,095
Net Benefits	$11,228,413	$8,303,501	$8,082,055
Benefit Cost Ratio	**2.94**	**2.23**	**2.16**

The SCT test determines whether the State of New York is better off as a whole. As defined in the Company's BCA Handbook, the SCT compares the costs incurred to design and deliver projects and customer costs with avoided electricity and other supply-side resource costs, and also includes the cost of externalities. The SCT test for the commercial DLM portfolio yields a result of 2.94 and $11,228,413 in net benefits over a 10-year period.

The UCT determines whether costs for the utility decrease and includes the costs and benefits that are experienced by the utility. This test is useful for identifying impacts on utility revenue requirements and provides information on the effectiveness of program delivery. As defined in the Company's BCA Handbook, the UCT compares the costs incurred to design, deliver, and manage projects by the utility with avoided electricity supply-side resource costs. The UCT for the commercial DLM portfolio yields a result of 2.23 and $8,303,501in net benefits over a 10-year period.

The RIM determines whether customer electricity bills decrease or increase. This test is useful for understanding whether utility rates need to increase to fund the program. This test reflects the perspective of all utility customers who do not participate in the programs. As defined in the Company's BCA Handbook, the RIM compares utility costs and utility bill reductions with avoided electricity and other supply-side resource costs. The RIM for the commercial DLM portfolio yields a result of 2.16 and $8,082,055 in net benefits over a 10-year period.

Benefit cost ratios above 1.0 indicate that a program is cost effective. Each benefit cost ratio for the DLM Commercial Portfolio is above 1.0 and improved since last year. Most notably, the SCT test result increased from 1.02 in 2015 to 2.60 in 2016 and the UCT and RIM test results show a net benefit as opposed to a net cost. The improved cost effectiveness of the portfolio is due to efficient management of the program, higher than anticipated enrollments, higher than anticipated performance during events, and higher generation capacity costs. In order to maintain cost effectiveness of the DLM Portfolio, O&R will continue to manage spending efficiently, reduce barriers to entry in order to increase enrollment, and provide participants with tools to maximize performance.

2.4 Responses to Commission Orders

In its April Order, the PSC ordered O&R to report on improvements to the batch enrollment process, process improvement suggestions, program administration optimization, or other adjustments to facilitate greater participation, as well as updates to the Company's newly adopted 50 kW aggregate enrollment

threshold (including number of customers and accounts aggregated in this manner, the effectiveness of aggregation, and potential process improvements).

While the Company is not currently able to accept batch enrollments, in 2016 the Company began implementing a simplified, web-based enrollment process that allows Aggregators and Direct Participants to edit, verify, and add applications from one year to the next. This streamlined the process and greatly improved efficiency. Since the current process meets the goals of the Aggregators and Direct Participants, incorporating a batch enrollment acceptance procedure would be unnecessary.

Regarding the PSC direction that O&R report on the first Capability Period of accepting direct enrollment from customers who pledged an aggregated load of just 50 kW, O&R did not have any participants directly enroll under the new threshold guidelines during the 2017 Capability Period. One customer, located at four different locations within the Company's service territory, enrolled a total of 50 kW, but did so with an Aggregator rather than as a Direct Participant. The option of directly participating with such a limited pledge may prove difficult because customer profiles that fit this option may not have the resources to manage their own enrollment or appropriately use the provided load analyses, and may ultimately decide to enroll via an Aggregator for convenience. To further explore overcoming this obstacle, the Company plans on increasing outreach campaigns and using targeted messaging approaches to customers who may benefit from this reduced pledge threshold in an attempt to increase enrollment from this customer segment.

In its May Order, the PSC ordered O&R to study the impacts of allowing DERs, including battery storage, participating in the Company's DLM programs to export onto the primary and secondary distribution systems during those programs' events. At this time, the Company has not done a thorough analysis of this issue, as there are currently no battery storage participants enrolled in any DLM programs. However, the Company does not anticipate any obstacles preventing these customers from enrolling, and will review each application on a case-by-case basis in the future.

