nationalgrid

Niagara Mohawk Power Corporation d/b/a National Grid

Program Performance and Cost Effectiveness of Dynamic Load Management Programs

Case 15-E-0189

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Introduction

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid" or the "Company") submits this 2024 annual filing in compliance with the New York State Public Service Commission's ("Commission") April 23, 2018 *Order Adopting Program Changes with Modification and Making Other Findings* ("April 2018 Order").[1] The April 2018 Order requires the Company to submit a report to the Commission each year on November 15.[2] This annual filing assesses National Grid's 2024 Dynamic Load Management ("DLM") programs as approved in the Commission's March 18, 2019 *Order Adopting Program Changes with Modifications and Making Other Findings* ("March 2019 Order").[3]

National Grid's DLM programs consist of the: Distribution Load Relief Program ("DLRP") as described in Rule 61 of the Company's PSC No. 220 Electricity – Schedule for Electric Service ("Tariff"); Commercial System Relief Program ("CSRP") as described in Rule 62 of the Tariff; and Direct Load Control ("DLC") Program, as described in Rule 63 of the Tariff. The Company also amended the Tariff to incorporate Rule 65 to effectuate the Term-Dynamic Load Management ("Term-DLM") Program and the Auto-Dynamic Load ("Auto-DLM") Program, consistent with the Commission's September 17, 2020 *Order Establishing Term-Dynamic Load Management and Auto-Dynamic Load Management Program Procurements and Associated Cost-Recovery* ("Term- and Auto-DLM Procurement Order").[4] This annual filing reviews the 2024 Capability Period results from all DLM programs, discusses all proposed changes to the implementation of these programs in 2025, and highlights the cost recovery mechanism, which is described in Rule 64 of the Tariff.[5]

While customers in most rate classes are eligible for all DLM programs, National Grid considers the DLRP, CSRP, Term-DLM Program, and Auto-DLM Program to be commercial and industrial ("C&I") customer-focused programs, while the DLC Program targets residential and small business customers. The CSRP and the system-wide Bring Your Own Device ("BYOD") DLC Program (also known as the **Connected**Solutions Program) are currently offered system-wide.

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[1] Cases 14-E-0423 *et al., Proceeding on Motion of the Commission to Develop Dynamic Load Management Programs* ("DLM Programs Proceeding"), Order Adopting Program Changes with Modification and Making Other Findings (issued April 23, 2018) ("April 2018 Order").
[2] *Id.,* Ordering Clause No. 2, pp. 24-25.
[3] *See* DLM Programs Proceeding, Order Adopting Program Changes with Modifications and Making Other Findings (issued March 18, 2019) ("March 2019 Order").
[4] Cases 18-E-0130 *et al*., *In the Matter of Energy Storage Deployment Program* ("Energy Storage Proceeding"), Order Establishing Term-Dynamic Load Management and Auto-Dynamic Load Management Procurements and Associated Cost-Recovery (issued September 17, 2020) ("Term- and Auto-DLM Procurement Order").
[5] There are no changes proposed to the cost recovery mechanism for National Grid's 2024 DLM programs.

A summary of National Grid's 2024 DLM programs, provided below, illustrates the pricing incentives applicable to these current DLM programs (with the exception of Auto-DLM Program as there was no participation in that program in 2022):

Table 1: **National Grid's 2024 DLM Programs**

Program Name	Program Type	Program Event Triggers and Duration	Incentives
Distribution Load Relief Program ("DLRP")	Contingency	Contingency program activated for system critical situations (*i.e.*, unforeseen distribution system emergencies wherein stressed electrical equipment may exceed established limits). Events are called with short/no advance notice ("Immediate") or at least two (2) hours advance notice ("Test" or "Contingency"). Test events last one (1) hour whereas Contingency or Immediate events may last four (4) or more hours. Includes Reservation and Voluntary participants. Focused in designated or identified constrained areas of the service territory with participation available to customers served at primary and secondary voltages only.	Reservation Payment Option: • Reservation Payment = $0.00/kW Month • Performance Payment = $0.00/kWh Voluntary Performance Option: • Performance Payment = $0.00/kWh * National Grid has set the incentives to $0.00 for the DLRP in response to the March 2019 Order. When conditions warrant, the DLRP incentives will be updated on an "as-needed" basis." [6]
Commercial System Relief Program ("CSRP")	Peak Shaving	Activated for peak shaving needs. For "Planned Events" the Company provides > 21 hours' advance notice and the Planned Event may last four (4) hours or more. For "Unplanned Events" the Company will provide < 21 hours' advance notice. Includes Reservation and Voluntary options for participants. System-wide program available to customers served from all voltages.	Reservation Payment Option: • Reservation Payment (up to four (4) events) = $2.75/kW Month; • Reservation Payment (over four (4) events) = $3.00/kW Month; • Performance Payment - Planned Event = $0.18/kWh; • Performance Payment Unplanned Event = $0.22/kWh. Voluntary Performance Option: Payment Option: • Performance Payment Planned Event = $0.16/kWh; • Performance Payment Unplanned Event = $0.19/kWh

[6] *See* DLM Programs Proceeding, March 2019 Order, p. 3.

Term-DLM Program[7]	Peak Shaving	Activated for peak shaving needs. Contracted through annual procurement. Participants submit a bid for participation and selected participants receive a 3-5 (or more) year contract at awarded participation rate. The Company provides > 21 hours' advance notice for curtailment during a contracted 4-hour window. System-wide program available to customers served from all voltages.	• Reservation Payment is set by competitive bid • Performance Payment = $0.10/kWh
Auto-DLM Program	Contingency and Peak Shaving	Activated for system critical situations or for peak shaving. Contracted through annual procurement. Participants submit a bid for participation and selected participants receive a 3-5 (or more) year contract at awarded participation rate. Events may be called 7 days a week, between 6AM-12AM on as little as 10 minutes' notice. Focused in identified constrained areas of the service territory with participation available to customers served at primary and secondary voltages only.	• Reservation Payment is set by competitive bid • Performance Payment = $0.10/kWh
Direct Load Control ("DLC") Program		Activated for system critical situations or for peak shaving. National Grid can remotely adjust thermostat settings. Bring Your Own Device ("BYOD") program connects existing Wi-Fi thermostats to National Grid's Demand Management Platform (*i.e.*, EnergyHub).	• One-time sign-up payment of $30 and a $20 yearly incentive - payable the second year of participation - for reducing load during 80% of called events and event-hours.

[7] Term-DLM and Auto-DLM Programs are both implemented through a competitively procured bid process. Prices for these programs are not static and will remain confidential, but the structure of incentives is public through Rule 65 of the Tariff and each annual Request for Proposal ("RFP") for soliciting participation in these programs is filed with the Commission and publicly available.

