

EfficiencyOne

**Holder of the
Efficiency Nova Scotia Franchise**

2023 DSM Annual Progress Report

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ATTACHMENTS

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1. EXECUTIVE SUMMARY

EfficiencyOne (“E1”) delivers demand side management (“DSM”) programs and is the administrator and operator of the Efficiency Nova Scotia (“ENS”) franchise. The 2023 Annual Progress Report (“APR”) summarizes E1’s results and activities for the annual period, January 1 to December 31, 2023.

E1’s 2023-2025 DSM Plan Compliance filing (“Plan as approved” or “Plan”) was approved by the Nova Scotia Utility and Review Board (“NSUARB”) on November 8, 2022, with an aggregate investment of \$173.0 million over the three-year period.¹ The NSUARB established four Performance Targets to be achieved over the Plan period and approved a compliance threshold of 90 percent or greater for each Target (= $\geq$ 90%):²

- 412.7 GWh of cumulative annual energy savings;
- 78.8 MW of cumulative annual peak demand savings;³
- 17.9 MW of available capacity attributed to demand response initiatives; and
- 15.8 GWh of cumulative annual energy savings applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and the Mi’kmaw Home Energy Efficiency Project.

In 2023, E1 achieved the following results as progress towards its four contractual Performance Targets:

- 131.6 GWh of incremental annual net energy savings (32% progress towards the three-year Plan target of 412.7 GWh);
- 27.6 MW of annual net peak demand savings (35% progress towards the three-year Plan target of 78.8 MW);

¹ M10473, NSUARB Order, page 1, November 8, 2022.

² M10473, NSUARB Decision, page 64, September 6, 2022. See also M10473, 2023-2025 DSM Resource Plan Compliance Filing, Executed Supply Agreement, Appendix C, Schedule A, page 1, October 4, 2022.

³ M10473, E1 2023-2025 DSM Resource Plan Compliance Filing, Executed Supply Agreement, Appendix C, Schedule A, page 1, October 4, 2022. As per Schedule A of the Supply Agreement, the total cumulative demand savings of 96.7 MW includes 78.8 MW of cumulative annual net peak demand savings and 17.9 MW in available demand response capacity over the Term.

- 2.4 MW of available capacity attributed to demand response initiatives (13% progress towards the three-year Plan target of 17.9 MW); and
- 3.5 GWh for incremental annual net energy savings applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and the Mi'kmaw Home Energy Efficiency Project (22% progress towards the three-year Plan target of 15.8 GWh).

E1 will build upon these 2023 results over the remaining two years of the Plan (2024 and 2025) to achieve full Plan implementation and its contractual 2023-2025 Plan Performance Targets. Presently, E1 is forecasting to achieve its Plan Performance Targets within the approved investment level of \$173 million.

This Annual Progress Report (APR) provides:

- a summary of the activities and milestones achieved in the prior year, including status of the annual performance indicators;
- management discussion of any material discrepancies (25 percent or greater variance) compared to mid-course adjusted targets;
- a summary of expenditures, energy, system-peak demand savings, and available capacity for each program; and
- Plan period forecast information (savings and expenditures) for the three-year Plan period.

2. 2023 PLAN AS APPROVED AND 2023 MID-COURSE TARGETS

2023 Plan targets are 120.7 GWh of incremental annual net energy savings, 26.9 MW of annual net peak demand savings, and 3.0 MW of available capacity, within an investment of \$53.1 million. In Q1 2023, E1 established mid-course adjusted ("MCA") savings targets at the portfolio level that aligned with the 2023 Plan targets and made mid-course adjustments to savings levels within certain programs to better reflect market trends, updated organizational insights, and to incorporate the most recent years' program impact evaluations.⁴

⁴ M11148, EfficiencyOne Q1 2023 DSM Report, page 2-3, May 25, 2023.

3. 2023 PORTFOLIO RESULTS

In comparison to E1's 2023 mid-course targets, E1 achieved the following results:

- 131.6 GWh of incremental annual net energy savings (109% of the mid-course adjusted target of 120.7 GWh);
- 27.6 MW of annual net peak demand savings (103% of the mid-course adjusted target of 26.9 MW);
- 2.4 MW of available capacity attributed to demand response initiatives (80% of the mid-course adjusted target of 3.0 MW); and
- 3.5 GWh for incremental annual net energy savings applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and the Mi'kmaw Home Energy Efficiency Project program components (65% of the mid-course adjusted target of 5.4 GWh.) (Note: The 5.4 GWh target is the aggregate of the mid-course savings target for each of these three program components.)

E1's overachievement of its mid-course targets for its energy efficiency programs at the portfolio level results from the mix of programs generating the savings.

For the Residential sector, higher-than-expected spring and fall campaign sales in the Instant Savings program component boosted results within Residential Efficient Product Rebates. Within Existing Residential, strong participation, due to customer interest in the Canada Greener Homes Grant program, pushed Home Energy Assessment energy savings above target, which compensated for no energy savings being achieved in the Residential Behaviour program component (its launch has been delayed until 2024). New Home Construction exceeded its savings targets, as E1 and service organizations worked with participants to complete as many projects as possible by year-end, given the program's close at the end of the year.

E1 met its mid-course planned energy savings in the Business, Non-Profit and Institutional (BNI) sector. The overachievement of BNI Efficient Product Rebates made up for shortfalls in Direct Installation and Custom Incentives. Increased incentives in the Q1 period drove participation and

1 savings in BNI Efficient Product Rebates, while Direct Installation experienced longer project cycle
2 times that impacted project completions and savings (longer project cycle times were attributed
3 to supply chain issues, contractors lacking required staff to keep up with demand, and
4 contractors prioritizing larger projects over smaller ones). Custom Incentives fell slightly below
5 its energy savings target due to customer delays in completing projects within the Custom
6 program component.

7
8 E1 launched its Demand Response program in Q1 2023, an initiative outlined in the 2023-2025
9 Plan, and did not meet its 2023 available capacity mid-course target. E1 has and will continue to
10 assess the launch of the program to gain insights on reducing customer barriers for the program
11 with a focus on achieving the DSM Plan target. The shortfall in 2023 was related to the BNI
12 Demand Response program component which was impacted by the withdrawal of two
13 participants just prior to the start of the 2022/23 season; some participants joining the program
14 late in the season, and some participants opting out of some events due to their operational
15 requirements at the time of curtailment.

16
17 While E1 met its 2023 mid-course targets for Affordable Multi-family Housing and Mi'kmaw
18 Home Energy Efficiency Project, it fell short of its savings target for Affordable Single-family
19 Homes, leading to an overall gap in reaching the 5.4 GWh savings target, in aggregate, for these
20 program components. Affordable Single-family Homes faced capacity challenges throughout the
21 year with both delivery agents and contractors installing heat pumps, due to a surge in
22 applications and interest.⁵ Those challenges lengthened project completion times and resulted
23 in reduced savings for this program component. To address these challenges, E1 added two
24 additional delivery agents (for a total of six) in Q3 and additional staff to increase capacity.

⁵ This program component is marketed to all Nova Scotians (both electric and non-electric homes) under the HomeWarming brand. Provincial government and Natural Resources Canada funds are utilized for non-electrically heated homes. DSM funds are utilized for electrically heated homes in the Affordable Single-family Homes program component (marketed as HomeWarming). The 2023 APR focuses on Affordable Single-family Homes projects that generated electrical savings.

1 Despite the shortfall in meeting the above two mid-course targets, E1 is focused on efforts to
2 increase these results in 2024 and 2025 to achieve the Plan's contractual Performance Targets
3 within the approved \$173 million investment level. Additional information is provided on E1's
4 outlook for 2024 and 2025 in the three-year Plan period forecast section of this report.

5
6 Total portfolio expenditures were \$45.3 million, below the mid-course adjusted target of \$53.1
7 million (85% of the mid-course adjusted target of \$53.1 million). This underspend is reflective of
8 the mix of program components that saw a shortfall in their savings results in 2023, that led to a
9 corresponding reduction in the program component's incentive costs and expenditures. This
10 includes Affordable Single-family Homes, Residential Behaviour, Small Business Energy Solutions,
11 and the Custom program component. E1's year-end forecast provided in its Q3 2023 DSM report
12 noted an anticipated underspend for 2023.⁶ The 2023 underspend will be invested in 2024 and
13 2025 to achieve the approved Plan period performance targets.

14
15 Table 1 provides E1's portfolio and program level results, in comparison to 2023 Plan targets,
16 mid-course adjustments, and the year-end forecast.

⁶ M11437, E1 Q3 2023 DSM Report, page 1-2, November 27, 2023.

3.1 2023 Portfolio and Program Results

Table 1: 2023 Results to 2023 Plan as Approved, 2023 Mid-Course Adjustments, and 2023 Year-End Forecast

	2023 Plan as Approved					2023 Mid-Course Adjustments					2023 Year-End Forecast					2023 Results					Results to Forecast			Results to Mid-Course		
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak EE Demand Savings (MW)	Investment (\$ million)	Available Capacity (MW)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak EE Demand Savings (MW)	Investment (\$ million)	Available Capacity (MW)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Investment (\$ million)	Available Capacity (MW)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak EE Demand Savings (MW)	Expenditures (\$ million)	Available Capacity (MW)	Program Status - First-Year Energy Savings	Program Status - Peak Demand Savings	Program Status - Available Capacity	Program Status - First-Year Energy Savings	Program Status - Peak Demand Savings	Program Status - Available Capacity
Energy Efficiency (EE) Programs	10.9	82.9	1.2	4.0	-	11.4	83.5	1.3	4.2	-	13.4	100.4	1.7	4.8	-	13.2	86.2	1.7	5.3	-	●	●	-	●	●	-
Efficient Product Rebates	1.2	5.0	0.2	1.0	-	2.0	8.1	0.3	1.3	-	1.8	7.1	0.2	1.1	-	1.7	6.8	0.2	1.1	-	●	●	-	●	●	-
Appliance Retirement	9.7	77.9	1.0	2.9	-	9.4	75.4	1.0	2.9	-	11.6	93.4	1.5	3.7	-	11.5	79.5	1.5	4.2	-	●	●	-	●	●	-
Instant Savings	37.3	402.6	10.3	20.9	-	38.5	514.3	11.6	20.7	-	37.2	593.8	15.2	16.7	-	41.7	786.6	13.0	13.8	-	●	●	-	●	●	-
Existing Residential	1.9	33.9	0.6	1.3	-	1.2	22.5	0.3	0.9	-	1.3	22.9	0.5	0.9	-	1.5	25.5	0.7	0.9	-	●	●	-	●	●	-
Affordable Multi-family Housing	11.2	59.4	1.7	3.1	-	8.3	44.0	0.8	2.9	-	9.4	49.9	0.8	2.7	-	9.4	67.0	0.9	2.8	-	●	●	-	●	●	-
Efficient Product Installation	3.6	64.4	2.7	2.2	-	3.6	65.4	2.9	1.3	-	3.3	60.2	3.0	1.2	-	2.9	52.5	2.6	1.1	-	●	●	-	●	●	-
Green Heat	8.6	171.6	4.3	3.9	-	14.9	298.1	6.3	3.8	-	19.9	397.7	9.6	5.1	-	26.0	600.9	7.8	3.7	-	●	●	-	●	●	-
Home Energy Assessment	2.9	54.8	0.8	8.1	-	3.5	66.9	0.9	8.0	-	2.7	51.8	1.0	4.5	-	1.4	29.0	0.6	3.0	-	●	●	-	●	●	-
Affordable Single-family Homes	0.5	9.9	0.2	1.2	-	0.6	10.9	0.3	1.0	-	0.6	11.4	0.3	1.1	-	0.6	11.7	0.4	1.0	-	●	●	-	●	●	-
Mi'kmaw Home Energy Efficient Project	8.7	8.7	0.0	1.1	-	6.4	6.4	0.0	2.9	-	0.0	0.0	0.0	1.3	-	0.0	0.0	0.0	1.2	-	●	●	-	●	●	-
Residential Behaviour	0.4	13.3	1.3	0.8	-	3.1	99.0	1.1	1.3	-	4.6	144.7	1.5	1.7	-	5.3	162.7	1.9	2.0	-	●	●	-	●	●	-
New Residential	0.4	13.3	1.3	0.8	-	3.1	99.0	1.1	1.3	-	4.6	144.7	1.5	1.7	-	5.3	162.7	1.9	2.0	-	●	●	-	●	●	-
New Home Construction	48.6	498.8	12.8	25.7	-	53.1	696.8	13.9	26.2	-	55.2	838.9	18.4	23.2	-	60.2	1,035.5	16.7	21.0	-	●	●	-	●	●	-
Residential Subtotal	10.3	121.4	2.2	11.3	-	10.5	129.2	2.2	10.6	-	10.2	127.7	2.5	8.3	-	8.8	102.7	2.4	6.7	-	●	●	-	●	●	-
Low-Income ¹	35.3	525.5	6.7	7.4	-	30.0	446.5	5.3	7.3	-	35.3	525.6	6.7	8.1	-	38.8	556.3	6.0	8.4	-	●	●	-	●	●	-
Efficient Product Rebates	35.3	525.5	6.7	7.4	-	30.0	446.5	5.3	7.3	-	35.3	525.6	6.7	8.1	-	38.8	556.3	6.0	8.4	-	●	●	-	●	●	-
Business Energy Rebates	24.9	305.3	5.0	8.2	-	25.7	312.2	5.6	7.3	-	26.2	316.2	6.1	6.6	-	25.1	207.5	3.4	6.3	-	●	●	-	●	●	-
Custom Incentives	22.3	300.3	4.7	7.3	-	22.7	306.6	5.3	6.4	-	23.0	310.2	5.7	5.7	-	21.7	189.0	3.1	5.3	-	●	●	-	●	●	-
Custom	2.7	5.0	0.3	0.9	-	3.0	5.6	0.3	0.9	-	3.2	6.0	0.4	0.9	-	3.4	18.4	0.4	1.0	-	●	●	-	●	●	-
SEM	11.9	172.3	2.5	6.4	-	11.9	172.6	2.1	6.7	-	9.5	137.6	1.7	5.7	-	7.5	113.8	1.5	4.9	-	●	●	-	●	●	-
Direct Installation	11.9	172.3	2.5	6.4	-	11.9	172.6	2.1	6.7	-	9.5	137.6	1.7	5.7	-	7.5	113.8	1.5	4.9	-	●	●	-	●	●	-
Small Business Energy Solutions	72.1	1,003.0	14.2	22.0	-	67.6	931.4	13.0	21.3	-	71.0	979.4	14.6	20.4	-	71.4	877.6	10.9	19.6	-	●	●	-	●	●	-
BNI Subtotal	0.9	13.9	0.3	0.2	-	0.9	12.8	0.2	0.2	-	4.8	78.2	1.4	1.8	-	5.0	83.4	1.1	1.7	-	●	●	-	●	●	-
Low-Income ¹	120.7	1,501.8	26.9	47.8	-	120.7	1,628.2	26.9	47.5	-	126.2	1,818.3	33.0	43.6	-	131.6	1,913.1	27.6	40.6	-	●	●	-	●	●	-
Programs subtotal	-	-	-	3.8	-	-	-	-	3.7	-	-	-	-	3.1	-	-	-	-	2.8	-	●	●	-	●	●	-
Enabling Strategies	120.7	1,501.8	26.9	51.5	-	120.7	1,628.2	26.9	51.2	-	126.2	1,818.3	33.0	46.7	-	131.6	1,913.1	27.6	43.4	-	●	●	-	●	●	-
Energy Efficiency Programs Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	●	●	-	●	●	-
Demand Response (DR) Program²																					●	●	-	●	●	-
Demand Response			1.5	3.0	-			1.9	3.0	-			2.1	2.1	-			1.9	2.4	-	●	●	-	●	●	-
Residential Demand Response			0.4	0.2	-			0.7	0.0	-			0.8	0.0	-			0.7	0.1	-	●	●	-	●	●	-
BNI Demand Response			1.1	2.8	-			1.2	3.0	-			1.4	2.1	-			1.1	2.4	-	●	●	-	●	●	-
Total (EE + DR)	120.7	1,501.8	26.9	53.1	3.0	120.7	1,628.2	26.9	53.1	3.0	126.2	1,818.3	33.0	48.8	2.1	131.6	1,913.1	27.6	45.3	2.4	●	●	-	●	●	-