2.5 Commercial DLM Portfolio Conclusions

Overall, O&R's commercial DLM portfolio enrolled 3.5 MW less than the anticipated goal. CSRP enrollment remained steady at 6.9 MW, while DLRP increased from 17.2 MW to 17.6 MW. The largest enrollment increase occurred in DLRP's Tier II incentive level, bolstering enrollment in designated targeted areas for the second straight Capability Period, due to higher incentive levels. Enrollment grew slower than expected in CSRP due to the 20 percent portfolio diesel cap, which prevented the Company from reaching its goal of 28 MW, a goal that would have been reached if not for this restriction. In addition, several participants adjusted their pledges after overestimating their ability to curtail load in 2016, resulting in a lower, but more accurate pledge. O&R called a Test Event for both CSRP and DLRP, and performance results continue to show that load reduction resources are reliable and can provide benefit to the Company's system.

To improve the commercial DLM portfolio in 2018, O&R is proposing tariff provisions that reduce barriers to entry, entice customers and Aggregators to participate, provide the Company with more

assurance that customers and Aggregators will achieve their load curtailment pledges if called upon, and move toward consistency among DLM programs across the state. O&R will seek to reduce costs by implementing systems that minimize staff time, efficiently manage the programs, and create more transparency for participants. Finally, O&R will increase customer enrollment through marketing and outreach and enhanced incentives in targeted areas. Such improvements and strategies will be directed to improving cost effectiveness and full realization of benefits by customers and the Company alike.

The Company will work with Staff and other stakeholders to develop modifications in the timing of filings and approvals so that any program changes for the following year are approved sufficiently before the Capability Period that all parties, and most importantly customers, are comfortable with the implementation timeline. In such an operating environment, program rules will need to be finalized sufficiently in advance of the start of the Capability Period to allow system changes to be programmed, tested and implemented, and so that Aggregators and other market participants can market the programs and engage customers effectively.

3.0 Direct Load Control Program

The DLCP program supports electric system reliability and reduces operational costs by using a Control Device at participating customers' locations to control participants' central AC units and reduce peak demand. The Control Device is a smart thermostat that is used to cycle central AC units. The smart thermostat connects to the customer's existing Wi-Fi router with no separate hardware needed. The smart thermostats provide reliable two-way communication, which allows the Company to more accurately monitor event participation and verify load reduction. Customers have the ability to override any event the Company calls and are able to remotely control their central AC units online through a personal computer, smart phone or tablet throughout the year.

The DLCP is highly flexible and can be called for high system loads or localized emergencies. The Company may control smart thermostats during the summer Capability Period of May 1 through September 30 of each year. The DLCP is available to qualifying residential, religious, and small business customers that enroll in one of two participation options. Customers may participate in the Bring Your Own Thermostat ("BYOT") program option or Company Provided Thermostat ("CPT") program option. The BYOT Program is offered throughout the Company's service territory and has been available since October 2015. The CPT program option will be incorporated into Non-Wire Solutions ("NWS") projects, such as the Pomona Distributed Energy Resource Program ("Pomona DER Program"), and in other targeted areas requiring demand management. A description of the DLCP options, incentives, and program progress to date are detailed below.

BYOT Program Option

O&R launched the BYOT program on October 1, 2015. The BYOT program allows customers to enroll an eligible smart thermostat through a Service Provider, or thermostat manufacturer, for a one-time Sign-Up Payment of $85. In addition, starting the second summer following enrollment the Company offers a Participation Payment of $25 for each summer period in which the Company can verify that the customer participated in no less than 80 percent of the aggregate event hours.