Commercial Demand Response Programs—DLRP, CSRP, Term-DLM Program and Auto-DLM Program

National Grid offers the DLRP, CSRP, Term-DLM Program, and Auto-DLM Program as commercial demand response ("DR") programs. DLRP is a contingency program wherein individual participants are required to curtail 50 kW when participating directly in this program with the Company. Aggregators are required to deliver at least 50 kW of load relief in aggregate to qualify for participation in DLRP or CSRP. An event under DLRP is to be called when identified or stressed electrical equipment exceeds certain limits or during any system emergency. The CSRP, Term-DLM Program, and Auto-DLM Programs are activated for peak-shaving needs when National Grid's electrical system exceeds 92 percent of the system-wide 95/5 peak forecast, as defined in the Tariff. Additionally, the Auto-DLM Program is activated to provide load relief in constrained locations to prevent or mitigate overload situations on the Company's electric grid.

2024 DLRP, CSRP, and Term-DLM Participation

Per the March 2019 Order, to accommodate present conditions while remaining prepared for future market conditions, National Grid has set DLRP pricing incentives to $0.00. This will act as a placeholder preserving the program for future use, and there were no participants in DLRP in 2024. In contrast, 267 resources participated in CSRP during the 2024 Capability Period, totaling 249.79 MW of contracted curtailment. In the 2024 program year, six (6) aggregators and three (3) individual participants participated in CSRP, resulting in the net loss of one (1) individual participant since the 2023 Capability Period. Additional information about 2024 CSRP performance is presented below in the 2024 CSRP Operations and the 2024 CSRP Event Performance and System Impacts section of this report. Three aggregators have been awarded contracts to begin participating in Term-DLM since the 2022 Vintage Year and all have returned to perform in 2024 along with one (1) aggregator who was awarded a contract to begin participating in Term-DLM in the 2024 Vintage Year. In total, these four (4) aggregators brought 46 resources totaling 97.6 MW of contracted curtailment. Additional information about the 2024 Term-DLM program performance is presented in the 2024 Term-DLM Operations section of this report.

2024 DLRP and CSRP Costs and Savings

The costs for DLRP and CSRP are shown below in Table 2 and stated as a combined portfolio. There were no customers in DLRP in 2024.

Total costs associated with National Grid's 2024 CSRP and DLRP are $5,164,721. These costs are separated by incentive payments (including both Reservation and Performance Payments), program operations (consisting of internal administrative (labor) costs), evaluation costs (external), and vendor costs. Base costs associated with the setup of EnergyHub, Inc. ("EnergyHub"), a commercial Demand Response Management System ("DRMS") vendor, were paid in full upfront for three (3) years in 2023. These base costs have not been included in Table 2 below as part of the total costs for CSRP; however, the portion of the costs and fees associated with supporting the 2024 Capability Period are included.

Table 2: **2024 DLRP and CSRP Costs***

Program Components	2024 C&I Program* Component Costs	DLM Surcharge Recoverable	DLM Surcharge Non-Recoverable
Incentive Payments	$4,717,773	$4,717,773	$-
Program Operations (internal) **	$304,948	$-	$304,948
Evaluation Costs (external)	$2,000	$2,000	
External Vendor Costs	$140,000		$140,000
Total	$5,164,721	$4,719,773	$444,948

*C&I Programs includes CSRP and DLRP only, and Term-DLM and Auto-DLM Programs are reported separately.
** Estimated. Q4 2024 costs have been estimated based on actual spending in Q1-Q3 2024.

Cost Recovery

Per the Commission's April 19, 2018 order addressing cost recovery,[8] the Company revised the allocation of costs recovered for each DLM program beginning with the 2018 Capability Period. Prior to May 1, 2018, all DLM program costs were recovered through the Company's DLM surcharge from all customer classes using a transmission allocator. The program costs were also reconciled monthly in the DLM surcharge. However, since May 1, 2018, National Grid has recovered the costs of the DLRP and DLC program from electric customers served at secondary or primary voltage delivery levels, and all streetlighting customers. Beginning with the 2018 Capability Period, the DLRP and DLC Program

[8] DLM Programs Proceeding, Order Directing Tariff Filings (issued April 19, 2018).

costs are allocated using a non-coincident peak allocator to apportion costs among the service classes. The CSRP costs are still recovered from all customers using a transmission allocator to apportion costs among the service classes. Since May 1, 2018, all program costs are now reconciled on an annual basis in the DLM surcharge.

DLRP and CSRP Benefits

As noted in previous DLM annual reports filed by National Grid, there are several benefits for both the customer and utility from the implementation of commercial DR programs, which include:

Customer Benefits:

- Monetary compensation that potentially can lower electric bills
- Non-traditional revenue streams from incentives and related rebates
- Demand charge reduction on customer bills
- Potential ratchet avoidance (demand)
- Reduced stress on customer's electrical equipment

Utility Benefits:

- Deferred capital project costs that are due to:
  - Reduced overall electric system stress
  - Direct project savings in designated or constrained areas
- Enhanced communications and interactions with customers which include:
  - Positive touch points and interactions with customers
  - Enhancements of the Company's "trusted advisor" role
- Reduction in electrical system stress

Community/Societal Benefits:

- Lower greenhouse gas ("GHG") emissions due to reduced need for peaking power plants
- Potential increase in electrical reliability, particularly in designated or constrained areas
- Deferral of disruptive utility construction projects

Benefit-Cost Analysis for DLRP and CSRP

This section provides the results of the completed benefit-cost analysis ("BCA") for the DLRP and CSRP using the Societal Cost Test ("SCT"), Utility Cost Test ("UCT"), and Ratepayer Impact Measure ("RIM") for the 2024 program year. There are program-specific cost and benefit inputs that were incorporated into the analysis to calculate the BCA.

The 2024 BCA for DLRP and CSRP was calculated for each of the three tests (SCT, UCT, and RIM) and the resulting costs, benefits, and net benefits are provided below in Tables 3-5. Costs for Q4 2024 have been estimated due to the timing of this report.[9] The BCA was performed using the 2024 program year pricing incentives in each of the three tests.

The SCT is used to measure and value the net costs and benefits to society, as based on current DR programs. This test analyzes the programs' BCA in entirety and compares the costs that have been incurred for the implementation of the program to customer costs with avoided electricity and other supply-side resource costs. The SCT also includes the cost of externalities to provide a framework for whether a program should continue to be implemented. The SCT for the commercial portfolio (*i.e.*, the combined DLRP and CSRP) yields a result of [redacted] and [redacted] in net benefits. Table 3 below applies the SCT test to the DLRP and CSRP as a commercial program portfolio.[10]

Table 3: **Cost-effectiveness Tests for 2024 DLRP and CSRP Using the SCT:**

National Grid Demand Response Cost-effectiveness SCT Results	
	DLRP* & CSRP Total C&I
Benefits	[redacted]
Costs	**$5,162,721**
Net Benefits	[redacted]
SCT	[redacted]

*Cost treatment for the BCAs have been kept consistent with previous filings and include the DRMS costs associated with the capability period. For 2024 National Grid has combined the program table view since DLRP is not active.