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover and are evaluated and pending verification. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the annual totals.

2023 Plan as Approved refers to the investment and savings targets as provided in the 2023-2025 DSM Resource Plan Compliance filing. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, at page 40, October 4, 2022. The NSUARB approved the 2023-2025 DSM Plan on November 8, 2022.

Program status compares the 2023 results to the 2023 year-end forecast and the 2023 mid-course targets. Green denotes a variance of less than 10% below, yellow denotes a variance of 10% to 25% below and red denotes a variance of greater than 25% below the targets for energy, net peak demand savings, and demand response.

The 2023 year-end forecast refers to the forecast provided in E1's Q3 2023 DSM report. See M11437, E1 Q3 2023 DSM Demand Side Management Report, page 2, November 27, 2023.

¹ Reflects participation by low-income customers. Numbers are a subset of Residential and BNI Efficient Product Rebates, Existing Residential, Custom Incentives, and Direct Installation programs and include savings applicable to E1's dedicated programs and E1's non-targeted programs (incidental savings) for low-income, underserved, and diverse communities.

² Demand Response results reflect available capacity savings achieved during the 2022/23 utility peak period season (i.e., December 1, 2022 through to February 28, 2023) and are evaluated and pending verification.

3.2 2023 Participation Results

Table 2 presents E1's 2023 participation results. The table provides a comparison of 2023 participation results to those modelled in the 2023 Plan, the 2023 mid-course participation targets, and the three-year Plan period.

2023 results provide insight into the trends observed within E1's program components. As compared to mid-course participation targets, results within Home Energy Assessment reflect higher-than-anticipated customer interest and participation in the Canada Greener Homes Grant program (Greener Homes program). E1 signed an agreement with Natural Resources Canada in 2022 to co-deliver the Greener Homes program through the Home Energy Assessment program component, driving overall interest and participation in Home Energy Assessment and resulting in a lower unit cost. Instant Savings and New Home Construction also saw strong participation results as compared to mid-course. For New Home Construction, E1 and its service delivery partners worked with customers throughout the year to see as many projects completed as possible, given the program component's close by the end of the year. For Instant Savings, the spring and fall campaigns saw high uptake leading to strong savings results. Affordable Single-family Homes results were lower-than-anticipated due to capacity challenges, faced by both delivery agents and contractors installing heat pumps. There was no Residential Behaviour participation as the launch has been moved to 2024.

Participation results for Business Energy Rebates were strong whereas Small Business Energy Solutions saw lower-than-anticipated participation influenced by supply chain issues, contractor staffing issues and contractors prioritizing larger projects over smaller projects. The Custom program component also saw fewer projects complete in 2023 than anticipated (e.g., no projects completed in 2023 for its Pay-for-Performance offering). Additional participation details are provided in the program result tables below.

Table 2: 2023 Participation

		Participation				Results			Unit
		2023-2025 Plan as Approved	2023 Plan as Approved	2023 Mid-Course (MCA)	2023 Results	% of 2023 Results to MCA	% of 2023 Results to 2023 Plan as Approved	% of 2023 Results to 2023 Plan as Approved	Participation Unit
Residential	Efficient Product Rebates	323,118	138,906	137,921	221,385	161%	159%	69%	Units rebated
	Appliance Retirement	8,933	2,973	5,174	4,260	82%	143%	48%	Units rebated
	Instant Savings	314,186	135,933	132,747	217,125	164%	160%	69%	Units rebated
	Existing Residential	-	-	-	-	-	-	-	-
	Affordable Multi-family Housing	125	42	82	79	96%	189%	63%	Projects
	Efficient Product Installation	671,800	236,016	112,952	153,775	136%	65%	23%	Products
	Green Heat	10,222	3,406	1,560	1,783	114%	52%	17%	Units rebated
	Home Energy Assessment	5,481	1,827	2,699	4,085	151%	224%	75%	Homes
	Affordable Single-family Homes (HomeWarming)	1,479	493	493	242	49%	49%	16%	Homes
	HomeWarming Appliance Replacements	651	217	100	53	53%	24%	8%	Products
	Mi'kmaw Home Energy Efficient Project (MHEEP)	354	118	144	162	113%	137%	46%	Homes
	MHEEP Appliance Replacements	390	130	33	5	15%	4%	1%	Products
	Residential Behaviour	300,954	38,195	270,519	0	0%	0%	0%	Homes
	New Residential	419	419	429	816	190%	195%	195%	Homes
	New Home Construction	419	419	429	816	190%	195%	195%	Homes
Business, Non-Profit and Institutional	Efficient Product Rebates	637,426	207,143	220,780	253,798	115%	123%	40%	Units rebated
	Business Energy Rebates	637,426	207,143	220,780	253,798	115%	123%	40%	Units rebated
	Custom Incentives	-	-	-	-	-	-	-	-
	Custom	801	257	162	114	70%	44%	14%	Projects
	SEM	23	8	9	6	67%	80%	27%	Participants
	Direct Installation	330,792	106,189	106,189	38,797	37%	37%	12%	Products
Demand Response	Small Business Energy Solutions	330,792	106,189	106,189	38,797	37%	37%	12%	Products
	Demand Response	40,151	406	173	168	97%	41%	0%	Participants
	Residential Demand Response	39,096	374	159	159	100%	43%	0%	Participants
	BNI Demand Response	1,055	32	14	9	64%	28%	1%	Participants

2023 Plan as Approved participation refers to the participation as provided in the 2023-2025 DSM Resource Plan Compliance filing. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, page 56–122, October 4, 2022. The NSUARB approved the 2023-2025 DSM Plan on November 8, 2022.

2023 results are evaluated as per the 2023 DSM Programs Evaluation Reports. Participation results reported in previous quarters may have been updated and are reflected in the annual totals.

Affordable Single-family Home and Mi'kmaw Home Energy Efficiency Project Appliance replacements are a subset of participating homes.

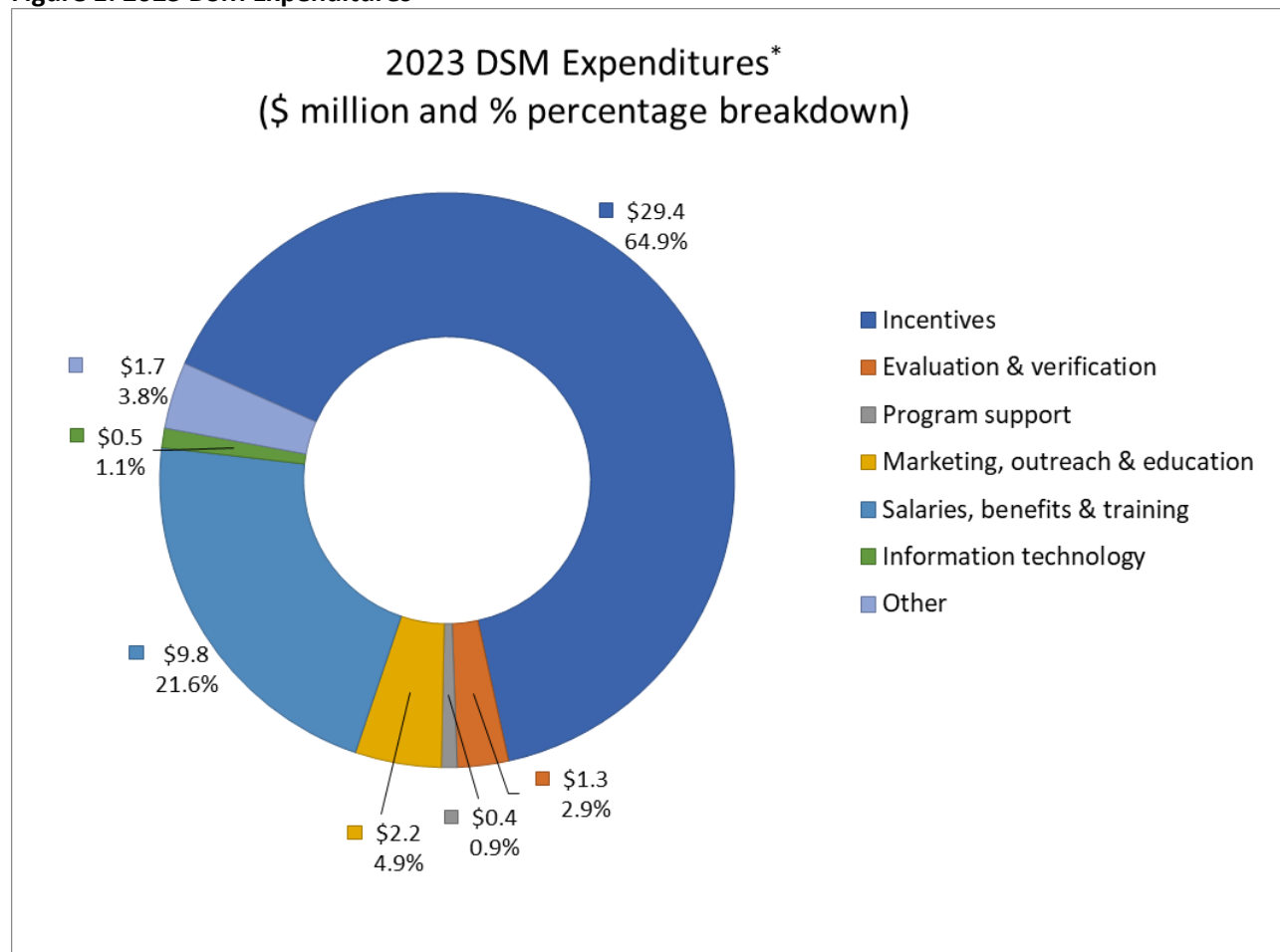
Demand Response participation is defined as customers participating in NS Power curtailment events coordinated by E1. In 2022/23, E1 had 9 participants in BNI. Each participant has at least one NS Power account/meter enrolled in curtailment events, although some participants had multiple NS Power accounts/meters enrolled in curtailment events. In the Q3 2023 report, each participating meter was included as the tracked result as compared to the number of single participants. For Residential DR, the number of participants reflects the total number of controllers (159) in participant homes.

3.3 2023 Expenditures

In 2023, E1's total expenditures were \$45.3 million, \$7.8 million or 15% below the mid-course adjusted planned spending levels of \$53.1 million. Figure 1 below provides a breakdown of 2023 DSM expenditures.

The 2023 underspend relates to the lower-than-anticipated savings in several program components, that led to corresponding reduction in incentive costs (i.e., Affordable Single-family Homes, Residential Behaviour, Small Business Energy Solutions and Custom program components.) Of the \$7.8 million underspend, 86% percent of this amount was related to incentive expenditures. In total, all other expenditures were less than planned.

Figure 1: 2023 DSM Expenditures



*Expenditure amounts are unaudited and are rounded to the nearest million. Expenditure amounts reported in previous quarters may have been updated and are reflected in the 2023 annual total.

3.4 2023 Unit Cost

Unit cost data is a calculation output of E1's investment and savings over a defined time period.

Factors that influence unit cost results typically include:

- the level of participation in a program or program component;
- the mix of products in the programs (measure mix); and
- changes to costs in programs (e.g., changes to delivery agent costs, marketing efforts, number of program full-time-equivalents (FTEs), etc.).

Table 3 below presents unit cost results for 2023. Results are compared to unit cost data for the 2023 Plan, 2023 mid-course adjustments, and the 2023 year-end forecast.