Unlike a CPT program, the BYOT program offers customers choices with thermostat equipment, flexibility, and control. This approach leverages existing marketing done by various thermostat manufacturers and potentially removes barriers to DLCP participation for customers that already have a smart thermostat or are in the process of purchasing one of their own choice. In 2017, O&R's Service Providers added three more eligible thermostat models. Table 15 presents the smart thermostats eligible for program enrollment as of December 1, 2017.

Table 15: Eligible Smart Thermostats for BYOT Program

Service Provider	Thermostat Manufacturer	Eligible Models
EnergyHub	Alarm.com	CT 30, CT 80, CT 100, Trane ComfortLink Control, RCS Z-Wave Communicating Thermostat, GoControl Z-wave Thermostat, Alarm.com Smart Thermostat
EnergyHub	Ecobee	ecobee4 ecobee3, ecobee3 lite, ecobee Smart, ecobee Smart Si

EnergyHub	Emerson	Sensi™ Wi-Fi Programmable Thermostat
EnergyHub	Lux	LUX/GEO
EnergyHub	Radio Thermostat Company of America/Filtrete	Filtrete 3M-50, CT 30, CT 50, CT 80
Honeywell	Honeywell	RTH9580WF, TH9320WF, RTH8580WF, TH8320WF, RTH6580WF, TH6320WF, TH8321WF
Nest	Nest	Nest Learning Thermostat, Nest E Thermostat

Additionally, O&R is cross promoting the BYOT program through the Reforming the Energy Vision ("REV") Demonstration Project filed on July 1, 2015,[6] the Customer Engagement Marketplace Platform ("CEMP"), and the Energy Efficiency Transition Implementation Plan ("ETIP") programs. Eligible smart thermostats, including the 3rd Generation Nest Learning Thermostat, Nest E Thermostat, ecobee4, ecobee3 Homekit-enabled with Remote Sensor, ecobee3 lite, ecobee Smart Si Wi-Fi Thermostat, Honeywell Wi-Fi Color Touchscreen Programmable Thermostat, Honeywell Wi-Fi 7 Day Programmable Touchscreen Thermostat, Honeywell Wi-Fi 7 Day Programmable Thermostat and Lux/GEO Wi-Fi Thermostat, are being sold on the ORU Store (www.myorustore.com).[7]

When customers buy a smart thermostat on the ORU Store, they receive a $15 instant energy efficiency rebate upon point of sale and are encouraged to enroll in the BYOT program. Once customers install the device and enroll in the BYOT program, their $85 Sign-Up Payment is returned to them via a refund on the credit card they used to make the purchase. This process helps simplify the customer experience and returns the rebate to the customer more quickly than processing a rebate check. To date, 219 devices, or 12 percent of the total devices enrolled in BYOT, were bought on the ORU Store.

O&R is investigating offering the BYOT Sign-Up incentive instantly with the energy efficiency rebate, which will provide a $100 instant rebate upon point of sale on the ORU Store. In Q4 2016, O&R partnered with its Marketplace Implementation Vendor and one Service Provider to test this process and its impact on increasing BYOT enrollments. The Company ran a pilot using Lux thermostats, and found that 49 of the 100 customers who purchased a thermostat under the program actually installed the thermostat, resulting in a 49 percent conversion rate. Four thermostats were partially set up, and another 12 were installed but not connected to central air conditioning. O&R believes that this rebate option holds value going forward, and learned several lessons from the pilot. First, The Company believes that the conversion rate would have been much higher had the promotion been run during the cooling season, and plans to offer future promotions like this when central air conditioning is in use. Second, customer feedback showed that a higher quality product and a larger out-of-pocket expense to the customer would have likely led more customers to install the thermostat. The pilot in Q4 2016 provided the customers with a $100 rebate, but an out-of-pocket expense of only $25, or a net gain to the customer of $75 even if they did not install the thermostat. Third, the Company did not have a "claw-back" mechanism in place