The UCT analyzes the costs and benefits from the perspective of National Grid. This test is integral in identifying impacts on utility revenue requirements and provides information on the effectiveness of program delivery in 2024. The UCT is determined by the costs that have been incurred to implement the commercial DLM programs as compared to the avoided electricity supply-side costs. The UCT for the

[9] Labor/administrative costs have been estimated for October, November, and December 2024.
[10] *Id.*

commercial DLM portfolio yields a result of [redacted] and [redacted] net benefits in 2024. Table 4 below displays the UCT for DLRP and CSRP as a commercial program portfolio.[11]

Table 4: **Cost-effectiveness Tests for 2024 DLRP and CSRP Using the UCT:**

National Grid Demand Response Cost-effectiveness UCT Results	
	DLRP*& CSRP Total C&I
Benefits	[redacted]
Costs	**$4,857,773**
Net Benefits	[redacted]
UCT	[redacted]

*Cost treatment for the BCAs have been kept consistent with previous filings and include the DRMS cost associated with the capability period. For 2024 National Grid has combined the program table view since DLRP is not active.

The RIM is from the viewpoint of National Grid's customers in aggregate. This test determines what happens to average prices for customers due to changes in utility revenue and operating costs. The test determines whether funding requirements need to be increased for the utility program. The RIM for the commercial DLM portfolio yields a result of [redacted] and [redacted] in net benefits. Table 5 below displays the RIM for DLRP and CSRP as a commercial program portfolio.[12]

Table 5: **Cost-effectiveness Tests for 2024 DLRP and CSRP Using the RIM:**

National Grid Demand Response Cost-effectiveness RIM Results	
	DLRP*& CSRP Total C&I
Benefits	[redacted]
Costs	**$6,093,993**
Net Benefits	[redacted]
RIM	[redacted]

*Cost treatment for the BCAs have been kept consistent with previous filings and include the DRMS cost associated with the capability period. For 2024 National Grid has combined the program table view since DLRP is not active.

A benefit-cost ratio ("BCR") above 1.0 indicates that a program is cost effective. The BCR for each of the tests for National Grid's commercial DLM portfolio is above 1.0. To maintain the cost-effectiveness of the DLM program portfolio, the Company will continue to effectively manage program spending and will endeavor to increase participation and enrollment in these commercial programs.

[11] *Id.*
[12] *Id.*

2024 CSRP Operations

National Grid has enrolled 267 customers through six (6) aggregators and three (3) individual participants for CSRP in 2024. The total amount of enrolled capacity from these customers was 249.79 MW. Program operating costs for 2024 were included in Table 2 in the *2024 DLRP and CSRP Costs* section above, and were composed of implementation activities including, but not limited to:

- Tariff leaves preparation
- Incentive setting
- Internal departmental outreach and coordination
- Program implementation
- Incentive calculation and processing
- Sales team presentations
- Customer acquisition
- Measurement and Verification ("M&V") preparation and calculation of results
- Aggregator communications
- Valuation and analyzing constrained areas
- Coordination work with other utilities
- Document and report preparations

Checking all accounts in National Grid's customer system for accuracy of:

- Customer account information
- New York Independent System Operator ("NYISO") zones
- Customer service/mailing addresses
- Supply station/feeder/voltage-level data
- Peak load information

Aggregator and customer management:

- Cooperative discussions about process improvements and set-up with EnergyHub
- Creation of bulk enrollment comma-separated values ("CSV") files
- Identification of website improvements required for internal teams
- Discussion and guidance on event M&V results

Program Management:

- Aggregator administrative support

- Event notification process improvements
- Day-ahead forecast accuracy checks
- Accounting set up – CSRP payments with customers
- Customer Base Load ("CBL") calculations for M&V review
- Capacity reduction calculation
- Customer payment calculation
- Performance factor maintenance
- NYISO customer coordination with CSRP

DRMS Configuration:

- Customer enrollment and set up in DRMS
- Settlement calculations for customers (completed through EnergyHub, with manual M&V calculations for review)
- Accurate reporting of DR event calculations by working with Transmission Control Center ("TCC") and EnergyHub
- Effective internal IT integration for EnergyHub
- Event notification tests for customers to ensure accurate event dispatch

2024 CSRP Event Performance and System Impacts

National Grid's service territory experienced an unusually cool August, with only two (2) events called earlier in the month. A heat wave in June and seasonably warm periods in July resulted in multiple event days for the 2024 Capability Period. Eleven (11) events were called through the CSRP in the 2024 Capability Period, with four (4) of those in the month of June, five (5) in the month of July, and two (2) in the month of August, as shown in Table 7 below. This season was similar to the 2023 season in having four (4) of the events occurring consecutively in a single week in June. July saw three consecutive events in one week, and two (2) the following week. The 2024 Capability Period reinforced the importance of unplanned events and increased incentives as a key aspect of the CSRP. Table 6 below provides the enrolled curtailment for each of the three individual participants and the six aggregators for 2024. The 2024 capability period also saw the net loss of one (1) Individual Participant.

Table 6: **CSRP Enrolled Demand for 2024**

Aggregator/Individual Participant	Enrolled Curtailment (MW)
Aggregator 1	41.83
Aggregator 2	12.35
Aggregator 3	11.17
Aggregator 4	0.33
Aggregator 5	1.99
Aggregator 6	6.06
Individual Participant 1	140.00
Individual Participant 2	36.0
Individual Participant 3	0.06
Total Enrolled	**249.79**

Demand curtailment benefits the Company's electrical system. However, most of the load shedding was concentrated among higher capacity customers in NYISO Load Zone A (National Grid's Western Division) despite a significantly larger number of customers participating in the CSRP being concentrated in NYISO Load Zone F (National Grid's Eastern Division). Contracted Load Relief in Zone F was less than 15% that of Zone A.

System impacts for the event dates and the total energy saved per event are shown in Table 7 below, and Table 8 below provides load shedding associated with each load zone.

Table 7: **2024 CSRP Event Results**

Event Date	Actual Load Relief (kW)	Total Event Load Relief (kWh)
6/18/2024	249,516.51	975,548.94
6/19/2024	247,810.22	967,600.97
6/20/2024	253,209.14	983,398.90
6/21/2024	242,689.43	951,134.68
7/8/2024	250,479.91	972,366.63
7/9/2024	248,336.51	981,143.03
7/10/2024	279,694.87	1,093,145.61
7/15/2024	280,962.08	1,096,254.34
7/16/2024	275,957.52	1,068,681.36
8/1/2024	263,890.35	1,045,053.83
8/2/2024	244,059.13	967,500.96

**6/18 event experienced dispatch failure and became voluntary.*

Table 8: 2024 Contracted CSRP Load by NYISO Zone

NYISO Zone	CSRP Customers	Load (MW)
A	63	202.49
B	19	2.13
C	42	4.08
D	3	0.15
E	49	14.73
F	91	26.21

Performance factors are calculated for each month of the 2024 Capability Period and displayed below for each of the six (6) aggregators and three (3) individual participants. Performance factors for May 2024 were carried over from 2023 for the returning six (6) aggregators and three (3) individual participants who were enrolled in CSRP. Two (2) aggregators carried a Performance Factor below 25% into the 2024 Capability Period from the 2023 Capability Period and one aggregator set a performance factor below 25%, resulting in their ineligibility for reservation payments through the conclusion of the 2024 Capability Period.