In 2023, E1 achieved a unit cost result of \$0.33/kWh at the portfolio-level, below E1's mid-course adjusted unit cost of \$0.42/kWh and E1's year-end forecasted unit cost of \$0.37/kWh. The lower overall unit cost is the result of four programs – Existing Residential, New Residential, BNI Efficient Product Rebates, and Custom Incentives – having lower unit costs, resulting in both Residential and BNI unit costs being below mid-course adjusted levels overall.

Residential unit cost results were \$0.35/kWh as compared to the mid-course adjusted unit cost of \$0.49/kWh. This is attributable primarily to Existing Residential where Home Energy Assessment, a program component with a lower unit cost, overachieved on energy savings, while Affordable Single-family Homes, a program component which has a higher unit cost, underachieved on energy savings. In Home Energy Assessment, the continued delivery of the Greener Homes program through this program component resulted in an increase in the savings-per-home achieved and a lower unit cost, as Solar PV measures (offered through the Greener Homes program) in particular drove savings. In addition to lower-than-anticipated energy savings and expenditures, Affordable Single-family Homes' lower unit cost was also impacted by heat pump installation costs coming in lower than expected. (Note: At the time E1 established its mid-course targets, the installation of heat pumps was a new program offering and cost data had not been finalized with the service delivery partners at that time. These costs have now been

finalized.) Unit costs for Affordable Multi-family Housing and Efficient Product Installation were also below mid-course adjusted targets as both program components overachieved their energy savings target but were within the planned investment, resulting in a lower unit cost.

BNI unit cost results were \$0.27/kWh, which is below the mid-course adjusted unit cost of \$0.31/kWh, as BNI Efficient Product Rebates, a lower unit cost program, overachieved on energy savings, while Direct Installation, with a higher unit cost, underachieved on energy savings.

Table 3: 2023 Unit Cost

		2023 First-Year Unit Cost				
		2023 Plan as Approved (\$/kWh)	2023 Mid-Course Adjustment (\$/kWh)	2023 Year-End forecast (\$/kWh)	2023 Results (\$/kWh)	Program Status ²
Residential	Efficient Product Rebates	0.36	0.37	0.36	0.40	●
	Appliance Retirement					
	Instant Savings					
	Existing Residential	0.56	0.54	0.45	0.33	●
	Affordable Multi-family Housing					
	Efficient Product Installation					
	Green Heat					
Business, Non-Profit and Institutional (BNI)	Home Energy Assessment					
	Affordable Single-family Homes					
	Mi'kmaw Home Energy Efficiency Project					
	Residential Behaviour					
	New Residential	1.97	0.42	0.37	0.37	●
	New Home Construction					
	Residential Subtotal	0.53	0.49	0.42	0.35	●
Business, Non-Profit and Institutional (BNI)	<i>Low-Income</i> ¹	<i>1.10</i>	<i>1.01</i>	<i>0.81</i>	<i>0.76</i>	
	Efficient Product Rebates	0.21	0.24	0.23	0.22	●
	Business Energy Rebates					
	Custom Incentives	0.33	0.28	0.25	0.25	●
	Custom					
	SEM					
	Direct Installation	0.54	0.56	0.60	0.65	●
Total	Small Business Energy Solutions					
	BNI Subtotal	0.31	0.31	0.29	0.27	●
	<i>Low-Income</i> ¹	<i>0.21</i>	<i>0.23</i>	<i>0.36</i>	<i>0.34</i>	
Total	Programs Subtotal	0.40	0.39	0.35	0.31	
	Enabling Strategies	-	-	-	-	
	Total	0.43	0.42	0.37	0.33	●

2023 Plan as Approved refers to the investment and savings targets as provided in the 2023-2025 DSM Resource Plan Compliance filing. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, at page 40, October 4, 2022. The NSUARB approved the 2023-2025 DSM Plan on November 8, 2022.

First-year unit cost is provided to two decimal places due to the relative magnitude of the figures. Unit costs are calculated using energy savings at the generator, net of free-ridership and spillover, and using unaudited expenditure amounts.

¹ Reflects savings from E1's targeted and non-targeted programs applicable to low-income, diverse and under-served communities. Numbers are a subset of overall Efficient Product Rebates (Residential and BNI), Existing Residential, Custom Incentives, and Direct Installation programs.

The 2023 year-end forecast refers to the forecast provided in E1's Q3 2023 DSM report. See M11437, E1 Q3 2023 DSM Demand Side Management Report, page 2, November 27, 2023.

² Program status compares the 2023 results to the 2023 mid-course targets. Green denotes a variance of less than 10% below, yellow denotes a variance of 10% to 25% below, and red denotes a variance of greater than 25% below.

4. FORECAST FOR 2023-2025 DSM PLAN PERIOD

E1's three-year Plan forecast provides additional insight on the DSM Plan implementation after the first year. For 2023, the three-year Plan forecast reflects E1's 2023 actual savings results and expenditures. The underspend from 2023 is forecast to be reinvested in 2024 and 2025. It remains too early in the DSM Plan implementation for E1 to adjust the 2024 and 2025 DSM Plan approved performance targets. E1 continues to be focused on achieving the three-year performance targets within the approved \$173 million investment level.

E1 has made the following key assumptions in developing the 2023-2025 DSM Plan forecast:

- focus on continued delivery of DSM programs, services and portfolio activities consistent with initiatives outlined in E1's 2023-2025 DSM Resource Plan;
- 2023 underspend will be invested in 2024 and 2025 activities, which may include the following:
 - an increase in customer incentive levels for programs impacted by rising building material costs or to increase participation (e.g., Custom Incentives, Green Heat); and
 - increased marketing support (e.g., email campaign targeting participants who recently received rebates for mini-split heat pumps through Green Heat to emphasize benefits of smart thermostats and participation in Efficient Product Installation; Instant Savings spring campaign, etc.).
- additional Demand Response pathways – smart thermostat direct load control, battery control, and EV charging – launched in 2024. E1 has assumed that the BNI aggregator pathway will contribute the majority of Demand Response savings in 2024 and 2025; and
- Affordable Single-family Homes, Affordable Multi-family Housing, and Mi'kmaw Home Energy Efficiency Project will exceed Plan targets in 2024 and 2025, and will be on track to meet the three-year Performance Target. Efforts were initiated in 2023 to expand delivery agent capacity, the number of delivery agents and heat pump contractors available for the Affordable Single-family Homes program component and these efforts will continue in 2024.

- 1 Updates on the progress of 2024 Plan implementation will be reported in E1's quarterly
- 2 reports to the NSUARB. E1 intends to provide its 2024 mid-course adjustments in the Q1 2024
- 3 DSM quarterly report, due to be filed May 25, 2024.⁷

⁷ E1 often makes limited adjustments within an approved DSM Resource Plan to reflect changes in market conditions and updated insights from program and organizational evaluations unknown at the time of DSM Resource Plan development. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, Section 9.3 Mid-Course Adjustments and Flexibility, page 144, October 4, 2022.

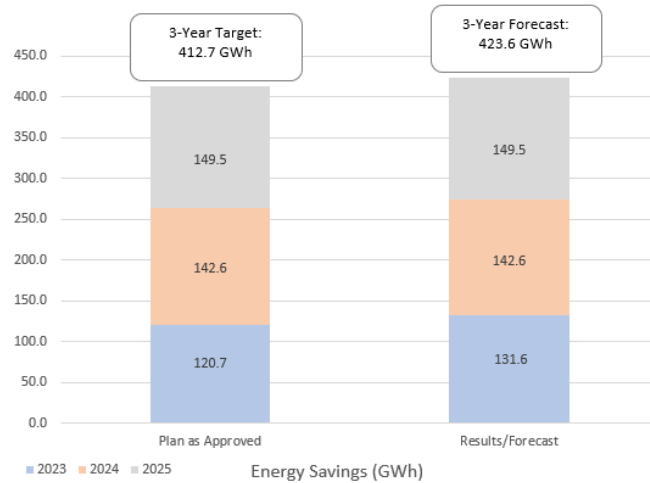
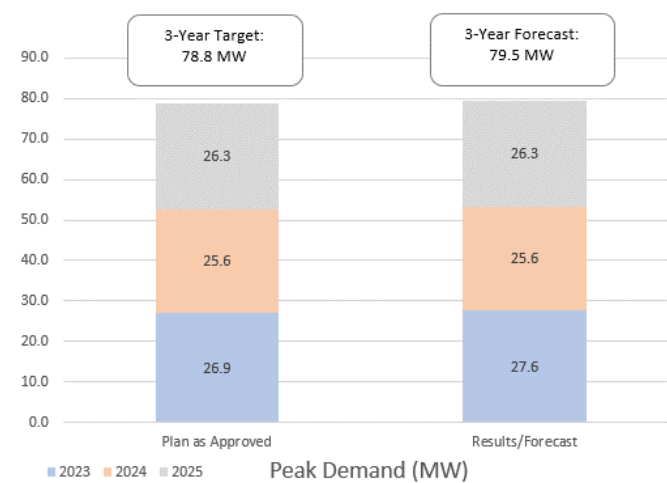
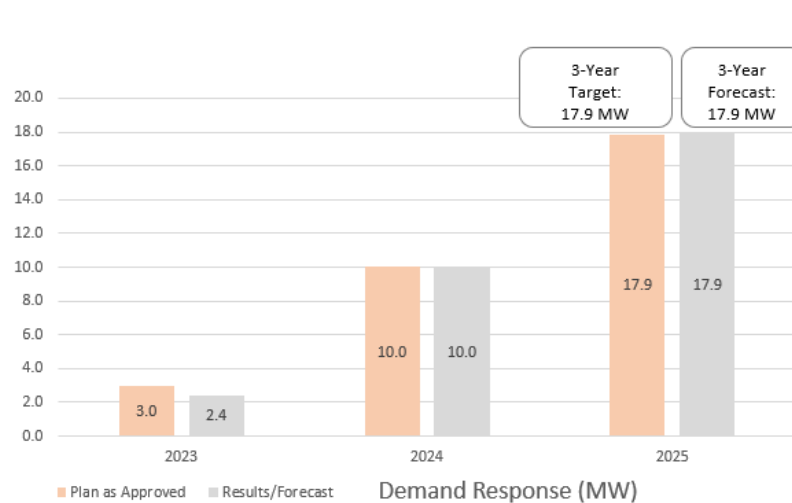
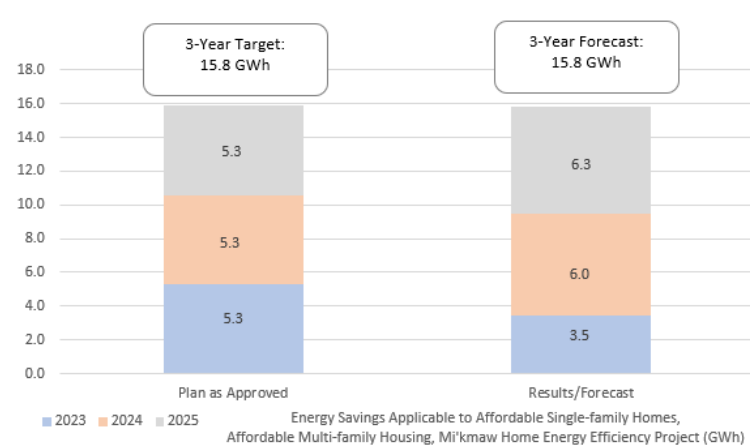
1 **Table 4: 2023-2025 DSM Plan Period Forecast**

Plan Year	2023-2025 DSM Plan Period Forecast														
	Energy Savings (GWh)			Demand Savings (MW)			Available Capacity (MW)			Energy Savings applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and Mi'kmaw Home Energy Efficiency Project (GWh)			Expenditures (\$ million)		
	Plan as Approved	Results/ Forecast	Variance	Plan as Approved	Results/ Forecast	Variance	Plan as Approved	Results/ Forecast	Variance	Plan as Approved	Results/ Forecast	Variance	Plan as Approved	Results/ Forecast	Variance
2023	120.7	131.6	10.9	26.9	27.6	0.7	3.0	2.4	-0.6	5.3	3.5	-1.8	\$53.1	\$45.3	-\$7.8
2024	142.6	142.6	0.0	25.6	25.6	0.0	10.0	10.0	0.0	5.3	6.0	0.7	\$57.5	\$59.6	\$2.1
2025	149.5	149.5	0.0	26.3	26.3	0.0	17.9	17.9	0.0	5.3	6.3	1.0	\$62.5	\$68.2	\$5.7
Cumulative	412.7	423.6	10.9	78.8	79.5	0.7	17.9	17.9	0.0	15.8	15.8	0.0	\$173.0	\$173.0	\$0.0
% of Target	-	-	103%	-	-	101%	-	-	100%	-	-	100%	-	-	100%

2 Plan as Approved refers to the investment and savings targets as provided in the 2023-2025 DSM Resource Plan Compliance filing. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, page 39, October 4, 2022. The NSUARB approved the 2023-2025 DSM Plan on November 8, 2022.

4 Numbers may not sum due to rounding.

- 1 Figures 2 – 5 show E1's results in 2023 and the forecasted savings for 2024 and 2025 in comparison to the NSUARB approved three-
- 2 year Performance Targets.

Figure 2: 2023-2025 DSM Energy Savings and Forecast**Figure 3: 2023-2025 DSM Peak Demand Savings and Forecast****Figure 4: 2023-2025 Demand Response and Forecast****Figure 5: 2023-2025 Energy Savings and Forecast Applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and Mi'kmaw Home Energy Efficiency Project**

Numbers in Figures 2, 3, and 5 may not sum due to rounding.