[6] Case 14-M-0101, – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision ("REV Proceeding"), Distributed Energy Resources – Residential Offering Platform Demonstration Project (July 1, 2015).
[7] The ORU Store is an online marketplace where O&R customers can purchase energy saving products and services, such as light bulbs, smart power strips, smart thermostats, heating and cooling equipment tune-ups by local contractors and more. Customers visiting the ORU Store may qualify for an instant energy efficiency rebate and are directed to enroll in the Company's other energy efficiency and demand response programs.

to recoup funds from customers who did not do what they claimed they would do. Additional data from the Market Implementation Vendor has showed that the claw-back mechanism helps to increase conversion rate, without sacrificing the customer's experience. The Company believes that offering a higher incentive upon point of sale will increase smart thermostat sales and BYOT enrollments, as well as streamline the enrollment process for customers and reduce administrative burden, a model that the Company may choose to expand upon.

CPT Program Option

For the CPT program, O&R will provide a free or low-cost smart thermostat to the enrolling residential or small business customer. The smart thermostat will become the property of the customer upon enrollment. No Sign-Up or Participation Payments are currently proposed in the tariff filing. O&R reserves the right to add enhanced incentives to encourage enrollment and event participation as needed for NWS projects. These enhanced incentives may be provided by the NWS project budget.

On October 26, 2016, O&R released the CPT RFP for an implementation vendor or team of vendors to provide load reduction in the Pomona DER Program and other targeted areas. O&R's goal is to provide a load reduction opportunity to 2,800 customers in the Pomona area and approximately 41,500 in other targeted areas. Four vendors responded to the RFP, and the top three vendors were invited to present at Company facilities in March, 2017. The fourth vendor was not invited to present, as its proposal did not meet the Company's minimal hardware specifications, as outlined by the RFP. Following the presentations, the Company selected the most qualified and least cost vendor. O&R expects the contract for this vendor to be finalized in Q1 2018, at which point the canvassing and installation process will begin in the Pomona Load Pocket. The Company is seeking to achieve 1 MW of load curtailment within the Pomona Load Pocket as a result of this program. The program timeline is deliberate and strategic; O&R wishes to align program design with new Company initiatives, the Commission's REV proceeding and key objectives. In particular, the Company plans to utilize Advanced Metering Infrastructure ("AMI") technology for future control of these compatible devices. Therefore, O&R timed the mobilization of the selected vendor so that the devices installed under the CPT program would be fully integrated with AMI, providing more valuable data and a more efficient program unveiling.

The remainder of this section will cover proposed tariff provisions, total DLCP costs for 2017, program enrollment, program attrition, event performance, cost-effectiveness test results, and a discussion of program strategy for 2018.

3.1 Proposed Tariff Provisions

O&R is proposing the following tariff provision for the December 1, 2017 tariff filing:

- Add and define the parameters for "Test Events"
- Add clarifying language regarding when an "Event" can be called
- Add clarifying language related to additional incentives in targeted areas

3.2 Program Costs

O&R's approved budget for DLCP in 2017 is $2,033,418, which includes unspent funds from 2015 and 2016. O&R did not spend a portion of this amount due to delayed CPT program implementation. The Company anticipates that spending for the CPT program will begin in 2018, at which point a large portion of the unspent funds will be utilized. The remainder of this section will summarize program costs incurred for the DLC program, both CPT and BYOT. Total expenditures for the DLC program during the program year are estimated to be $289,662 or 14 percent of the budget. All costs are recovered through a new line item of the existing ECA non-bypassable delivery charge. Table 16 summarizes the costs by component associated with DLCP in 2017.