Table 9: 2024 Performance Factors by Month

	May	June	July	August	September
Aggregator 1	0.67	0.61	0.91	0.91	0.91
Aggregator 2	0.18	1.00	0.67	0.01	0.01
Aggregator 3	0.55	0.69	0.84	0.40	0.40
Aggregator 4	0.16	0.75	0.27	0.84	0.84
Aggregator 5	0.57	0.68	0.73	0.92	0.92
Aggregator 6	0.79	0.98	0.84	1.00	1.00
Individual Participant 1	1.00	1.00	0.94	1.00	1.00
Individual Participant 2	1.00	1.00	1.00	1.00	1.00
Individual Participant 3		0.75	1.00	1.00	1.00

2024 DLRP and CSRP Sales and Marketing

National Grid did not perform outreach for the DLRP in 2024 since the incentives remained at $0 and therefore there would be no participation in the program. The CSRP outreach was conducted by aggregators and direct marketing to the customers contacts. National Grid directly marketed the 2024 CSRP to the aggregator pool via phone calls, emails, and in-person meetings. The Company also emailed and used targeted social media campaigns to contact decision-makers with eligible customers.

National Grid's Market Development team, jurisdiction managers, and sales representatives served as the main points of contact internally for engaging customers to participate in the Company's commercial DLM programs; these internal stakeholders maintain trusted relationships between the Company's largest customers and internal customer-facing groups. These National Grid teams are in constant contact with customers regarding issues that include but are not limited to energy efficiency ("EE") measures, billing matters, energy-related projects, and distributed energy resources ("DER").

2024 Term DLM and Auto-DLM Operations

In December 2023, National Grid issued the 2023 Term-DLM and Auto-DLM Program RFP, soliciting resources to begin participation in the 2025 Vintage Year.[13] Responses were due in March. The Company received five bids to the RFP totaling 20.575 MW of participation from five different aggregators for the Term-DLM Program and for the third year in a row, did not receive any bids for participation in the Auto-DLM Program. The five aggregator bid prices were [redacted]/kW-yr; [redacted]/kW-yr; [redacted]/kW-yr; [redacted]/kW-yr; and [redacted]/kW-yr.

Bids were evaluated for cost-effectiveness to determine which bids cleared and which did not. As a result of this bid review process, it was determined that four bids cleared. The accepted bidders were offered contracts for their bids totaling 10.575MW of load relief with participation commencing in the 2025 Vintage Year, the three awarded contract prices per kW were bid prices per kW were [redacted]/kW-yr; [redacted]/kW-yr; [redacted]/kW-yr and [redacted]/kW-yr respectively. The bidder totaling 1.5 MW of load relief opted to accept their offered contract for capacity.

[13] "Vintage Year" refers to the first Capability Period an Aggregator or Direct Participant is contractually obligated to participate in.

Term-DLM and Auto-DLM Procurement Review

With four years of Term-DLM and Auto-DLM Program procurements completed, National Grid has observed significant interest from the marketplace in the Term-DLM Program. With 99.1 MW of Term-DLM capacity contracts awarded over four years, National Grid believes the design and procurement process for the Term-DLM Program is working effectively.

Unfortunately, the Company has found the Auto-DLM Program to be less successful. Over three years of procurement, the Company has received zero Auto-DLM bids. National Grid has been actively attempting to connect with stakeholders to understand how the Company can make the Auto-DLM Program more attractive to bidders. In response to stakeholder feedback after the first procurement (Vintage Years 2021 and 2022) was completed, the Company extended the procurement timeline, coordinated procurement release dates with other utilities, and added value tiers to the Auto-DLM locations for the Vintage Year 2023 procurement to help bidders understand the potential value of capacity in each location. For Vintage Year 2024, the Company extended the contract duration offered to 5 years (up from 3 years in Vintage Year 2023) and more closely tailored location-specific participation requirements to each location's need (*i.e.*, limiting required response hours to only the hours forecasted to need load relief over the contract period and extending response time when feasible based upon location needs). Unfortunately, none of these changes increased Auto-DLM participation.

2024 Term-DLM Event Performance and System Impacts

National Grid's service territory experienced a warm summer season with extended warm periods in June and July, resulting in multiple event days for the 2024 Capability Period. Eleven (11) Term-DLM events were called the in the 2024 Capability Period, with four (4) of those in June, five (5) in July, and two (2) in August, as shown in Table 11 below. This season saw approximately twice as many events as the 2023 season with four (4) of the events occurring consecutively in a single week. Three (3) of the July events also occurred on consecutive days. The 2024 Capability Period reinforced the importance of anticipating unplanned events and increased incentives for those events as a key aspect of the Term-DLM Program. Table 10 below provides the enrolled curtailment by NYISO Load Zone for the single aggregation participating in the 2024 Vintage Year.

Table 10: **Term-DLM Enrolled Demand for 2024**

NYISO Zone	Term-DLM Customers	Aggregator Load Relief Commitment (MW)
A	14	81.76
B	2	0.25
C	8	1.01
D	0	0
E	4	2.45
F	18	12.12
Aggregator Total Enrolled	46	97.6

Demand curtailment benefits National Grid's electrical system. Most of the load shedding was concentrated in NYISO Load Zone A, National Grid's Western Division. A greater number of customers participating in the Term-DLM were concentrated in NYISO Load Zone F (National Grid's Eastern Division), however, much less load relief was committed in Load Zone F.

System impacts for the event dates and the total energy saved per event are shown in Table 11 below.

Table 11: **2024 Term-DLM Event Results**

Event Date	Actual Load Relief (kW)	Total Event Load Relief (kWh)
6/18/2024*	92,979.56	371,918.22
6/19/2024	92,403.81	369,615.22
6/20/2024	95,709.97	382,839.87
6/21/2024	91,191.83	364,767.30
7/8/2024	96,661.71	386,646.85
7/9/2024	99,902.82	399,611.26
7/10/2024	94,657.84	378,631.37
7/15/2024	98,982.56	395,930.24
7/16/2024	99,138.61	396,554.45
8/1/2024	93,679.32	374,717.29
8/2/2024	96,182.98	384,731.92

*6/18 Event experience dispatch failure and became voluntary

Performance factors are calculated on a seasonal basis for the Term-DLM Program. The four aggregators performed at 98% of their commitments for the 2024 Capability Period. This is despite one aggregator falling below the threshold where penalties may have been applied to their Reservation Payments.

2024 Term-DLM and Auto-DLM Sales and Marketing

National Grid's Market Development team, jurisdiction managers, and sales representatives served as the main point of contact internally for engaging customers to participate in the Company's commercial DLM programs; these internal stakeholders maintain trusted relationships between the Company's largest customers and internal customer-facing groups. These National Grid teams are in constant contact with customers regarding issues that include but are not limited to EE measures, billing matters, energy-related projects, and DER. The Company also directly marketed this offering to decision-makers with eligible customers.

2024 Term-DLM and Auto-DLM Costs and Savings

The costs for Term-DLM and Auto-DLM are shown below in Table 12 and stated as a combined C&I portfolio for the Company's C&I programs. Costs are estimates, given that spending for Q4 2024 has been estimated based on actual spending in Q1-Q3 2024.