5. 2023 PROGRAM RESULTS

This section provides an overview of 2023 results and activities for E1's Residential and BNI sector programs including:

- evaluation activities;
- program results and highlights;
- discussion of program variances, where applicable (E1 has provided variance explanations for programs where 2023 results vary by 25 percent (+/-25%) to its mid-course targets);
- savings results applicable to low-income, diverse, and underserved communities; and
- Enabling Strategies highlights.

Program rate class results are provided in Attachment 1.

5.1 2023 Evaluation Activities

Evaluation activities are conducted annually by E1's independent evaluation consultant to ensure accurate determination of net electrical energy, net system-peak demand savings, and available capacity. These results are presented in the 2023 DSM Evaluation reports, filed concurrently with this APR. E1 utilizes the annual impact evaluations as up-to-date progress indicators and results towards E1's three-year Plan Performance Targets.

In 2023, the following noteworthy evaluation activities occurred:

- Each program component had a tracking sheet audit review performed by the evaluation consultant to assess the consistency and completeness of program data. Results of the audit are included in the appendices of each evaluation report.
- Each program component completed a condensed or comprehensive impact evaluation, with the exception of Residential Behaviour (which did not launch in 2023 as originally planned). A condensed impact evaluation involves using some, or all, of the previous year's impact evaluation parameters; a comprehensive impact evaluation is a full impact evaluation involving review of baselines, methodologies, values, and net-to-gross-ratios. Instant Savings, Home Energy Assessment, Custom, Strategic Energy Management, Small

Business Energy Solutions, Residential Demand Response, and BNI Demand Response received comprehensive impact evaluations. Condensed impact evaluations were performed for Appliance Retirement, Green Heat, Efficient Product Installation, Affordable Multi-family Housing, Mi'kmaw Home Energy Efficiency Project, Affordable Single-family Homes, New Home Construction, and Business Energy Rebates.

- Green Heat underwent a market evaluation. Market evaluations characterize current market conditions and analyze market evolution. Green Heat's market evaluation included seeking distributor feedback and conducting a market study and assessment on mini-split heat pump sales, prices, trends, efficiency levels, and market penetration.
- Green Heat, Small Business Energy Solutions, Strategic Energy Management, and the Retrofit service of Custom underwent process evaluations. Process evaluations identify and recommend improvements to increase a program's efficiency or effectiveness. For Green Heat's process evaluation, participant surveys, and distributor and contractor interviews were conducted; and the Small Business Energy Solutions process evaluation included participant surveys, interviews with participants who dropped out of the program, contractor interviews, and interviews with E1 staff members (e.g., small business energy auditors, business development managers and on-site energy managers). In Strategic Energy Management and Custom (Retrofit service), the process evaluations included logic model reviews, and interviews with E1 staff, program participants, consultants and service providers.

Section 5.2 provides results for E1's Residential sector energy efficiency programs, Section 5.3 provide 2023 results for BNI sector energy efficiency programs and Section 5.4 provides results for E1's Demand Response program.

5.2 Residential Sector Results

The Residential sector consists of the following programs:

- Efficient Product Rebates;
- Existing Residential; and

- New Residential.

In 2023, the Residential sector achieved net incremental energy savings of 60.2 GWh and net peak demand savings of 16.7 MW compared to the 2023 mid-course adjusted targets of 53.1 GWh and 13.9 MW, respectively.

Tables 5 – 7 provide a summary of 2023 Residential sector program results and activities. E1 has provided variance explanations for programs where 2023 results vary by 25 percent (+/-25%) as compared to 2023 mid-course adjusted targets. This includes demand savings and expenditures for Residential Efficient Product Rebates, expenditures for Existing Residential, and energy savings, demand savings and expenditures for New Residential.

5.2.1 Residential Efficient Product Rebates

The Residential Efficient Product Rebates program consists of two program components:

- Appliance Retirement; and
- Instant Savings.

Table 5: 2023 Residential Efficient Product Rebates

RESIDENTIAL EFFICIENT PRODUCT REBATES (2023)			
Residential Efficient Product Rebates	Energy Savings (GWh)	Demand Savings (MW)	Expenditure (\$ million)
2023 Results	13.2	1.7	5.3
2023 MCA Target	11.4	1.3	4.2
Residential Efficient Product Rebates exceeded its 2023 mid-course adjusted targets for energy and demand savings driven primarily by higher-than-expected uptake in the Instant Savings program component. The increased demand savings, in particular, were the result of an increase in sales of products with high unitary demand savings, like room air purifiers. The overall increase in product sales in Instant Savings drove expenditures above the mid-course planned spending. A boost in the number of high unit cost products (e.g., dishwashers and dehumidifiers) sold, was also a factor.			
Program Components			
Appliance Retirement retires old, inefficient household appliances (e.g., refrigerators, freezers, room air conditioners) by offering free appliance pick-up from homes, proper recycling, and a financial incentive. The program component also coordinates the replacement of inefficient			

RESIDENTIAL EFFICIENT PRODUCT REBATES (2023)
appliances (dehumidifiers, refrigerators, freezers, clothes dryers), for eligible participants in both the Affordable Single-family Homes program component and Mi'kmaw Home Energy Efficiency Project.⁸ Instant Savings offers point-of-sale rebates to retail customers who purchase eligible energy efficient products.
Appliance Retirement Highlights
- Participant demand for Appliance Retirement was strong in 2023. - In Q2, the Nova Scotia wildfires caused temporary route cancellations across the province and the delivery partner had technical issues with its phone system for several weeks, causing delays in appointment bookings. The delivery partner added a second truck in Q4 to address customer wait times. - The delivery partner made updates to the online booking portal. - Marketing activities included: - a spring media campaign that ran from March 6 to May 21, promoting the program component and educating the public about the benefits of participation; - targeted marketing including email, paid media, and digital campaigns; and - two marketing campaigns that highlighted several E1 program components, including Appliance Retirement, ran from June to December (one campaign targeted homeowners considering renovations, and the second campaign encouraged lower-income Nova Scotians to retire appliances and consider adding energy efficient products to their home with free installation).
Instant Savings Highlights
- Instant Savings ran two successful campaigns with higher-than-anticipated uptake and strong campaign savings results. - The spring campaign ran from March 31 to May 29 at 163 store locations across the province. Approximately 240 in-store events were held during the campaign, with positive feedback from event staff, retail leads, and retailers. - The fall campaign ran from September 29 to November 26 at over 150 store locations across the province. Like the spring campaign, approximately 240 in-store events were held during the fall campaign and were positively received. - Overall, the top three selling product categories were LED lights (non-series-A), LED recessed downlights, and LED fixtures. Outside of lighting products, the top three selling categories were dehumidifiers, dimmer switches, and room air purifiers. Outdoor motion sensors also saw an uptick in sales. ENERGY STAR® certified dishwashers were a new product for 2023.⁹ - Marketing activities in 2023 included:

⁸ Savings from appliance replacements are claimed within Affordable Single-family Homes (marketed as HomeWarming) and Mi'kmaw Home Energy Efficiency Project program components. E1 also receives funding from the Province of Nova Scotia to administer HomeWarming for non-electrically heated homes. Costs for appliance replacements in non-electrically heated homes are paid for by DSM funds.

⁹ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Residential Efficient Product Rebates Program, March 28, 2024, page 20.

RESIDENTIAL EFFICIENT PRODUCT REBATES (2023)

- promotion of the spring and fall campaigns, which included in-store signage and events, social media advertising and posts across multiple platforms (Facebook, Instagram, and LinkedIn), targeted email campaigns, radio advertising, billboards, and transit shelter advertising near participating retailers;
- two digital campaigns and new in-store signage promoting year-round rebated products, such as ventilating fans and dishwashers, and smart thermostats; and
- the release of six product knowledge videos via newsletters and social media channels that promoted awareness of Instant Savings products and their use.

5.2.2 Existing Residential

The Existing Residential program consists of the following program components:

- Affordable Multi-family Housing and Non-Profit Organizations;
- Efficient Product Installation;
- Green Heat;
- Home Energy Assessment;
- Affordable Single-family Homes;
- Mi'kmaw Home Energy Efficiency Project; and
- Residential Behaviour.

Table 6: 2023 Existing Residential

EXISTING RESIDENTIAL (2023)			
Existing Residential	Energy Savings (GWh)	Demand Savings (MW)	Expenditure (\$ million)
2023 Results	41.7	13.0	13.8
2023 MCA Target	38.5	11.6	20.7
Existing Residential exceeded its 2023 mid-course adjusted energy and demand savings targets yet was below planned spending. Affordable Single-family Homes expenditures were lower-than-anticipated, proportional to its energy savings results and the lower-than-anticipated participant completions, caused by capacity challenges faced by both program delivery agents and contractors installing heat pumps. Residential Behaviour expenses were reduced in 2023 due to the delayed program launch and only included program design and set-up costs.			
Program Components			
The Affordable Multi-family Housing and Non-Profit Organizations program component assists non-profit organizations (e.g., shelters, transition houses, community hubs etc.) and affordable housing			

EXISTING RESIDENTIAL (2023)
owners with financial incentives for building retrofit projects. Projects are completed through a comprehensive or prescriptive stream. • Efficient Product Installation provides homeowners and tenants with free-of-charge direct installation of energy efficient products such as LED lamps, air sealing kits, water-saving measures and other products. • Green Heat provides financial incentives to homeowners to reduce electricity consumption through the installation of high-efficiency space and water heating systems. Eligible heating systems include heat pumps, biomass, and solar heating systems. Eligible systems also include peak demand reduction measures, such as electric thermal storage, three-element water heaters, and domestic hot water heater timers. • Home Energy Assessment encourages homeowners to improve the energy efficiency and comfort of their homes by improving building envelopes, as well as installing space heating and water heating systems, by providing rebates for eligible energy efficiency upgrades. • Affordable Single-family Homes (marketed as HomeWarming) provides a whole-home retrofit service at no-cost to income-qualified Nova Scotians. Upgrades delivered are inclusive of energy efficiency assessments and may include upgrades to building envelopes (including air tightness and insulation), space heating (e.g., heat pump installations) and ventilation and appliance replacements. • The Mi'kmaw Home Energy Efficiency Project provides energy efficiency upgrades to band-owned homes in the 13 Mi'kmaw communities in Nova Scotia. Activities include a pre-retrofit ("D") and post-retrofit ("E") home energy assessment along with the completion of recommended upgrades (e.g., building envelope, space heating or water heating equipment upgrades and appliance replacements). Delivered in partnership with E1, community housing managers, delivery agents, and Mi'kmaw community preferred contractors, all upgrades are managed by E1 and/or its delivery agents on behalf of the community and participants. • Residential Behaviour, set to launch in 2024, will encourage Nova Scotians to adopt more energy-conscious behaviours and activities, leading to electricity savings and reduced utility bills. Through personalized and timely energy-use feedback and analysis, residential customers will be empowered to make informed choices about their energy consumption behaviours and directed to existing E1 programs and services that can help support them in their efforts to reduce electricity consumption. The Residential Behaviour program will feature a customer portal and electronic home energy reporting tools enabled through advanced metering infrastructure (AMI) data, which will provide timely energy consumption information to participants (e.g., email and paper home energy reports).
Affordable Multi-family Housing and Non-Profit Organizations Highlights
• Affordable Multi-family Housing saw strong participation and savings results in 2023, as 79 projects completed, reaching its highest level of participation since launch in 2018.¹⁰ The number of projects initiated also increased in 2023, the result of outreach activities, collaboration with contractors, and co-funding partnerships. • The program component saw an increase in large, complex portfolio projects, which are typically co-funded and often have significantly longer cycle times than average.

¹⁰ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, pages 127-128.

EXISTING RESIDENTIAL (2023)
- Increased project costs due to rising costs of equipment and labour created challenges and barriers for some participants. The maximum unit cost allowance for electric projects was adjusted to compensate for this, which led to an increase of the average estimated rebate for electric projects at the recommendation stage from 43% in 2022 to 52% in 2023 (maximum is 80%). Despite these improvements, lower-than-expected rebates still caused participants to withdraw from the program. Further adjustments to the maximum unit cost allowance are expected in 2024. - The program component targeted the Co-operative Housing Federation of Canada list for participation as co-ops are more likely to heat their properties with electric heat and do not experience split-incentives when performing efficiency retrofits. A total of 18 co-op properties applied to the program in 2023. Split-incentives occur in situations where landlords incur the cost of efficiency upgrades but tenants, who pay for utilities, receive the financial benefit; or when tenants cannot make choices about upgrades to their unit but pay for utilities. - Marketing activities included: - a targeted campaign (May to December) featuring social media ads and posts, paid digital displays, and ads on traditional media platforms that resulted in an increased number of application downloads and submissions compared to 2022; and - implemented an outreach strategy to non-bed facilities and housing co-ops with a focus on electrically heated properties, and presentations and design charrettes with various housing providers/developers.
Efficient Product Installation Highlights
- The average number of Efficient Product Installation products installed per home in 2023 was 15.8, consistent with recent years.¹¹ LEDs remained the most prevalent measure type, accounting for 77% of measures installed.¹² - After being introduced as a measure in 2022, interest in smart thermostats for mini-split heat pump installations remained strong in 2023. - E1 trialed smart electric baseboard thermostats in Q2 with one delivery agent; however, the partner decided not to continue installing these measures past the trial period (June 2023) due to competition for its limited electricians and the lower revenue potential of these upgrades compared to heat pumps, for example. E1 continues to explore the inclusion of these and other electrician-installed measures using other contractors. - Window film kits were introduced as a seasonal measure in Q3, enhancing savings alongside thermostat installations during the heating season to further drive savings. - Marketing activities included: - a brand awareness campaign in Q1 that included email, social media, and digital ad components; - two marketing campaigns that highlighted several E1 program components, including Efficient Product Installation, ran from June to December (one campaign targeted homeowners considering renovations, and the second campaign encouraged lower-income

¹¹ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, page 75.

¹² E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, page 75.