Table 16: DLCP Cost Components for 2017 Program Year[8]

Component	Cost	Percentage
Customer Incentives	$138,080	48%
Program Operations – O&R	$44,839	15%
Program Operations – Vendor	$71,810	25%
Program Equipment	-	-
Program Marketing	$24,933	9%
Program Evaluation	$10,000	3%
Total Program Costs	**$289,662**	**100%**

Customer Incentives

Customer incentives consist of all BYOT Sign-Up and Participation Payments to residential and small business customers. The costs in this category for Sign-Up and Participation Payments for 2017 are $138,080 (48 percent of the total program cost) as of November 30, 2017. Table 17 provides information on total incentives paid by type. 2017 represented the first summer during which a portion of enrolled customers qualified for participation payments, which are paid to customers who have enrolled in two or more summers, and participated in 80 percent or more of event hours.

Table 17: DLCP Customer Incentives Paid in 2017[9]

Type of Incentive	Amount Paid
BYOT Sign-Up Payment	$102,680
BYOT Participation Payments	$35,400
Total	**$138,080**

Program Operations – O&R

Costs in this category consist of Company staff salary associated with DLCP management and support. This includes administration work and training performed by program staff. The costs associated with program administration were $44,839 (15 percent of the total program cost).

Program Operation - Vendor

Costs in this category include expenses related to program implementation, marketing, enrollment and management functions performed by O&R's Service Providers. O&R currently has three Service

[8] Costs for December have been estimated.
[9] Incentives for December have been estimated.

Providers implementing the BYOT program, including EnergyHub, Honeywell, and Nest. Each Service Provider is paid a one-time set up fee, an annual enrollment fee per smart thermostat, and two bonus payments for achieving enrollment milestones. All one-time set up fees were paid to vendors in 2015. The costs in this category are estimated to total $71,810 (25 percent of the total program cost).

Program Equipment

Program equipment costs refer to the smart thermostat and other equipment costs related to providing the CPT thermostat, website hosting, and communication fees. No costs were incurred in this category since the Company did not launch the CPT program. Spending for this component is expected to start in 2018.

Program Marketing

Marketing costs include all Company costs associated with the marketing initiatives required to inform and involve customers in the program. These costs include digital advertising, program literature, direct mailers, bill inserts, social media promotion, website development, radio programming, and promotional events. The costs in this category are $24,933 (nine percent of the total program cost).

Program Evaluation

Costs incurred in this category are associated with payment to a consultant to update the Company's existing demand response cost-effectiveness model to conform to the BCA Handbook and incorporate 2017 Capability Period enrollment and performance data. The updated model will be used to calculate future cost effectiveness of programs and for program planning, particularly relating to setting overall budgets and incentive payment rates. The cost to update the model in 2017 is estimated at $10,000 (three percent of the total program cost).

3.3 Program Enrollment

In July of 2016, O&R forecasted a DLCP enrollment goal of 1,800 BYOT customers by the end of 2017. O&R now estimates an enrolled total of 2,000 customers by the end of 2017, representing 111 percent of the BYOT enrollment goal. A summary of BYOT customer enrollment is summarized in Table 18.

Table 18: Summary of BYOT Enrollment

Program Year	Customers	Devices
2015 (Oct 1 – Dec 31)	347	475
2016 (Jan 1 – Dec 31)	826	1,156
2017 (Jan 1 – Nov 30)	752	1,017
Total	**1,925**	**2,648**

O&R anticipates a consistent rate of enrollment through the end of the year as vendors continue marketing activities and promote Black Friday and Cyber Monday smart thermostat discounts, both on the ORU Store and in other retail locations. Additionally, instant rebates will be offered at www.Nest.com starting in the end of November, and will be offered through the end of 2017. O&R plans to increase marketing activities and educate customers about the benefits of smart thermostats to generate new purchases. In particular, O&R will cross market demand response with energy efficiency by

focusing on how smart thermostats are a tool to help customers manage their energy usage and costs, all while aiding service reliability.

3.4 Program Attrition

Customers leave the BYOT program or choose to have their thermostats removed for a variety of reasons. In many cases, customers with higher cost thermostats take the thermostat with them if they are relocating to another residence. O&R is notified by the Service Providers if the thermostat is removed from the enrolled structure. Table 19 provides the number of customers and devices that either unenrolled from the BYOT program or removed the thermostat from their structure.