Total costs associated with the Company's 2024 Term-DLM and Auto-DLM Programs are [redacted]. These costs are separated by incentive payments (including both Reservation and Performance Payments) and program operations (consisting of internal administrative (labor) costs). Base costs associated with the setup of EnergyHub, Inc. ("EnergyHub"), National Grid's DRMS vendor, were paid in full upfront for three (3) years in 2023. These base costs have not been included in Table 12 below as part of the total costs for Term-DLM/Auto-DLM; however, the portion of the DRMS costs and fees associated with supporting the 2024 Capability Period are shown in Table 12.

Table 12: **2024 Term-DLM and Auto-DLM Costs**

Program Components	2024 Term-DLM and Auto-DLM Component Costs	DLM Surcharge Recoverable	DLM Surcharge Non-Recoverable
Term-DLM Incentives	[redacted]	[redacted]	
Term-DLM Operations (internal)	$32,916.20		$32,916.20
Term-DLM Evaluation Costs (External)	$2,000.00		$2,000.00

Auto-DLM Operations Costs (Internal)	$48,372.43		$48,372.43
Auto-DLM Evaluation Costs (External)	$-		$-
DRMS Costs	$60,000.00		$60,000.00
Term-DLM and Auto- DLM Total	[redacted]	[redacted]	$143,288.63

*Costs are estimates, given that spending for Q4 2024 has been estimated based on actual spending in Q1-Q3 2024.

Benefit-Cost Analysis for Term-DLM/Auto-DLM Programs

This section provides the results of the completed BCA for Term-DLM using the SCT, UCT, and RIM for the 2024 program year. There are program-specific cost and benefit inputs that were incorporated into the analysis to calculate the BCA.

The 2024 BCA for Term-DLM/Auto-DLM is evaluated using each of the three tests (SCT, UCT, and RIM) and the resulting costs, benefits, and net benefits are provided below in Tables 13-15. Costs for Q4 2024 have been estimated due to the timing of this report.[14] The BCA was performed using the 2024 program year pricing incentives for the Term-DLM Program in each of the three tests.

The SCT is used to measure and value the net costs and benefits to society, as based on current DR programs. This test analyzes the programs' BCA in entirety and compares the costs that have been incurred for the implementation of the program to customer costs with avoided electricity and other supply-side resource costs. The SCT also includes the cost of externalities to provide a framework for whether a program should continue to be implemented. The SCT for the Term-DLM and Auto-DLM portfolio yields a result of [redacted] and [redacted] in net benefits. Table 13 below displays the results of applying the SCT test to the Term-DLM and Auto-DLM commercial program.[15]

Table 13: **Cost-effectiveness Tests for 2024 Term-DLM Program Using the SCT:**

National Grid Demand Response Cost-effectiveness SCT Results	
	Term-DLM and Auto-DLM
Benefits	[redacted]

[14] Labor/administrative costs have been estimated for October, November, and December 2024.
[15] *Id.*

Costs	[redacted]
Net Benefits	[redacted]
SCT	[redacted]

The UCT determines the costs and benefits from the perspective of National Grid. This test is integral in identifying impacts on utility revenue requirements and provides information on the effectiveness of program delivery in 2024. The UCT is determined by the costs that have been incurred to implement the Term-DLM Program and Auto-DLM Programs as compared to the avoided electricity supply-side costs. The UCT for the Term-DLM and Auto-DLM portfolio yields a result of [redacted] and [redacted] net benefits in 2024. Table 14 below displays the UCT for Term-DLM and Auto-DLM as a commercial program portfolio.[16]

Table 14: **Cost-effectiveness Tests for 2024 Term-DLM Using the UCT:**

National Grid Demand Response Cost-effectiveness UCT Results	
	Term-DLM and Auto-DLM
Benefits	[redacted]
Costs	[redacted]
Net Benefits	[redacted]
UCT	[redacted]

The RIM is from the viewpoint of National Grid's customers in aggregate. This test determines what happens to average prices for customers due to changes in utility revenue and operating costs. The test determines whether funding requirements need to be increased for the utility program. The RIM for the Term-DLM Program and Auto-DLM portfolio yields a result of [redacted] and [redacted] in net benefits. Table 15 below displays the RIM for Term-DLM and Auto-DLM as a commercial program portfolio.[17]

Table 15: **Cost-effectiveness Tests for 2024 Term DLM Using the RIM:**

National Grid Demand Response Cost-effectiveness RIM Results	
	Term-DLM and Auto-DLM
Benefits	[redacted]
Costs	[redacted]
Net Benefits	[redacted]
RIM	[redacted]

[16] *Id.*
[17] *Id.*

A benefit-cost ratio ("BCR") above 1.0 indicates that a program is cost effective. The BCR for each of the tests for National Grid's commercial Term-DLM Program is above 1.0, meaning that this program is cost-effective by these measures. To maintain the cost-effectiveness of the Term-DLM and Auto-DLM Program portfolio, the Company will continue to effectively manage program spending and will endeavor to increase participation and enrollment in these commercial programs.

Website Development for DLRP, CSRP, Term-DLM, and Auto-DLM

National Grid continues to review the DLRP, CSRP, Term-DLM, and Auto-DLM content on the National Grid website to ensure accuracy and clarity of program descriptions. This includes updating aggregator information and updating and editing links and information as needed so customers can have a clear understanding of the programs. As new programs or aspects of the existing programs develop or become available, National Grid will continue to update content for transparency and clarity to customers and aggregators. The main page for commercial customers to access DR information is available at: https://www.nationalgridus.com/Upstate-NY-Business/Demand-Response/Electric-Demand-Response-Solutions

2024 DLRP, CSRP, Term-DLM, and Auto-DLM Changes

Following three unsuccessful Auto-DLM procurement cycles, as well as three rounds of program adjustments based upon stakeholder feedback to attempt to increase program participation, the Company is proposing a more substantive change to the Auto-DLM program related to the procurement mechanism. In response to stakeholder feedback that more visibility into potential incentives/revenue would be a key driver for potential Auto-DLM participants, the Company, along with other Indicated Utilities,[18] submitted a petition to the Public Service Commission requesting that the Commission modify its requirement that Term-DLM and Auto-DLM procurements use a pay-as-bid model,[19] as well as a Supplement to the Proposed DLM Program Procurement Mechanisms, to allow for more flexibility in procurement mechanisms to allow for more price visibility to prospective bidders.[20] If this Petition is

[18] The Indicated Utilities are Central Hudson Gas & Electric Corporation, New York State Electric & Gas Corporation, National Grid, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.
[19] Energy Storage Proceeding, Petition of the Indicated Utilities Seeking Certain Minor Amendments to the Commission's Direction Concerning Dynamic Load Management Program Procurement (filed August 1, 2023) ("Petition").
[20] Energy Storage Proceeding, Indicated Utilities Supplement to Proposed DLM Program Procurement Mechanisms (July 2, 2024).

approved, the Company will seek to consider new, more price visible procurement models in future Term-DLM and Auto-DLM procurements.