EXISTING RESIDENTIAL (2023)
Nova Scotians to retire appliances and consider adding energy efficient products to their home with free installation); and ○ 11 community blitz campaigns, supported by paid media and targeted emails, were held across the province (Pubnico, Windsor, North Sydney, Annapolis, Antigonish, Inverness, Wolfville, Liverpool, Guysborough, Liverpool and Digby). Each blitz campaign resulted in a noticeable increase in participation in the targeted communities.
Green Heat Highlights
• Participation in Green Heat was lower in 2023 compared to prior years,¹³ as more customers sought out higher rebates through the Greener Homes program, co-delivered with E1's Home Energy Assessment program. • Mini-split heat pumps accounted for most measures installed.¹⁴ This is a trend that began in 2016. • E1 conducted an incentive review to determine the savings and financial impacts of increasing rebates. The objectives of the change are to encourage more participation from homeowners who do not qualify for the Greener Homes program, only want to install a smaller heating system, or are looking for a simpler path to rebates that does not involve a home energy evaluation. E1 will increase rebates for mini-split heat pumps from \$200 to \$300 per ton (permanently), central heat pumps from \$400 to \$500 per ton (permanently), and wood and pellet stoves from \$500 to \$750 per unit (temporarily from February 1 to April 30, 2024) in Q1 of 2024. • Marketing activities included: ○ a paid media campaign focusing on wood stoves and electric thermal storage units in Q1; ○ program website updates and improvements to the online application portal; and ○ a home renovation campaign highlighting several E1 program components, including Green Heat that ran from June to December. A heat pump-specific component of that campaign, promoting heating system rebates available through Green Heat, resulted in a noticeable increase in traffic to the heat pump website.
Home Energy Assessment Highlights
• Home Energy Assessment had strong participation and energy and demand savings results throughout 2023, as the Canada Greener Homes Grant program drove customer interest. • After signing an agreement with Natural Resources Canada in 2022 to co-deliver the Canada Greener Homes Grant program in Nova Scotia through the Home Energy Assessment program component, E1 began issuing/administering the Canada Greener Homes Grant rebates for customers in March 2023. • Savings per Home Energy Assessment participant increased from 2022 levels, attributable to the increased rate of adoption of solar projects funded through the Canada Greener Homes Grant.¹⁵ • Demand for energy assessments increased throughout 2023. In recognition of that growing customer demand, E1 signed agreements with three new licensed service organizations in Q3 to perform energy evaluations and issue EnerGuide ratings in Nova Scotia.

¹³ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, page 28.

¹⁴ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, page 28.

¹⁵ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, page 4.

EXISTING RESIDENTIAL (2023)
- Marketing activities included: - the launch of a new landing page and navigation tool to better assist and guide customers through the application process; - development and distribution of a new postcard at home shows and other outreach events to customers interested in learning more about the program component and encouraging them to visit the website; and - a home renovation campaign highlighting several E1 program components, including Home Energy Assessment, that ran from June to December. A heat pump-specific component of that campaign promoted rebates available through Home Energy Assessment.
Affordable Single-family Homes Highlights
- E1 launched Affordable Single-family Homes as a new program component offering in 2023, as outlined in the 2023-2025 DSM Plan.¹⁶ - Customer interest in the program component was high in 2023, in part due to government funding announcements to assist Nova Scotians in making energy-savings investments in their homes. (Note: Although the government funding announcements were tailored primarily towards non-electrically heated homes, E1 saw a strong interest in the program component and a surge in applications from both electric and non-electric heated homes.) - While the number of applications from electric homes remained high throughout the year, the number of participant/electric home completions was lower than expected, attributable to the following factors: - capacity challenges being experienced by delivery agents as a result of the surge in applications; - a large portion of electric homes and customer applications showed less potential for energy savings and upgrades (historically, electric homes are newer with less opportunity for upgrades); and - heat pump installations, where applicable, increased timelines for project completions, as more contractors have involvement in the project. - To address those challenges, E1: - added two additional delivery agents to the program in Q3, for a total of six delivery agents (and are working to add more delivery agents and heat pump contractors in 2024); and - added several new program staff to increase processing capacity.
Mi'kmaw Home Energy Efficiency Project Highlights
The Mi'kmaw Home Energy Efficiency Project saw its highest participation result since it launched.¹⁷ (Note: First launched as a pilot in 2018, the initiative became a new program component within E1's Existing Residential program in 2020).

¹⁶ This program component is marketed to all Nova Scotians (both electric and non-electric homes) under the HomeWarming brand. Provincial government and Natural Resources Canada funds are utilized for non-electrically heated homes. DSM funds are utilized for electrically heated homes. The 2023 APR focuses on projects that generated electrical savings.

¹⁷ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Existing Residential Program, March 28, 2024, page 115.

EXISTING RESIDENTIAL (2023)			
- All 13 Mi'kmaw communities in Nova Scotia extended their agreements with E1 for continued service delivery to 2027. - Outreach efforts included working with housing managers to identify participants within the 13 Mi'kmaw communities across the province. Marketing activities included the release of the Mi'kmaw Home Energy Efficiency Project 2022 Impact Report in Q2. The report – available in both English and Mi'kmaw – was distributed to rights holders and stakeholders. A program component information sheet, also available in both languages, was also developed.			
Residential Behaviour Highlights			
- Residential Behaviour did not achieve savings in 2023 as the program component did not launch in 2023 as originally planned. The launch is now scheduled for 2024. - Throughout the year, E1 collaborated with NS Power to resolve program overlap concerns between the two utilities' programs (E1's Residential Behaviour program and NS Power's Customer Energy Management program). E1 and NS Power have reached an agreement and E1's Residential Behaviour program will be delivered by Bidgely, NS Power's current vendor. E1's Home Energy Report will be a separate, stand-alone module within the NS Power platform. E1 worked with its third-party evaluator to determine an evaluation approach for the program component. The third-party evaluator identified the treatment and control groups based on a randomized control trial (RCT) approach, recommended by the National Renewable Energy Laboratory Residential Behaviour Evaluation Protocol for estimating savings for behaviour-based programs. The RCT approach results in unbiased and robust estimates of program savings. The groups are defined as follows: - Treatment group: Participants receive reports, emails, and directed communication on the program. - Control group: Participants do not receive reports or any form of communication on the program. - Expenses were adjusted in 2023 to only include program implementation costs (i.e., set-up costs), as a result of the program launch shift. - A website and social media plan were developed in 2023 to be rolled out one week before the program launches. E1, NS Power, and Bidgely are coordinating on the customer journey and branding where overlap exists and aligning program messaging between customer service representatives.			

5.2.3 New Residential

The New Residential program is marketed as New Home Construction.

Table 7: 2023 New Residential

NEW RESIDENTIAL (2023)			
New Residential	Energy Savings (GWh)	Demand Savings (MW)	Expenditure (\$ million)
2023 Results	5.3	1.9	2.0

NEW RESIDENTIAL (2023)			
2023 MCA Target	3.1	1.1	1.3
New Home Construction exceeded its 2023 mid-course adjusted energy and demand savings targets. With the program wrap up on December 31, 2023, E1 and its service delivery partners focused efforts on closing as many active projects as possible. 816 projects completed by year-end, pushing savings results above targets and expenditures above planned spending.			
Program Component			
- The New Home Construction program component aims to encourage homeowners and builders to exceed energy efficiency building code requirements in new home constructions by providing modelling support for a participating homeowner/builders' building plans and tiered incentives. - The program component ended on December 31, 2023. The wind-up of the program was outlined in E1's 2023-2025 DSM Plan.			
New Home Construction Highlights			
- Throughout the year, E1 diligently followed up with customers and service organizations to closely track active participants and bookings in the hopes of completing as many projects as possible before the program component's close at the end of the year. - Activities continued with the Multi-Unit Residential Building (MURB) pilot. These projects were registered before the program component closed to new registrations in 2022. This pilot saw 31 completions by the end of 2023. - Marketing activities in 2023 involved several email notices to active participants reminding them to schedule and complete final home energy assessments before the program closed. - The program component, and associated MURB pilot, ended on December 31, 2023.			

5.3 Business, Non-Profit and Institutional (BNI) Sector Results

The BNI sector is comprised of the following programs:

- Efficient Product Rebates;
- Custom Incentives; and
- Direct Installation.

In 2023, the BNI sector achieved net incremental energy savings of 71.4 GWh and net peak demand savings of 10.9 MW, as compared to mid-course adjusted planned savings of 67.6 GWh and 13.0 MW, respectively.

E1 continued to offer its Energy Manager initiative in 2023. This initiative places an energy manager within BNI organizations to help identify new energy efficiency projects and

opportunities to participate in E1's DSM programs. Energy manager services are paid for by the host organizations, in some cases through a recovery on project incentives. In 2023, E1 had six placements that were funded in part by DSM.

Tables 8 - 10 provide a summary of 2023 BNI sector program results and activities. E1 has provided variance explanations for programs where 2023 results vary by 25 percent (+/-25%) as compared to the 2023 mid-course adjusted targets – energy savings for BNI Efficient Product Rebates, demand savings for Custom Incentives, and energy savings, demand savings and expenditures for Direct Installation.

5.3.1 Efficient Product Rebates

The 2023 Efficient Product Rebates program is marketed as Business Energy Rebates.

Table 8: 2023 BNI Efficient Product Rebates

BNI EFFICIENT PRODUCT REBATES (2023)			
BNI Efficient Product Rebates	Energy Savings (GWh)	Demand Savings (MW)	Expenditure (\$ million)
2023 Results	38.8	6.0	8.4
2023 MCA Target	30.0	5.3	7.3
BNI Efficient Product Rebates exceeded its 2023 mid-course adjusted savings targets as the program saw higher-than-expected participation throughout the year. Factors that contributed to the higher participation included successful marketing campaigns and the increased incentive offer to April 15.			
Program Component			
The Business Energy Rebates program component provides financial incentives in the form of prescriptive rebates to BNI participants through both the Application Rebates and the Instant Rebate service. Application Rebates requires a project application to E1 (available on the ENS website). Instant Rebates are delivered through a network of participating distributors across the province.			
Business Energy Rebates Highlights			
- Business Energy Rebates saw strong participation and savings results in 2023. - In Q1, Business Energy Rebates extended its increased incentive offer on select measures (i.e., linear replacement lamps (4ft), linear ambient luminaires, troffers, and flood and spot luminaires). This ended April 15, 2023. (Note: These increased incentives on linear replacement lamps (4ft), linear ambient luminaires, troffers, and flood and spot luminaires were introduced in Q3 2022.)			

BNI EFFICIENT PRODUCT REBATES (2023)

- Several on-site distributor appreciation events were held to recognize Instant Rebates distributor partners. In 2023, the program had more than 50 participating distributor locations across the province.
- A contractor and distributor pilot initiative was launched in Q2 in partnership with the Efficiency Preferred Partner Network to encourage contractors and distributors who are members of the network to submit projects on behalf of their customers. Between June 15 and December 1, contractors and distributors were encouraged to submit applications on behalf of their customers.
- Application Rebates saw a decrease in completed projects as some customers experienced supply chain and construction delays, particularly for new construction projects. Many of these projects are expected to complete in 2024.
- Marketing activities for Business Energy Rebates included:
 - a general BNI marketing campaign that ran throughout the year targeting businesses across Nova Scotia, along with a new video for television and digital advertising;
 - a contractor spotlight campaign was in market from August 14 to December 18. The campaign featured Efficiency Preferred Partner members, information about the incentives offered through Small Business Energy Solutions and Business Energy Rebates, and testimonials on the ease and benefits of participation;
 - refresh of in-store promotional and point-of-purchase materials and targeted advertisements in magazines and websites;
 - participation in distributor tradeshow events and distributor appreciation events;
 - hosted virtual meetings/webinars with distributor partners and Efficiency Preferred Partner members; and
 - outreach, engagement, presentations, and discussions with companies and commercial property owners to promote Business Energy Rebate projects such as heating and lighting retrofits and upgrades.

5.3.2 Custom Incentives

The Custom Incentives program consists of the following two program components:

- Custom; and
- Strategic Energy Management.

Table 9: 2023 Custom Incentives

CUSTOM INCENTIVES (2023)			
Custom Incentives	Energy Savings (GWh)	Demand Savings (MW)	Expenditure (\$ million)
2023 Results	25.1	3.4	6.3
2023 MCA Target	25.7	5.6	7.3
• Custom Incentives fell slightly short of its 2023 mid-course adjusted energy savings targets and did not meet its mid-course demand savings target. The demand savings shortfall was attributable to			

CUSTOM INCENTIVES (2023)
one large project that fell short of its expected savings due to customer delays in project implementation (i.e., measures expected to be implemented by the customer in 2023 were pushed out for implementation in 2024).
Program Components / Offerings
• The Custom program component provides large business, non-profit and institutional participants with technical assistance and financial incentives to help reduce electricity consumption and demand and includes four services: Retrofit, Building Optimization, Pay-for-Performance and New Construction. • Strategic Energy Management (SEM) is the second program component of the Custom Incentives program. SEM focuses on operational and procedural changes companies can make to reduce their energy usage. The goal of SEM is to help develop an energy management plan within organizations that focuses on business practice changes that enhance long-term energy performance and help participants achieve continuous energy savings. (Note: E1 merged the Energy Management Information Systems (EMIS) offering with the SEM program component as outlined in the 2023-2025 DSM Plan. EMIS is offered as a tool to SEM customers although no current participants applied for funds for energy management information systems. EMIS assists institutional and industrial participants in using energy consumption data from metered systems to inform decisions about their processes.)
Custom Highlights
• Rising costs of equipment, interest rates, project cost increases, and contractor and labour shortages slowed the progression of projects in Custom New Construction, resulting in fewer than expected project closures in 2023. • In Q3, the Custom Retrofit incentive rate was increased from \$0.10/kWh to \$0.15/kWh and will apply to projects expected to be completed in 2024 or later. The \$0.10/kWh incentive, which has been in place for 12 years, was increased in response to rising project costs, customer feedback, and participation trends. • In Q4, the Custom Pay-for-Performance (P4P), incentive rate was increased from \$0.10/kWh to \$0.15/kWh, to match the cap of \$0.15/kWh in Custom Retrofit. • Customer recruitment continued for the Pay-for-Performance (P4P) offering. P4P pays a set incentive amount per kWh for the total energy saved at the electric meter, rather than separate incentives for different measures, an approach that offers a whole-building performance-based incentive structure. P4P projects can take up to two years to complete. The implementation stage may take up to a year, followed by a savings measurement and verification process of at least a year. No P4P projects were started in 2022, therefore no projects generated savings in 2023. With 22 P4P projects initiated in 2023, E1 expects savings from these projects in 2024 and 2025. • Six Building Optimization projects reported savings in 2023, comparable to the participation levels of previous years for this service.¹⁸ • Marketing activities in 2023 included:

¹⁸ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Custom Incentives Program, March 28, 2024, page 8.