Table 19: Summary of BYOT Program Attrition

Program Year	Customers	Devices
Unenrolled from Program	14	26
Thermostat Removed from Structure	63	81
Total	**77**	**105**

Of the total enrollment to date, 77 customers or 4.2 percent left the program. The Company anticipates that as the BYOT program matures, the program attrition rate will increase. Additionally, customers may unenroll due to event fatigue as more events are called per summer. O&R will continue to monitor program attrition and develop ways to make participation expectations clear and encourage customers to stay in the program.

3.5 Program Performance

This section focuses on evaluation of BYOT performance for the 2017 Capability Period. Each Service Provider utilizes a different strategy to reduce demand during events. Table 20 shows the various demand reduction strategies employed by the Service Providers.

Table 20: BYOT Demand Reduction Strategies

Service Provider	Demand Reduction Strategy
EnergyHub	EnergyHub employs temperature offset events of configurable duration, with an optional pre-cool period of up to 90 minutes, and an option to set a temperature ceiling. The strategy includes opt-out events, with a four degree offset and temperature ceiling of 85 degrees F. Test Events last one-hour and actual events last up to four-hours.
Honeywell	Honeywell sends a signal to the thermostat which turns the AC compressor off, but still allows the fan to run. Typically a compressor will run every other 15 minutes for the desired length of the event. This is considered a 50 percent cycling event as the compressor runs 50 percent of the hour. Test Events last one hour and actual events last up to four hours.
Nest	Nest leverages a customized approach to demand response, which is unique to each home. Nest uses a combination of AC cycling and temperature offsets to maximize load reduction based on envelope of the home,

	functionality of cooling equipment and customer preferences. The strategy also offers an option to pre-cool. Test Events last one-hour and actual events last up to four-hours.

O&R conducted one Test Event in June. The table below provides a summary of test performance.

Table 21: 2017 Summary of BYOT Events

Test or Event	Event/Test Date	Event/Test Hour(s)	Service Provider	Enrolled Thermostats	Participating Thermostats	Average Reduction per Device
Test	06/13/2017	4:00 – 5:00 PM	EnergyHub	365	182	1.3 kW
Test	06/13/2017	4:00 – 5:00 PM	Honeywell	399	329	0.5 kW
Test	06/13/2017	4:00 – 5:00 PM	Nest	1192	1031	0.8 kW

O&R anticipated an average reduction of 1.0 kW per Control Device. The demand reduction per Control Device varies based on the thermostat manufacturer and the demand reduction strategies used by Service Providers. The Company plans to complete an impact evaluation performed by a third-party evaluation contractor to verify BYOT program impacts for 2017. Once the deployment of AMI is complete, O&R will begin to utilize AMI data in order to determine load reduction impacts.

3.6 Program Cost Effectiveness

This section details the evaluation of cost effectiveness for DLCP using the SCT, UCT, and RIM. For this report, O&R incorporated the results of the separate BCA track associated with Case 14-M-0101 into program design and reporting as appropriate. O&R used its demand response cost-effectiveness model and evaluation framework to calculate cost effectiveness of the DLCP program. A summary of updates made to the Company's demand response cost-effectiveness model was provided in Section 2.3. The BYOT and CPT programs are evaluated jointly because overhead costs are shared. Results for all three tests, including net benefits over 10 years, are displayed in Table 22.

Table 22: 2017 DLCP Cost-effectiveness Test Results

Cost-effectiveness Test	SCT	UCT	RIM
Benefits	$15,197,670	$13,550,897	$13,550,897
Costs	$6,517,130	$5,886,356	$5,957,794
Net Benefits	$8,680,540	$7,664,540	$7,593,103
Benefit Cost Ratio	**2.33**	**2.30**	**2.27**

The SCT test for the DLCP yields a result of 2.33 and a net benefit of $8,680,540 over a 10-year period. The UCT test for the DLCP yields a result of 2.30 and a net benefit of $7,664,540 over a 10-year period. The RIM test for the DLCP yields a result of 2.27 and a net benefit of $7,593,103 over a 10-year period.