In its March 15, 2024 Order in Case 14-E-0423,[21] the Commission directed utilities to report on the efficacy of reducing the initial Performance Factor for new participants from 0.5 to 0.0 in order to reduce unnecessary administrative and accounting burdens. To date, National Grid has not found the 0.5 initial performance factor for new participants, or for participants who did not participate during the prior Capability Period, to be administratively burdensome. While this initial 0.5 Performance Factor does require "true-up" after the first month where performance is required to reflect the participant or aggregator's actual performance, an initial Performance Factor of 0.0 would likewise require a "true-up" payment to ensure correct payment for actual performance by the participant or aggregator. Additionally, the 0.5 initial Performance Factor provides an appropriate incentive for new or returning participants to enroll in the program and incentivizes participants to maximize their participation to increase their initial revenue. For these reasons, National Grid does not believe that moving from a 0.5 to 0.0 initial Performance Factor for new participants, or for participants who did not participate during the prior Capability Period, to be a necessary or ultimately beneficial change to the programs, and therefore seeks to maintain the 0.5 initial Performance Factor moving forward.

DLRP, CSRP, Term-DLM Program, and Auto-DLM Program Conclusion

National Grid has continued to evaluate the role and interactions of the DLRP, CSRP, Term-DLM Program, and Auto-DLM Program in 2024 in the Company's commercial DLM portfolio. The DLRP incentive level was previously set to "$0" and will remain that way until a Company need arises. National Grid will continue to investigate additional constrained areas and increase targeted DR offerings through coordination with the Company's non-wires alternatives ("NWA") and Distribution Planning and Asset Management ("DPAM") teams. CSRP continues to be the Company's largest and most impactful DR program, with the largest curtailment potential and number of enrolled customers. The CSRP continues to perform reliably and offers customers a familiar option for DR participation. The Term-DLM Program continues to grow in number of participating aggregations and committed capacity. Based upon the continued success of these programs through 2024, National Grid expects the program will continue this strong growth over the coming years. While the Auto-DLM Program has not seen the same strong participation as the Term-DLM Program, the Company believes it is an important component of

[21] Case 14-E-0423, *Proceeding on Motion of the Commission to Develop Dynamic Load Management Programs*, Order Directing Dynamic Load Management Program Changes (March 15, 2024).

the DLM portfolio and as such continues to focus on program updates and modifications that will increase market interest in participation. As the cost of advanced technology options which enable customers to increase their load flexibility potential continues to decrease, National Grid is hopeful that customer interest and participation in programs like Auto-DLM will increase.

Direct Load Control ("DLC") Program

ConnectedSolutions Program

Introduction and Program Operations

ConnectedSolutions is a system-wide DLC Program that began in 2016. This peak-shaving and reliability program is implemented in coordination with the DR programs of National Grid's affiliate in Massachusetts. **Connected**Solutions is a BYOD program that currently supports eight (8) Wi-Fi connected thermostat manufacturers. **Connected**Solutions is operated in partnership with EnergyHub, a Brooklyn-based company that works with National Grid to support the growth of the Company's DLC Programs through its DRMS. DRMS fulfills National Grid's needs of allowing both residential and small commercial customers to sign up for DR programs through an automated registration process using a web-based interface. EnergyHub provides for:

- Ease of the initial set-up for the residential demand management platform
- Platform capability to connect to major thermostat manufacturers to enable and validate eligible customer information
- Ability for residential customers to sign up for DLC Programs through an automated registration process using a web-based interface
- Verification of customer eligibility through contact information submitted to National Grid and to the platform
- Calling of DR events through the web-based interface or portal
- Reception of post-event data for both customers and National Grid based on events and the entire DR season
- Scalability and growth potential for DLC Programs
- Overall potential to integrate other connected devices, including solar inverters and energy storage systems in the future
- Potential to cut costs and increase overall efficiencies through device integration

EnergyHub works directly with thermostat manufacturers to enroll and control thermostats in the **Connected**Solutions Program. This added benefit decreases the administrative burden and permits a common, integrated platform for thermostat manufacturers, reducing costs of program operation.

Some of the DLC tasks this year included:
Vendor Management:

- Identification of website improvements needed
- Event notification discussions/processes with the vendor
- Customer support system improvements

Program Management:

- Event trigger process improvements
- Event notification process improvements
- Payment of sign-up and performance incentives to customers
- Verification of customer information through EnergyHub portal
- Coordination and expansion of National Grid and EnergyHub marketing efforts

DRMS Configuration:

- Refreshed DRMS design and accessibility
- Customer enrollment and set up within online portal
- Calling of DR events from EnergyHub portal

Additional benefits from the DLC Program include:

- Avoided generation capacity costs
- Avoided Locational Based Marginal Pricing ("LBMP")
- Avoided transmission capacity infrastructure costs
- Wholesale market price impacts
- Avoided distribution capacity infrastructure costs
- Net avoided CO2, SO2, and NOx emissions

There was an incremental growth of 2,036 thermostats enrolled in **Connected**Solutions as of October 1, 2024, for a total of 27,040 thermostats in the program. This demonstrates growth from the 2023 enrollment total of 25,004 thermostats despite that during the 2024 Capability Period there were 2,920 total un-enrollments in the program.

The **Connected**Solutions Program saw a 6 percent growth, although the growth rate of the program did decrease by about half compared to 2023. National Grid anticipates continued growth of the **Connected**Solutions Program in 2025, particularly with an incentive increase and continuing improvement of marketing strategies that are described later in this report, and with the increase of enrollments for thermostat manufacturers that are newer entrants to the DLC Program.

Technology Overview and DR Events

There was a total of ten (10) events held during the 2024 Capability Period for the **Connected**Solutions Program. Below is a summary of the 2024 Capability Period DR events:

Table 16: 2024 ConnectedSolutions DR Events

	6/18/2024	6/19/2024	6/20/2024	6/21/2024	7/9/2024	7/10/2024	7/15/2024	7/16/2024	8/1/2024	8/2/2024
Number of Participants	26,847	26,851	26,828	26,754	25,932	25,928	26,120	26,088	26,324	26,315
Demand Reduction (MW)	23.1	30.4	26.8	30.5	28.4	29	26.3	27.5	28.30	28
Total Energy Savings (MWh)	69.4	91.25	80.31	91.42	85.12	87.07	79.01	82.47	84.78	84.11
Average Reduction per Device (kW)	0.87	1.14	1.01	1.14	1.09	1.12	1.01	1.05	1.08	1.06
Average Participation (%)	81.66%	82.79%	83.29%	83.67%	85.90%	85.45%	85.78%	85.63%	85.61%	85.52%

The duration of each **Connected**Solutions event was three (3) hours for the 2024 Capability Period. All ten (10) events were administered from 4:00 pm-7:00 pm.

Through the course of the 2024 Capability Period and the ten (10) events this summer, the number of participants has grown. Demand reduction in 2024 has grown by almost 10MW, for all the ten (10) events ConnectedSolutions realized an average demand reduction of 27.8 MW. Average participation throughout all ten (10) events has decreased to 85%, about 3% less than 2023, but average load reduction per device has increased to over 1 kW per device, indicating the drop in participation is not impacting the program's ability to reduce peak load. Annual removal of non-performing or disconnected customers continues to ensure strong and reliable performance for the program.

Program Incentives

Customers receive a $30 incentive for signing up for the **Connected**Solutions program through the participation of the eight (8) current thermostat manufacturers. Customers become eligible to receive a $20 participation payment beginning in their second year of participation in the program if they participate in 80 percent of the DR events or event-hours called.