CUSTOM INCENTIVES (2023)	
○ two digital marketing campaigns ran year-round. The BNI general media campaign targeted all businesses across Nova Scotia and the commercial building campaign targeted building owners and managers; ○ installation of banners at several high-profile construction sites, targeted advertisements in magazines and websites, and a one-page quick reference guide was developed to provide a high-level summary of the Retrofit service; and ○ engagement and discussions with a range of companies, developers, and organizations interested in pursuing Custom projects and Pay-For-Performance opportunities. Several presentations and webinars were held to build awareness of the Custom program component.	
Strategic Energy Management (SEM)	
• SEM supported nine participants in 2023; seven continuing participants and two new participants. Six of the nine participants achieved savings in 2023.¹⁹ • New SEM measurement and verification guidelines implemented for 2023 were used to determine if implemented measures should be verified using an energy model or engineering calculations with the appropriate approach determined for each customer. • Performance-based incentives were offered to SEM customers in 2023. This initiative encourages customers to finish projects more rapidly and maximize savings through performance incentives. The performance-based incentives are offered to all SEM customers with a base rate of \$0.04/kWh. In 2023, 6 participants received incentives through this initiative. • SEM customers enrolled in E1's Large Industrial initiative²⁰ received an additional \$0.02/kWh, added on to the performance-based incentive base rate of \$0.04/kWh, for a total of \$0.06/kWh for SEM savings. This applied to 3 of the 6 SEM participants that received performance-based incentives in 2023.	

1 5.3.3 Direct Installation

2 The Direct Installation program is marketed as Small Business Energy Solutions.

3

4 **Table 10: 2023 Direct Installation**

DIRECT INSTALLATION (2023)			
Direct Installation	Energy Savings (GWh)	Demand Savings (MW)	Expenditure (\$ million)
2023 Results	7.5	1.5	4.9
2023 MCA Target	11.9	2.1	6.7

¹⁹ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Custom Incentives Program, March 28, 2024, page 58.

²⁰ E1's Large Industrial initiative offers incentives to support a full-time Industrial Energy Manager at a customer's site to further efforts in energy management. This initiative launched in 2021 under the Custom Incentives program and is applicable to large industrial customers. In 2023, 3 large industrial customers participated in this initiative with an Industrial Energy Manager on-site.

DIRECT INSTALLATION (2023)
• Direct Installation did not meet its 2023 mid-course adjusted savings targets. The program saw longer project cycle times in 2023 due to a range of factors, including supply chain issues, contractors lacking required staff to keep up with demand, contractor availability issues, and contractors prioritizing large projects over smaller projects. To address these issues, E1 worked closely with each contractor throughout the year to navigate last-minute changes to products due to supply chain issues (e.g., for lighting projects, product makes and models were very likely to change last minute due to supply chain issues). Further, a Contractor Incentive pilot was launched in November to help drive participation (see further information below).
Program Component
• The Direct Installation program is comprised of the Small Business Energy Solutions program component. Small Business Energy Solutions offers small businesses incentives and resources to encourage them to make energy efficient upgrades in their facilities. Within the program component, eligible participants choose an audit path (with a no-charge energy audit by a Small Business Energy Auditor) or a do-it-yourself path. Participants are directed to contractors through the Efficiency Preferred Partner Network or a contractor of their choosing to complete and install approved measures. • In 2021, E1 launched a Commercial Direct Install pilot. The pilot provides free-of-charge direct installations of efficient measures (e.g., LED light bulbs, showerheads, faucet aerators, pipe wrap and tank wrap for electric hot water tanks). This pilot offering continued in 2023.
Small Business Energy Solution Highlights
• Participation results were lower-than-anticipated. A process evaluation in 2023 collected information on participant perspectives, including barriers to participation.²¹ Participants and contractors were asked to rate certain factors that posed barriers to installing energy efficiency upgrades in their business. Financial challenges and lack of funds, time constraints or competing priorities, the need for technical support, and the availability of qualified contractors were noted as barriers for participants. Barriers identified by contractors included up-front costs for projects, the level of incentive, and the application timeframe. E1 is currently reviewing this information to help inform its efforts to address participant barriers. • To help drive the number of projects that completed by year-end, a Contractor Incentive pilot was launched in November that offered an additional 5% incentive to Efficiency Preferred Partner contractors that closed projects by the end of 2023. This additional incentive applied to applications submitted on or before November 1, 2023 to December 31, 2023. • The Commercial Heating Rebate Guide criteria and air-to-water heat pump criteria were reviewed and updated to provide better support to this market. • 63 projects completed under the Commercial Direct Install pilot.²² • A partner portal was launched in December to offer easy access to information for contractors (e.g., lists of projects, status updates, order summaries) and functionality for uploading final invoices. • Marketing activities included: ○ a Small Business digital campaign launched January 2 and ran throughout the year;

²¹ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Direct Installation Program, March 28, 2024, page 10-20.

²² E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Direct Installation Program, March 28, 2024, page 4.

DIRECT INSTALLATION (2023)

- a contractor spotlight campaign ran from August 14 to December 18. This campaign featured Efficiency Preferred Partner members, information about the incentives offered through Small Business Energy Solutions and Business Energy Rebates, and participant testimonials; and
- a general BNI marketing campaign targeting all businesses across Nova Scotia, ran throughout the year.
- Business Development Managers supported a range of businesses and organizations throughout the year, developing lighting, heating, and refrigeration retrofit projects.

5.4 Demand Response Program Results

E1 launched its Demand Response program in Q1 2023, an initiative outlined in the 2023-2025 Plan. The Demand Response program aims to expand upon the direct load control and BNI curtailment pilots initiated by E1 and NS Power in 2021 and 2022 and introduce new demand response pathways within the Residential and BNI sector Demand Response program components.²³ Although the 2023 results fell short of the target, E1 has developed various strategies to mitigate barriers to participation that includes identification of high value customers, development of optimal communication strategies, review of incentive levels and leveraging third party delivery partners knowledge from other jurisdictions. E1 continues to be focused on achieving the DSM Plan target of 17.9 MW of available capacity. Table 11 provides program results and highlights.

Table 11: 2023 Demand Response

DEMAND RESPONSE (2023)		
Demand Response	Available Demand Response Capacity (MW)	Expenditure (\$ million)
2023 Results	2.4	1.9
2023 MCA Target	3.0	1.9

²³ Since 2019, E1 and NS Power worked collaboratively on Demand Response initiatives through the joint E1 and NS Power Demand Response Working Group. E1 provided updates on the initiatives and efforts of the Working Group in its Quarterly and Annual Progress Reports in 2020, 2021, and 2022.

DEMAND RESPONSE (2023)
- Results reflect available capacity achieved during the peak period of December 1, 2022 through to February 28, 2023 (operational period). - E1 did not meet its 2023 mid-course available capacity target. (Note: E1's 2023 quarterly reports noted that E1 would not meet its 2023 available capacity target.)²⁴ This shortfall is primarily attributable to the BNI Demand Response program component and lower than anticipated results for the Aggregator pathway in the 2022/2023 peak period season. Factors for the shortfall included: - two participants withdrew just prior to the start of the 2022/23 season; - some participants opted out of some events due to their operational requirements at the time of curtailment; and - some participants were late in joining.
Program Components
- The Residential Demand Response program component aims to help facilitate a more flexible residential load that provides residential customers with economic incentives and more visibility and control of their loads. E1 is exploring the implementation of up to four pathways for residential customers: behind-the-meter battery control, thermostat direct load control, enabling technologies through Critical Peak Pricing (CPP) rates, and electric vehicle (EV) managed charging. - The BNI Demand Response program component aims to help facilitate more flexible non-residential load by providing customers with economic incentives and/or more visibility and control of their loads. E1 is exploring the implementation of additional pathways for BNI customers including battery control, auto/manual curtailment, and direct load control.
2023 Demand Response Residential Highlights
- In Q1 2023, the Domestic Hot Water Direct Load Control (DLC) became a permanent demand response offering after running as a pilot in the 2021/2022 utility peak period. This offering involved the installation of control equipment on residential electric resistance water heaters for participation in demand response events called by NS Power. - In the 2022/23 peak period, a total of 36 events were called with 12 morning events and 24 evening events (December 1, 2022 through to February 28, 2023), with a duration of 2 to 4 hours for all events. Results for the 2022/23 peak period were 0.05 MW, a result similar to the 2021/2022 pilot, which generated 0.057 MW in available capacity. 2023 program activities also focused on preparing for the 2023/24 utility peak period (December 1, 2023 – February 29, 2024). In Q1, approximately 2,000 Domestic Hot Water DLC controllers were purchased, to be installed prior to the 2023/24 peak period. In Q2, E1 placed a pause on the installation of these controllers to address service delivery agent concerns with controller quality. Out of an abundance of caution, installed devices were removed. (Note: 104 devices were removed in 2023, with the 29 remaining devices to be removed in 2024. Efforts are ongoing to schedule the participants of the remaining devices for removal.) E1's supplier will assume responsibility for all costs associated with the removal of the DLC controllers and the reinstallation of new devices, so this will not affect the costs of the program.

²⁴ M11148, EfficiencyOne, Q1 2023 Demand Side Management Report, May 25, 2023, page 20-24; M11304, EfficiencyOne, Q2 2023 Demand Side Management Report, August 25, 2023, page 20-21; M11437, EfficiencyOne, Q3 2023 Demand Side Management Report, page 20-21, November 27, 2023.

DEMAND RESPONSE (2023)
• E1's supplier provided a proposal outlining replacement controller technologies in Q4. The selection of the replacement controller is expected to be completed early 2024, following testing of the new units (four test units are to be provided in Q1 2024.) Installations are expected to begin in Q2 of 2024, following testing of the new technology. • As a result of the decision to remove all DLC controllers and select new controllers, E1 does not expect to achieve its 2024 available capacity target for the Residential Demand Response program component; however, the available capacity within BNI pathways are expected to increase, resulting in no change of the overall demand response program target for 2024. • Other demand response initiatives continue to be developed for integration into the residential demand response portfolio. E1 launched the Eco Shift pilot on December 1, 2023, created in partnership with NS Power. Eligible program devices include smart thermostats, electric vehicle (EV) chargers, and battery control. At the end of December 2023, there were 934 smart thermostats and 9 EV chargers enrolled. Behind-the-meter batteries are expected to become available in Q2 of 2024.
Demand Response BNI Highlights
• As noted above, Aggregator results were lower than anticipated due to the following factors: ○ two participants withdrew just prior to the start of the 2022/23 season; ○ some participants opted out of some events due to their operational requirements at the time of curtailment; and ○ some participants were late in joining. • Customer recruitment efforts took place from April to November in preparation for the start of the 2023/24 utility peak period season on December 1, 2023. 39 new customers signed participation agreements for the 2023/24 season, in addition to the re-enrollment of participants from the 2022/2023 season. All Aggregator participants from the 2022/2023 season re-enrolled for the 2023/2024 season with the exception of one, as has one out of the three 2022/2023 Commercial Demand Response Phase 1 pilot participants. • E1 implemented an increased incentive rate from \$72/kW to \$100/kW to assist recruitment efforts for the 2023/24 season, encouraging customers to participate in more events and achieve higher results. For the 2023/24 period, E1 has oversubscribed demand response aggregator incremental capacity to account for any underperformance issues (i.e., customers may opt out of some demand response events due to their operational requirements at the time of curtailment or customer drop-out).

5.5 Low-Income, Diverse, Underserved Communities

5.5.1 Performance Target

In the 2023-2025 approved Plan, the NSUARB established a Performance Target of 15.8 GWh for cumulative annual energy savings applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and Mi'kmaw Home Energy Efficiency Project.²⁵

E1 met its 2023 mid-course targets for Mi'kmaw Home Energy Efficiency Project and Affordable Multi-family Housing but fell short of the 2023 mid-course savings target for Affordable Single-family Homes. This resulted in a shortfall to the 5.4 GWh mid-course energy savings target for these program components. Affordable Single-family Homes fell short of its 2023 mid-course targets due to capacity challenges being experienced by both delivery agents and by contractors installing heat pumps that persisted throughout the year. Those capacity challenges increased project completion times. (Note: Please refer to Table 6 Affordable Single-family Homes.) To address these challenges, E1 added two additional delivery agents in Q3 for a total of six delivery agents across Nova Scotia and intends to further increase this number in 2024.

E1 is diligently working towards the achievement of its Performance Target of 15.8 GWh of cumulative annual energy savings, applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and the Mi'kmaw Home Energy Efficiency Project. E1's three-year Plan period forecast, provided in Table 4, provides further outlook towards achievement of this target. Table 12 provides 2023 results.

²⁵ M10473, NSUARB Decision, page 64, para 195, September 6, 2022.