Benefit cost ratios above 1.0 indicate that a program is cost effective. Each benefit cost ratio for the DLCP program is greater than 2.0 and includes both the BYOT and CPT programs. The BYOT program is cost effective due to the efficient management of the program, low recurring costs for ongoing vendor

management, and support from other Company initiatives and programs, while the CPT program is cost effective due to high avoided costs, as the program will be deployed in targeted areas. Because DCLP is a new program, O&R will continue to monitor and improve the program by tracking and incorporating, when appropriate, new program models and designs being tested and evaluated across the country. By incorporating best practices and new program models and designs, O&R can improve cost effectiveness and provide customers with engaging programs.

3.8 DLCP Conclusions

In 2017, O&R continued to expand the BYOT program option of the DLCP, adding eligible thermostats to the program while continuing to cross-market the BYOT program with the ORU Marketplace. 2017 marked the second summer Capability Period. The Company called one Test Event, although no actual events were called. The Company also moved forward with the CPT RFP that was initially offered in 2016 and anticipates that CPT will commence in early 2018. DLCP remains an integral component of the Company's overall strategy for increasing demand response capabilities and will continue to be a useful tool for engaging residential and small business customers.

In 2018, O&R will continue to work with its program Service Providers to increase customer enrollment, promote new smart thermostat functionality, test new incentive structures and delivery models, and cross market the programs with existing or new initiatives. O&R will begin implementation of demand response strategies in its NWS projects, such as the Pomona DER Program, and expects to expand into additional NWS areas as the year progresses. In addition the Company plans to begin implementing the CPT program for its first summer Capability Period, which will help to inform future strategies, both in targeted areas and across the service territory. With the implementation of AMI, O&R will begin to test residential dynamic pricing programs that can be used to complement existing programs, provide another option to engage customers, and provide information and tools to help customers manage their energy usage.

Overall, the Company will assess how to best leverage new initiatives and projects while integrating newer technologies as they come to the market. As the Company evaluates new initiatives, it looks forward to working closely with Staff to advance the objectives of the program. Additionally, O&R will utilize DLCP to continue to engage, educate and empower its customers. This is particularly effective when demand response is cross marketed with energy efficiency. In addition to demand response capability, the smart thermostats can deliver non-event day energy savings throughout the year by allowing customers to remotely manage their thermostat settings and energy costs.

4.0 O&R DLM Programs Conclusion

The Company views DLM as a tool to support the effective and efficient operation of its electric distribution system. The initiatives discussed in this document are positive examples of progress, but it is important to recognize that this progress must continue with further efforts being made to encourage participation by more customers. Customer education and integration of new tools are very important to growth of customer participation.

In 2017, O&R successfully implemented three DLM programs and completed its second full Capability Period. For the second straight summer, event performance for commercial participants was strong, indicating that demand response will be a reliable, consistent and useful resource for managing summer peak demand and contingencies at O&R. Additionally, the benefit cost analysis indicates that all DLM programs are cost effective. In 2018, O&R will build upon its successes and continue to promote the DLM programs through a variety of marketing and outreach activities, as well as new Company initiatives.

O&R will continue to work with Staff and other stakeholders to further develop cost-effective programs and incorporate new technologies as they become available. The Company will also align new initiatives with existing programs in order to maximize customer benefits and engage customers in new ways. Commission approval of program modifications and tariff provisions in a timely manner is critically important in order to create market certainty for potential participants and permit the Company to effectively deploy marketing to encourage participation and minimize cost impacts associated with program operation and customer acquisition.