2024 Program Costs and Savings

Total **Connected**Solutions Program costs include all demand management platform charges from EnergyHub, program operation costs, any hardware and equipment costs, and total marketing fees. Costs for the months of October, November and December 2024 have been estimated due to the timing of this report.[22] The table below illustrates program costs for **Connected**Solutions:

Table 17: **2024 ConnectedSolutions Program Costs**

2024 ConnectedSolutions Program Costs*	
Device Manufacturer Annual Fees & External Vendor Costs	$784,919
Performance and Enrollment Incentives Costs	$479,819
Internal Labor and Administrative Costs	$54,607.00
External Evaluation Costs	$2,000.00
Total	**$1,321,345**

*Figures for October-December included in the totals are estimated.

The average curtailment for the 2024 Capability Period was 27,830 kW. Therefore, with a corresponding total program cost of $1,321,345, the cost/kW equals $47.48/kW for the **Connected**Solutions Program.

Benefit-Cost Analysis for **Connected**Solutions DLC Program

This section details the evaluation of BCA for the **Connected**Solutions Program using the SCT, UCT, and RIM tests. These BCA tests portray the cost-effectiveness of the Company's DLC Program portfolio.

[22] Performance incentives and labor/administrative costs have been estimated for October, November, and December 2024.

The SCT for the **Connected**Solutions Program, including avoided generation capacity costs, yields a result of 2.55 and $2,047,968 in net benefits. Table 18 below displays the SCT for the **Connected**Solutions Program.

Table 18: Cost-effectiveness Tests for 2024 DLC Program Using the SCT

National Grid Demand Response Cost-effectiveness SCT Results	
	DLC
Benefits	**$3,369,313**
Costs	**$1,321,345**
Net Benefits	**$2,047,968**
SCT	**2.55**

The UCT, including avoided generation capacity costs, for **Connected**Solutions yields a result of 2.4 and $7,500,533 in net benefits. Table 19 below displays the UCT for the **Connected**Solutions Program.

Table 19: Cost-effectiveness Tests for 2024 DLC Program Using the UCT

National Grid Demand Response Cost-effectiveness UCT Results	
	DLC
Benefits	**$12,358,306**
Costs	**$4,857,773**
Net Benefits	**$7,500,533**
UCT	**2.54**

The RIM for the DLC Portfolio, including avoided generation capacity costs, yields a result of 2.03 and $6,264,313 in net benefits. Table 20 below displays the RIM for the **Connected**Solutions Program.

Table 20: Cost-effectiveness Tests for 2024 DLC Program Using the RIM

National Grid Demand Response Cost-effectiveness RIM Results	
	DLC
Benefits	**$12,358,306**
Costs	**$6,093,993**
Net Benefits	**$6,264,313**
RIM	**2.03**

A BCR above 1.0 indicates that a program is cost effective. The BCR for each of the tests for National Grid's **Connected**Solutions Program is above 1.0. As a result, National Grid does not propose any change to the pricing incentives. Based on interim enrollment trends, National Grid continues to expect the number of devices participating at the start of the 2024 Capability Period to increase steadily.

ConnectedSolutions Marketing and Recruitment

National Grid is taking a multi-channel approach to recruitment to increase participation in the **Connected**Solutions program. As in years past, Honeywell, ecobee, and Google Nest have also continued to contact customers directly for program recruitment. **Connected**Solutions Program outreach continues to rely on the partnership between National Grid and EnergyHub. EnergyHub has continued to play a key role in aligning 2024 brand messaging, recruitment efforts, and other marketing campaigns between National Grid and our largest partner thermostat manufacturers. For internal efforts in 2024 there were three targeted email campaigns along with three targeted postcard sends. The email marketing efforts have generated over 1 million total impressions. The email open rates for **Connected**Solutions increased 10% year over year to approximately 40 percent, continuing to outpace the industry average. Additionally, a direct mail campaign promoting the program was deployed once again for 2024; the direct mail campaign saw a 4% conversion rate. A paid social media and search campaign launched in summer 2024. The ConnectedSolutions Program website saw over 68,000 visitors, roughly 52,000 of these were new or unique visitors. Our paid social and search campaign brought in over 38,000 of the total visitors (56%) and nearly 34,000 of the new visitors (65%). National Grid will continue to engage customers through these recruitment emails and direct mail efforts in years to come.

Since 2020, National Grid has promoted enrollment in the **Connected**Solutions Program at the point of purchase for Google Nest and ecobee thermostats on the Company's online Marketplace which continued through 2023. Due to relative lack of customer benefits realized via the Marketplace, the Company will sunset the Marketplace in 2024. In 2024, program eligibility is anticipated to be expanded to customers with the new Amazon Smart Thermostat. National Grid will continue to include multiple marketing channels such as direct outreach to customers who took advantage of rebates available from utilities for installation of Wi-Fi thermostats or other energy upgrades. Other methods, such as point-of-purchase displays in retail outlets (*e.g.*, The Home Depot) may also be used as a recruitment tool in future program years.

The Company is also continually investigating the cost effectiveness of including other residential devices and technologies in the **Connected**Solutions Program to determine whether they merit DLC Program expansion.

ConnectedSolutions Website Development

National Grid promotes the **Connected**Solutions Program as a part of smart thermostat flash sales that occur periodically as a part of the promotion of National Grid's EE programs. Customers can participate in the smart thermostat flash sale and will be redirected to the National Grid DR website to allow participation in the **Connected**Solutions Program.

Customers can sign up and access information about the **Connected**Solutions Program at https://enrollmythermostat.com/connectedsolutionsny/

The program website serves as a central repository of information and directs customers to the sign-up form for the **Connected**Solutions Program. National Grid's web marketing team has been administering and improving the program website to make it clear and easy for customers to access all relevant information about the **Connected**Solutions Program.

2025 DLC Program Changes and Updates

ConnectedSolutions "Bring Your Own Battery" Program

As detailed in the Company's 2023 Annual Report, National Grid is proposing an expansion of the Direct Load Control Program to allow for participation of residential and small commercial storage within DLC.

Currently, when a National Grid residential or small commercial customer installs an energy storage system, there is no clear path this customer to leverage their device for market participation. These customers do not currently have the interval metering required for participation in CSRP, DLRP, Term-DLM or Auto-DLM and voluntary installation of interval metering can be cost-prohibitive. Because of this, there are hundreds of customers with residential and small commercial storage that sits idle during system peaks, when C&I customers or customers with a communicating thermostat are being called upon to provide load flexibility to meet system needs.

Currently, under DLC, National Grid operates ConnectedSolutions, a "Bring Your Own Thermostat" demand response program which allows customers to enroll connected thermostats within their home into the program and agree to allow National Grid and their device manufacturer to control their device to participate in Company demand response events.

Since its inception, this program has proved to be an effective way to allow customers to leverage their communicating control technology to provide grid services and receive financial incentives for their participation, allowing customers to participate directly via their device In addition to removing any barriers to participation caused by the customer's metering configuration, allowing customers to participate directly via their device leverages the existing strong relationship between customers, service providers and the utility, and allows for a seamless "hands-off" approach for customers to participate in load flexibility while always maintaining the ability to opt out at any time.