Table 12: 2023 Results Applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and Mi'kmaw Home Energy Efficiency Project

Program Components	2023 Plan as Approved					2023 Mid-Course Adjustment					2023 Forecast (Year-End)				2023 Results					
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Investment (\$ million)	Participation (#)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Investment (\$ million)	Participation (#)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Investment (\$ million)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Participation (#)	Participation Unit
Affordable Multi-family Housing	1.9	33.9	0.6	1.3	42	1.2	22.5	0.3	0.9	82	1.3	22.9	0.5	0.9	1.5	25.5	0.7	0.9	79	Projects
Affordable Single-family Homes (ASFH)	2.9	54.8	0.8	8.1	493	3.5	66.9	0.9	8.0	493	2.7	51.8	1.0	4.5	1.4	29.0	0.6	3.0	242	Homes
ASFH Appliance Replacements	-	-	-	-	217	-	-	-	-	100	-	-	-	-	-	-	-	-	53	Products
Mi'kmaw Home Energy Efficiency Project (MHEEP)	0.5	9.9	0.2	1.2	118	0.6	10.9	0.3	1.0	144	0.6	11.4	0.3	1.1	0.6	11.7	0.4	1.0	162	Homes
MHEEP Appliance Replacements	-	-	-	-	130	-	-	-	-	33	-	-	-	-	-	-	-	-	5	Products
Total	5.3	98.6	1.6	10.6	-	5.4	100.3	1.5	9.9	-	4.6	86.0	1.8	6.5	3.5	66.1	1.7	5.0	-	

2023 Plan as Approved refers to the projected savings and participation filed in the 2023-2025 DSM Resource Plan Compliance filing applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and Mi'kmaw Home Energy Efficiency Project. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Executed Supply Agreement, Schedule E, October 4, 2022.

Appliance replacements delivered through Affordable Single-family Homes and Mi'kmaw Home Energy Efficiency Project (coordinated through Appliance Retirement) are subsets of the number of participating homes.

5.5.2 Performance Indicator

The NSUARB also established a Performance Indicator of incidental cumulative annual energy savings of 23.6 GWh applicable to low-income and underserved communities from non-targeted programs.²⁶

E1 has met its 2023 mid-course adjusted Performance Indicator target, with Residential and BNI Efficient Product Rebates, Custom Incentives, and Direct Installation all meeting their projected incidental energy savings. 2023 energy savings results from non-targeted programs were 10.3 GWh, marking progress towards the three-year Plan Performance Indicator target of 23.6 GWh.

In its quarterly and annual reporting, E1 has used a variety of methods, where appropriate on a program-by-program basis, to calculate and estimate the proportion of impacts generated through E1's targeted and non-targeted programs, applicable to low-income, diverse, and underserved communities. In 2023, E1 reviewed its assumptions and estimation methodology for calculating impacts by program and filed its updated assumptions and methodology as an attachment to E1's Q3 2023 DSM report.²⁷

Table 13 provides 2023 results for incidental savings, participation, and expenditures, applicable to low-income and underserved communities, from non-targeted programs. 2023 results reflect the updates to E1's low-income estimation methodology assumptions that were implemented in Q3 2023, while the Plan's performance indicator estimates used the assumptions that were in place at the time of Plan development.

²⁶ M10473, NSUARB Decision, page 65, para 196. [September 6, 2022]. It is also assumed that low-income/underserved communities participate in E1 programs in varying proportions; this is incidental programming. E1 has used a variety of methods, where appropriate on a program-by-program basis, to estimate the proportion of incidental impacts generated through E1 programs. These estimates are provided for informational purposes as a performance indicator.

²⁷ M11437, E1 Q3 2023 DSM Report, page 23-24 and Attachment 2, November 27, 2023.

Table 13: 2023 Results Applicable to Low-Income and Underserved Communities, Non-Targeted Programs

		2023 Plan Performance Indicators					2023 Mid-Course Adjustments				2023 Forecast (Year-End)				2023 Results					Participation Unit
		First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Investment (\$ million)	Participation (#)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Investment (\$ million)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Participation (#)	
Residential	Efficient Product Rebates	0.1	0.9	0.0	0.0	1,030	0.1	0.9	0.0	0.0	2.0	15.0	0.3	0.7	2.0	12.9	0.3	0.8	32,635	Units rebated
	Appliance Retirement ¹	0.0	0.1	0.0	0.0	33								0.3	1.0	0.0	0.2	635		
	Instant Savings ²	0.1	0.9	0.0	0.0	1,509								1.7	11.9	0.2	0.6	32,000		
	Existing Residential	4.9	21.9	0.6	0.7		5.1	27.9	0.7	0.7	3.6	26.7	0.4	1.1	3.3	23.6	0.4	0.9	67,441	Products
	Efficient Product Installation ²	3.9	20.9	0.6	0.6	83,025								3.3	23.6	0.4	0.9	67,441		
	Residential Subtotal	5.0	22.8	0.6	0.7	-	5.2	28.8	0.7	0.7	5.6	41.7	0.7	1.8	5.3	36.6	0.7	1.7	-	
BNI	Efficient Product Rebates	0.5	6.9	0.1	0.1	2,738	0.4	5.9	0.1	0.1	1.3	18.0	0.3	0.3	2.6	40.0	0.5	0.5	44,436	Units rebated
	Business Energy Rebates - AR & IR ^{3,4}	0.5	6.9	0.1	0.1	2,738								2.6	40.0	0.5	0.5	44,436		
	Custom Incentives	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	2.7	49.8	0.9	1.0	1.9	34.9	0.5	0.8	18	Projects
	Custom ³	0.0	0.0	0.0	0.0	0								1.9	34.9	0.5	0.8	18		
	Direct Installation	0.5	6.9	0.1	0.1	4,272	0.5	6.9	0.1	0.1	0.7	10.4	0.1	0.4	0.6	8.5	0.1	0.4	5,853	Products
	Small Business Energy Solutions ³	0.5	6.9	0.1	0.1	4,272								0.6	8.5	0.1	0.4	5,853		
	BNI Subtotal	0.9	13.9	0.3	0.2	-	0.9	12.8	0.2	0.2	4.8	78.2	1.4	1.8	5.0	83.4	1.1	1.7	-	
	Total	6.0	36.6	0.9	0.9	-	6.1	41.7	0.9	0.9	10.4	119.9	2.0	3.6	10.3	120.0	1.8	3.4	-	

2023 Plan Low-Income Performance Indicators refers to the projected low-income savings and participation filed in the 2023-2025 DSM Resource Plan Compliance filing. See M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, page 56-122, October 4, 2022. Includes estimates of low-income participation in program components where income is not disclosed.

Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited.

In the 2023-2025 Plan, low-income performance indicators for the Custom Incentives program were calculated using 2020 actuals, consistent with the approach used for other programs. Since no low-income participation was reported in 2020, the 2023-2025 Plan also contained no low-income participation. In E1's 2022 Annual Progress Report, 2020 actuals for the low-income performance indicators for the Custom Incentives program were updated, after a more thorough review of project data. Subsequently, E1 anticipates non-zero low-income actuals from Custom Incentives over the 2023-2025 period.

¹ Low-income Nova Scotians are assumed to participate in proportion to the general population.

² Income disclosure is optional for program participation. Low-income participants are tracked where income information is available; otherwise low-income Nova Scotians are assumed to be as likely to participate as the general population.

³ Although the program participants are building owners, the avoided energy benefits are assumed to flow through to tenants; the proportion of low-income tenants in participating apartments is assumed to be the same proportion of low-income tenants in Nova Scotia apartments overall. Participation numbers are totals that include varying proportions of low-income and non low-income tenants. Investment and savings are estimated for the low-income portion.

⁴ The exact installation location of products receiving Business Energy Rebates Instant Rebates is unknown. The proportion of Instant Rebates measures installed in apartments is assumed to be the same as the proportion of Application Rebates installed in apartments.

5.6 Enabling Strategies

The Enabling Strategies component in the 2023-2025 DSM Plan focuses on the following three categories:

- Education and Outreach;
- Development and Research; and
- Other Enabling Strategies.

Table 14 provides highlights of E1's 2023 Enabling Strategy activities.

Table 14: 2023 Enabling Strategies

ENABLING STRATEGIES 2023 ACTIVITY HIGHLIGHTS	
Education and Outreach	
Education and Outreach activities included: • in-person attendance at community events, including home shows, trade shows, conventions. • E1's summer events program, where E1 had a booth or display at summer community events (fairs, markets, festivals, etc.). E1 staff were on hand to answer questions and provide information at nine such events in communities throughout Nova Scotia in 2023. • monthly radio call-in shows. • Green Schools activities such as: ○ training for new Green Schools engagement officers (5 in 2023); ○ updating class offerings to include a stronger focus on trade options, as well as activities to match students with green careers, based on their skills and interests; ○ delivery of over 1,500 presentations and engagements across schools in Nova Scotia – 809 virtual and 784 in-person, reaching 28,170 students (approximately 75% of Nova Scotia's public schools participated in Green Schools in 2023); ○ presentations about energy efficiency and green careers to encourage students to think about their energy use and their future career paths; ○ a podcast highlighting professionals in green careers within Nova Scotia; ○ virtual field trips for 35 classes, with a reach of over 1,000 students, to promote local, green careers in the province; and ○ working closely with 26 focus schools located in Mi'kmaw and predominantly African Nova Scotia communities. • ongoing outreach as part of E1's Diverse Communities initiative including: ○ delivery of energy efficiency information sessions in Mi'kmaw communities (Millbrook, Potlotek, Wagmatcook, and Membertou) in partnership with the Ecology Action Centre and community housing managers;	

ENABLING STRATEGIES 2023 ACTIVITY HIGHLIGHTS
○ finalizing strategic partnership agreements with the Immigrant Services Association of Nova Scotia, Ecology Action Centre; and Business is Jammin’; ○ planning, delivery, and support of events with Black Business Initiative’s Business is Jammin’, including energy efficiency educational programming for a Science, Technology, Engineering and Mathematics (STEM) summer bootcamp and a fall career day; and ○ delivery and support of an energy efficiency and green career presentation to the Immigrant Youth Employment Program (youth aged 15-30) through the Immigrant Services Association of Nova Scotia. ● finalizing a three-year strategic partnership with Dalhousie University’s Earth and Environmental Sciences department to provide a fall semester ‘Pathways to Sustainable Energy’ course to foster a culture of energy efficiency awareness with a focus on green building science. ● continuing to grow E1’s social media presence through a range of engagement efforts including giveaway contests. At the end of 2023, E1/ENS had 47,237 Facebook likes, 4,974 LinkedIn followers, and 3,733 Instagram followers – all increases from 2022 levels. E1 and/or its programs were also mentioned in 340 media reports in 2023, an increase from 303 media mentions in 2022. ● delivery of Residential and BNI Switch e-newsletters and Efficiency Preferred Partner e-newsletters. ● offering a post-secondary course in energy efficiency and renewable energy in partnership with Dalhousie University and awarding five annual bursaries to Nova Scotia Community College (NSCC) students enrolled in their final semester in energy sustainability-related technology programs. ● ongoing enhancements to the E1/ENS website and tools for improved customer experience. ● releasing E1’s Annual Report (distinct from the E1’s DSM Annual Progress Report). ● outreach to elected leaders on E1/ENS program offerings.
Development and Research
Development and Research activities included: ● quarterly tracking of quality assurance, participant satisfaction, and other attitudinal metrics among Nova Scotia households to help E1 respond to changing market conditions. ● surveys to Efficiency Preferred Partners members to gain member insights. Survey topics assessed members’ preferences for training and events, economic perceptions, industry capacity, and desired supports. ● completion of public perception research among Nova Scotian households. Survey topics included economic perceptions, interest in a residential behaviour program, and awareness of the HomeWarming brand (E1’s Affordable Single-family Homes program component is marketed under the HomeWarming brand.) ● completion of several E1 technical papers (<i>Remote Energy Assessments for Residential Homes, Energy Poverty and an Equitable Transition to a Net-Zero Carbon Future in Nova Scotia, Deep Energy Retrofits in Nova Scotia</i>, see https://www.efficiencyone.ca/). ● completion of a customer experience survey to aid in the design of an online application portal for Small Business Energy Solutions and Business Energy Rebates.
Other Enabling Strategies
Other Enabling Strategies activities included: <i>Efficiency Preferred Partners</i>

ENABLING STRATEGIES 2023 ACTIVITY HIGHLIGHTS

- Webinars and in-person training took place for members on a range of topics including E1's Residential and BNI programs, adoption of the 2020 National Energy Code for Buildings (NECB) and the National Building Code (NBC), energy modelling, Immigrant Services Association of Nova Scotia supports, funding opportunities available from a range of organizations (e.g., Electricity Human Resources Canada and the Nova Scotia Apprenticeship Agency), and information on the Efficiency Preferred Partner Incentive Pilot (BNI Efficient Product Rebates contractor/distributor pilot initiative and Small Business Energy Solutions pilot incentive). A networking and educational event with E1's Energy Managers was also held.
- On-demand training and professional development opportunities for members included courses and training from the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE), the Canadian Institute for Energy (CIET), and the Heating, Refrigeration, and Air Conditioning Institute of Canada (HRAI). Training on passive house construction and electric vehicle (EV) infrastructure zero carbon building was also offered.
- Ongoing capacity building such as member surveys (detailed in the Development and Research section), and the launch of the career partner page on the Efficiency Preferred Partner Resource Hub.

Codes and Standards

- Ongoing participation in Canadian Standards Association's (CSA) Steering Committee on Performance, Energy Efficiency and Renewables. This is the parent steering committee for energy efficiency-related standards development at CSA. The CSA Annual General meeting was held in Halifax in Q2.
- Ongoing participation in the Canadian Home Builders' Association's Net Zero Energy technical committee. The technical committee is responsible for maintaining the standard from a technical perspective, e.g., reviewing change requests, making updates, and additions to the standard.
- The 2020 National Energy Code for Buildings (NECB) and the National Building Code (NBC) were published in March 2022. As part of a public review and comment process by the Nova Scotia Department of Municipal Affairs and Housing on proposed building codes amendments, E1 submitted its comments and recommendations that cover:
 - a baseline assessment to determine the performance of new homes in Nova Scotia with respect to the code performance tiers as a means to assess a reasonable starting tier;
 - technical recommendations related to compliance methods and metrics; and
 - policy recommendations related to the schedule of adoption for the energy performance tiers.