The Company will work closely with the Commission and stakeholders to better develop a strategic outlook for the demand response programs as it relates to REV. Such a collaborative approach will provide a greater level of overall success and deliver benefits to all parties involved. The DLM programs today will be instrumental in the delivery of longer term benefits to New Yorkers, including avoiding or delaying transmission and distribution system investment, promoting energy efficiency, and improving the reliability and resiliency of electricity delivery systems.

5.0 Appendix

Appendix A – Key Terms

Aggregator – refers to a party other than the Company that represents and aggregates the load of customers who collectively have a Load Relief potential of 100 kW or greater and is responsible for actions of the customers it represents, including performance, and as applicable, performance adjustments, penalties and repayments to the Company.

Capability Period – refers to the period May 1 through September 30 during which the Company can request Load Relief.

Commercial System Relief Program (CSRP) – a peak shaving program activated by O&R when the day-ahead system electric load forecast is 92 percent or greater of forecasted system peak.

Contingency Event – refers to a Load Relief period lasting four or more hours for which the Company provides two or more hours' advance notice.

Control Device – a device installed on the customer's load controllable equipment via a smart plug or embedded control that allows the Company to remotely control the equipment when an Event is called.

Customer Baseline Load (CBL) Methodology – the methodology used by the Company to verify the actual Load Relief provided during each hour of Load Relief. Actual load levels are compared to the customer baseline loads to verify whether the Direct Participant or Aggregator provided the kW of contracted Load Relief.

Direct Load Control Program (DLCP) – a direct load control program that can be activated by O&R for peak shaving or contingency relief.

Direct Participant – refers to a customer who enrolls directly with the Company for a single customer account and agrees to provide at least 50 kW of Load Relief.

Distribution Load Relief Program (DLRP) – a contingency program activated by O&R to prevent or mitigate critical situations on the utility's electric grid, typically called in specific defined geographic areas.

Immediate Event – refers to a Load Relief period lasting six or more hours for which the Company provides less than two hours' advance notice.

Load Relief – refers to the power (kW) and energy (kWh) that is displaced by use of electric generating equipment and/or reduced by the Direct Participant and Aggregator at the customer's premises.

Participation Payments – payments made on a dollar per year at the end of a summer capability basis when the program participant has met a minimum threshold of participation in called demand response events.

Performance Factor – the ratio of the average hourly kW of Load Relief provided by the Direct Participant or Aggregator during requested hours, up to the kW of contracted Load Relief to the kW of contracted Load Relief.

Performance Payments – payments made to customers on a dollar per kWh basis only during called demand response events.

Planned Event – refers to the Company's request on not less than 21 hours' advance notice for Load Relief during contracted hours. Planned events are called when the Company's day-ahead forecasted load level is at least 92 percent of the forecasted summer system-wide peak.

Reservation Payments – payments made to participants on a set dollar per kW per month of the summer Capability Period basis.

Reservation Payment Option – a mandatory enrollment option that requires Direct Participants and Aggregators to provide Load Relief if and when the Company calls a Planned Event and Test Event for CSRP and a Contingency Event, Immediate Event or Test Event or DLRP. Customers enrolled in this option are paid a monthly Reservation Payment and Performance Payment.

Service Provider – a provider registered with the Company to develop, maintain and operate a communications portal that enables internet-connected Control Devices to participate in DLCP.

Sign-Up Payments – payments made on a dollar per device enrolled in direct load control programs basis once the Control Device is installed and the utility is able to confirm communications with the Control Device.

Test Event – refers to the Company's request under the Reservation Payment Option that Direct Participants and Aggregators provide one-hour of Load Relief on not less than 21 hours' advance notice for CSRP or 2 hours' advance notice for DLRP.

Unplanned Event – refers to the Company's request for Load Relief on less than 21 hours' advance notice or for hours outside of the contracted hours.

Voluntary Participation Option – a voluntary enrollment option that allows Direct Participants and Aggregators to provide Load Relief for all event types only if they are available. Customers enrolled in this option are only paid Performance Paymen