National Grid believes a similar "Bring Your Own" device program design that has proven so successful for thermostats will provide many of the same advantages for customers with residential and small commercial energy storage. As has proven successful with thermostats, leveraging the communication and telemetry capabilities of the customer's energy storage removes the need for any specific metering capabilities (such as interval metering). This greatly expands the number of potential participants that can leverage the program. Allowing customers to enroll via qualified device partners allows us to leverage the strong relationships between customer and their device partner to facilitate greater participation in the programs.

Device partner outreach and marketing in support the BYO thermostat program has proven extremely effective, and the Company believes this relationship will prove similarly effective for residential and small commercial energy storage systems. Lastly, the "Bring Your Own" device model allows customers to participate in demand response and grid services events with very little intervention required on their part and very little discomfort, a key factor in customers' long-term interest in these programs. At the same time, this model allows the customer to opt out of any event at any time should they decide they do not wish to participate, which is essential for customer satisfaction with demand response programs.

In the its March 15, 2024 Order in Case 14-E-0423,[23] the Commission identified four specific factors to be considered. Those 4 considerations and our answers, are included below:

[23] Case 14-E-0423, *Proceeding on Motion of the Commission to Develop Dynamic Load Management Programs*, Order Directing Dynamic Load Management Program Changes (March 15, 2024).

Question 1: How will customer performance be measured?

Response: Unlike thermostat telemetry data which only provides HVAC equipment runtime, Telemetry data from residential and small commercial energy storage systems (ESS) provides power output of the system, which can be used to directly measure performance, unlike thermostat telemetry data which only provides HVAC equipment runtime. This ability to directly measure ESS performance allows for demand response programs to incentivize kW delivered during Company dispatched events, rather than the percentage of events, event hours, or avoided opt-outs that are used in thermostat programs. Each customer's performance will be measured based upon their ESS output during event hours, as compared to their baseline system output during the same event window on non-event days. A customer's event performance is the average of their hourly delivered kW for each hour of the event. The seasonal performance is the average of the customer's event performance within a season. For example, if a customer delivered an average of 4 kW in Event 1, 3 kW in Event 2, and 2 kW in Event 3, their average seasonal delivered kW would be 3 kW. The Company's baseline methodology will be published on the Company website.

Question 2: How will customers be compensated for their participation in events?

Response: Customers will be compensated based upon their average performance across all events in a season. The average delivered kW is then multiplied by the annual per kW incentive rate. National Grid has conducted a preliminary benefit cost analysis that uses forecasted program costs to design a performance incentive that appropriately values customer performance while ensuring that the program can be operated cost-effectively. As a result of this analysis, National Grid plans to offer an incentive of $50/kW-year for customers participating in the program. As the Company conducts further analysis over the coming months, this incentive may be revised, with the final incentive being filed no less than 60 days before the effective date.

Question 3: How will the JU deal with the difference in data provided by energy storage systems compared to that provided by communicating thermostats due to device telemetry, given the fact that the data available with energy storage systems creates a difference in how customer incentives for energy storage should be considered?

Response: Device telemetry from communicating thermostats measures HVAC runtime and, combined with assumptions about HVAC equipment size and efficiency, is used to estimate the power consumption of the system and event load reduction resulting from device control. In contrast, device telemetry from energy storage systems provides a much more direct view of load flexibility, including a direct measure of power output. Storage systems offer more precise and direct load control that can be more accurately measured. Due to these differences in data availability and power reduction accuracy, the Company plans to compensate storage customers as outlined in response to Question 1.

Question 4: How will the JU deal with the difference between how thermostats and energy storage systems are purchased by customers (i.e., thermostats are able to be purchased and installed directly by the customer, whereas energy storage systems are costly and require professional installation)?

Response: The purchase process for thermostats and energy storage systems differs significantly and requires utilities to consider the differences in these acquisition processes when designing a program aimed at engaging customers who own or are considering the purchase of these devices. Communicating thermostats are generally purchased and installed by the customer. Once a customer buys a thermostat, they own it outright. The purchase process for energy storage systems differs significantly. Energy storage systems are much more expensive in comparison to thermostats and cannot be installed by a customer directly – they require professional installation. They may also be installed when a customer is purchasing a solar PV system. Due to the cost of these systems, energy storage systems are often not paid for in full upfront by a customer, but are financed, leased or acquired through a Power Purchase Agreement (PPA). The contractual relationships tied to energy storage systems have prompted the Company to consider allowing a customer to assign the incentive directly to their service provider. As seen from similar residential and small commercial battery programs, upfront incentives such as those offered by NYSERDA that encourage customers to purchase storage systems are routinely paid directly to a service provider to reduce the customer's monthly financing or leasing costs. The same structure can be valuable for performance incentives – when a customer has financed or leased an energy storage system and earns a performance incentive from a utility program, the ability for that customer to assign the incentive directly to their energy storage service provider reduces their out-of-pocket costs for a storage system.

Pending Commission approval, National Grid is prepared to open the BYO battery program to enrollments beginning in Summer 2025. The Company has filed draft tariff leaves modifying the DLC tariff language to incorporate these distinctions between energy storage system and thermostat program models.

ConnectedSolutions "Bring Your Own Thermostat" Program

National Grid's **Connected**Solutions "Bring Your Own Thermostat" Program has been an effective tool for engaging residential customers to participate in demand response events that have proven to deliver cost-beneficial savings to all National Grid customers. While the program has seen strong growth in the number of participating customers since its inception in 2016, that pace of growth has begun to slow down over time – likely due to a saturation among early adopters and the need to take further efforts to engage the next wave of customers. National Grid believes an increase to the Program enrollment incentive will be an effective tool to help increase enrollments over the coming years. Peer utilities in NY have offered higher enrollment incentives since they've launched their BYOT programs and have seen success engaging customers, while still maintaining cost-effective programs. For this reason, National Grid plans to increase our BYOT enrollment incentive from $30 to $50 for Summer 2025.

DLM Program Conclusion

Implementation of National Grid's DLM programs is aligned with New York State's goals, particularly those of the 2019 Climate Leadership and Community Protection Act ("CLCPA").[24] The CLCPA establishes goals that 70 percent of statewide electric generation be provided by renewable energy systems by 2030 and 100 percent zero-emission electric demand system by 2040. Avoidance of carbon emissions through DR programs contributes to the State's goals. DR has been proven to lower carbon emissions and contribute to overall peak load reduction.

National Grid's DLM programs have grown significantly in the 2024 Capability Period. Although the months of June, July, and August each saw the need for multiple events called for the CSRP, Term-DLM Program, and DLC Program, National Grid was able to relieve stress on the Company's electrical equipment and overall electric system through implementing these system-wide DLM programs. National Grid seeks to take an important step in the expansion of the DLM portfolio of

[24] Chapter 106 of the Laws of 2019. The CLCPA is *available at* https://www.nysenate.gov/legislation/bills/2019/s6599.

programs by adding a “Bring Your Own Battery” component to ConnectedSolutions, increase customer engagement and impart an understanding about each customer’s role in grid reliability and flexibility, reduction of GHG emissions, and peak load curtailment, while continuing to deliver cost-effective benefits to customers with the DLM programs.