Regulatory Affairs

- Engagement with regulatory stakeholders and the DSM Advisory Group (DSMAG) including:
 - DSMAG meeting on the 2022 Annual Progress Report and 2022 Evaluation Reports and facilitation of DSMAG process to consider these reports, including E1's written reply to DSMAG comments and update on E1's Residential Behaviour program;
 - working with the DSMAG to assess and develop an optimal DSM cost-effectiveness testing methodology (one meeting was held in December 2023, with a total of four working DSMAG sessions planned over 2023/early 2024);
 - DSMAG session on 2026-2030 DSM Plan Planning Landscape and DSMAG Engagement Plan; and

ENABLING STRATEGIES 2023 ACTIVITY HIGHLIGHTS

- DSMAG meeting on updates to avoided costs.

E1 filed the following reports with the NSUARB:

- E1 Reply to stakeholder comments on the 2022 Rate and Bill Impact Analysis Report;
- a data sharing agreement that will govern the use of E1 customer data for the purpose of facilitating NSUARB directed evaluations for the Customer Energy Management/Time Varying Pricing pilots (NS Power pilots), on behalf of NS Power;
- Information Requests, Evidence, Responses to Information Requests regarding E1's Evidence, and Opening Statement regarding NS Power's General Rate Application;
- 2022 Evaluation Reports and 2022 Annual Progress Report, and summary report regarding DSMAG consideration of these reports;
- 2022 Audited Financial Statements and 2022 Inter-Affiliate Code of Conduct Annual Compliance Report and responses to Information Requests;
- 2023 Quarterly DSM Reports (Q1, Q2, and Q3 2023) and responses to Information Requests;
- Information Requests on NS Power's 2023 Load Forecast Report;
- Information Requests on NS Power's 2024 Demand Side Management Cost Recovery Riders; and
- E1 comments on NS Power's Evergreen Integrated Resource Plan (IRP) Action Plan and Roadmap Update.

- Other regulatory activities included:

- participation in NS Power's Evergreen IRP process, including comments on updated assumptions and modelling results and stakeholder sessions;
- participation in the Eastward Energy Technical Conference;
- early internal planning work on the 2026-2030 DSM Resource Plan;
- ongoing implementation of evaluation and verification recommendations. For an update on the status of evaluation and verification recommendations, please see Attachment 2; and
- development of the 2023 DSM annual evaluation with E1's independent evaluation consultant.

5.7 Additional 2023 Performance Indicators

The NSUARB approved additional Performance Indicators as identified in the Supply Agreement.²⁸ In 2023, results of E1's additional Performance Indicators are as follows:

- Total lifetime ratepayer benefits resulting from 2023 energy and demand savings are \$211.2 million;²⁹ and

²⁸ Performance Indicators are provided in Schedule C, M10473, 2023-2025 DSM Plan Compliance Filing, Appendix C – Supply Agreement for Electricity Efficiency and Conservation Activities between E1 and Nova Scotia Power, October 4, 2022.

²⁹ Lifetime benefits are expressed as the net present value of the avoided costs, including energy, capacity, transmission, distribution, and carbon over the life of the program measures.

- E1 achieved a Customer Satisfaction Index score of 90.4 based on surveys completed with commercial and residential program customers.³⁰ Total awareness of Efficiency Nova Scotia, considering both aided and unaided awareness, was approximately 84 percent.³¹ These results are on par with 2022 results with a previous customer satisfaction score of 90.5 percent and total awareness at 83 percent.

5.8 Incentive Variance Analysis

In the NSUARB's Decision on the 2023-2025 DSM Plan, E1 was directed to "identify any instances where E1 has adjusted the per unit incentive amount for a measure by more than 10% from the amount included in its resource plan and provide an explanation for the variance in its quarterly reports."³² There were no incentives paid by E1 in Q4 2023 where E1 adjusted the per unit incentive amount for the measures by more than +/- 10%.

5.9 Avoided CO₂e emissions

On a proactive basis, E1 provides the annual net avoided CO₂e emissions from DSM measures installed during each Plan year. Using the most recent NS Power emissions intensity data, E1's Evaluation Consultant identified that DSM measures installed in 2023 are estimated to result in 72,613 tonnes of annual net avoided CO₂e emissions.³³

6. CONCLUSION

In 2023, E1 achieved 131.6 GWh of incremental annual net energy savings (109% of the mid-course adjusted target of 120.7 GWh), 27.6 MW of annual net peak demand savings (103% of the mid-course adjusted target of 26.9 MW), 2.4 MW of available capacity attributed to demand response initiatives (80% of mid-course adjusted target of 3.0 MW), and 3.5 GWh for incremental annual net energy savings applicable to Affordable Single-family Homes, Affordable Multi-family Housing, and the Mi'kmaw Home Energy Efficiency Project (65% of the mid-course adjusted

³⁰ MQO Research, Commissioned Results 2023 Year End, prepared for EfficiencyOne, February 2023.

³¹ Narrative Research, Commissioned Results 2023 Q3, Prepared for EfficiencyOne, September 2023.

³² M10473, NSUARB Decision, para 197 (g), page 65.

³³ E1 2023 DSM Programs Evaluation Reports, Final DSM Reports, Executive Summary, March 28, 2024, page 24.

1 target of 5.4 GWh). Total portfolio expenditures were \$45.3 million (85% of the mid-course
2 adjusted target of \$53.1 million).

3
4 Despite the shortfall in two of its mid-course targets, 2023 results represent progress towards
5 E1's achievement of its contractual 2023-2025 Plan Performance Targets. E1 is committed to,
6 and anticipates achieving the aggregate 2023-2025 Plan Performance Targets.

7
8 E1 will provide mid-course adjustments by program in the Q1 2024 DSM quarterly report, due to
9 be filed May 25, 2024.

ATTACHMENT 1: 2023 RATE CLASS RESULTS

Attachment 1: 2023 Rate Class Results

2023 Rate Class Expenditures

E1 reports on planned and actual DSM expenditures by rate class to aid in cost recovery allocations.³⁴

Annual mid-course planned expenditures per rate class are established using E1's mid-course adjusted expenditures and historical spending trends by rate class per program. Annual expenditure results by rate class may vary from the expected mid-course planned expenditures as influenced by the mix of participating customers or program activity.

2023 actual expenditures were \$45.3 million, or 85% of E1's 2023 mid-course planned expenditures. The 2023 expenditure results by rate class reflect the trends observed in E1's overall 2023 portfolio and program results and the mix of participating customers. E1's lower-than-anticipated spending in Residential Behaviour and Affordable Single-family Homes is reflected in E1's Residential/Charitable rate class expenditure results for 2023. Similarly, lower overall spending in Direct Installation and Custom Incentives contributed to lower spending in the General, Large General, and Small Industrial rate classes than was anticipated. Higher overall spending in BNI Efficient Product Rebates contributed to higher spending in the Small General, Medium Industrial, and Large Industrial rate classes than anticipated.

Table 1 provides a breakdown of the 2023 expenditures by rate class in the Plan, E1's 2023 mid-course adjusted planned expenditures by rate class, and actual expenditures as a percentage of the 2023 planned expenditures.

³⁴ The October 7, 2015 NSUARB Order directed NS Power to file its proposed accounting treatment and cost recovery for the 2015 DSM programs and the 2016-2018 programs. E1 reports on planned and actual DSM expenditures to aid in these cost recovery calculations. See M06733, The Public Utilities Act and An Application for Approval of a Supply Agreement for electricity efficiency and conservation activities between EfficiencyOne and Nova Scotia Power Incorporated, the establishment of a final agreement between the parties, and approval of a 2016-2018 Demand Side Management Resource Plan, NSUARB Order [October 7, 2015].

1 **Table 1: 2023 Planned and Actual DSM Expenditures by Rate Class**

Rate Class	2023 Expenditures by Rate Class			2023 Expenditures as % of 2023 Mid-Course Planned Expenditures
	2023 Plan as Approved (\$ million)	2023 Mid-Course Planned Expenditures (\$ million)	Actual 2023 Expenditures (\$million)	
Residential/Charitable (2,3,4)	28.2	29.9	24.1	80%
Small General (10)	2.7	1.9	2.7	138%
General (11)	13.8	13.7	10.2	74%
Large General (12)	2.4	2.2	1.1	51%
Small Industrial (21)	1.8	1.5	0.7	45%
Medium Industrial (22)	1.0	1.5	2.0	139%
Large Industrial (23, 25)	2.2	1.9	4.1	211%
Municipal (24)	1.0	0.3	0.5	187%
Unmetered (999)	0.0	0.1	0.0	0%
Total	53.1	53.1	45.3	85%

- 2 2023 Plan as Approved refers to the planned rate class expenditures as provided in the 2023-2025 DSM Resource Plan Compliance filing. See
3 M10473, 2023-2025 DSM Resource Plan Compliance Filing, Appendix C, Schedule E, Table 13: Rate Class Expenditures by Year, page 43 [October
4 4, 2022]. The NSUARB approved the 2023-2025 DSM Plan on November 8, 2022.
5 Numbers may not sum due to rounding. Expenditure amounts are unaudited.
6 Includes energy efficiency, demand response, and Enabling Strategies investments.

2023 Rate Class Results by Program

Tables 2 - 7 provide a breakdown of 2023 net incremental energy and net peak demand savings, expenditures, and participation achieved by rate class within the energy efficiency programs.

Table 2: 2023 Residential Efficient Product Rebates Rate Class Results

	Residential Efficient Product Rebates (2023)				
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Units Rebated (#)
Residential/Charitable (2,3,4)	12.7	83.1	1.6	5.1	213,015
Small General (10)*	0.2	1.7	0.0	0.1	4,431
General (11)*	0.1	0.4	0.0	0.0	854
Large General (12)*	0.0	0.0	0.0	0.0	0
Small Industrial (21)*	0.0	0.0	0.0	0.0	10
Medium Industrial (22)*	0.0	0.0	0.0	0.0	0
Large Industrial (23, 25)*	0.0	0.0	0.0	0.0	0
Municipal (24)	0.2	1.1	0.0	0.1	3,075
Unmetered (999)	0.0	0.0	0.0	0.0	0
Total	13.2	86.2	1.7	5.3	221,385

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals.

Residential Efficient Product Rebates includes the Appliance Retirement and Instant Savings program components.

*The Appliance Retirement program component collects eligible residential appliances from BNI customers (e.g., rental apartment buildings, condominium buildings, and community groups in commercial rate classes), in addition to residential customers.

Table 3: 2023 Existing Residential Rate Class Results

	Existing Residential (2023)				
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Housing Units / Products (#)*
Residential/Charitable (2,3,4)	40.8	770.8	12.7	13.4	155,851
Small General (10)	0.5	7.7	0.2	0.3	704
General (11)	0.1	1.4	0.0	0.0	495
Large General (12)	0.0	0.0	0.0	0.0	0
Small Industrial (21)	0.0	0.0	0.0	0.0	8
Medium Industrial (22)	0.0	0.0	0.0	0.0	0
Large Industrial (23, 25)	0.0	0.0	0.0	0.0	0
Municipal (24)	0.4	6.6	0.0	0.1	3,067
Unmetered (999)	0.0	0.0	0.0	0.0	0
Total	41.7	786.6	13.0	13.8	160,126

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals.

Existing Residential includes the following program components: Affordable Multi-family Housing and Non-Profit Organizations, Efficient Product Installation, Green Heat, Home Energy Assessment, Affordable Single-family Homes, Mi'kmaw Home Energy Efficiency Project, and Residential Behaviour. Participation includes appliance replacements delivered through Affordable Single-family Homes and the Mi'kmaw Home Energy Efficiency Project (Appliance replacements are coordinated through the Appliance Retirement program component).

The Home Energy Assessment program component is mainly comprised of homes heated by electricity. As participating homes heated primarily by non-electric fuels generate a small amount of electricity savings, they receive a small amount of DSM funding and are counted here.

*Includes apartments. Participation total contains mixed units, as per the tracked participation unit within each program component.

Table 4: 2023 New Residential Rate Class Results

	New Residential (2023)				
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Participants (#)
Residential/Charitable (2,3,4)	5.0	153.8	1.8	1.9	778
Small General (10)	0.0	0.0	0.0	0.0	0
General (11)	0.0	0.0	0.0	0.0	0
Large General (12)	0.0	0.0	0.0	0.0	0
Small Industrial (21)	0.0	0.0	0.0	0.0	0
Medium Industrial (22)	0.0	0.0	0.0	0.0	0
Large Industrial (23, 25)	0.0	0.0	0.0	0.0	0
Municipal (24)	0.3	8.9	0.1	0.1	38
Unmetered (999)	0.0	0.0	0.0	0.0	0
Total	5.3	162.7	1.9	2.0	816

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals. New Residential includes the New Home Construction program component.

Table 5: 2023 BNI Efficient Product Rebates Rate Class Results

	BNI Efficient Product Rebates (2023)				
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Units Rebated (#)
Residential/Charitable (2,3,4)*	2.9	42.3	0.5	0.6	18,718
Small General (10)	4.5	65.2	0.8	1.1	29,555
General (11)	19.1	271.6	2.9	4.1	125,187
Large General (12)	1.4	20.0	0.2	0.3	9,009
Small Industrial (21)	1.7	26.0	0.2	0.3	9,297
Medium Industrial (22)	2.8	36.3	0.5	0.7	16,338
Large Industrial (23, 25)	6.1	90.0	0.9	1.3	42,912
Municipal (24)	0.4	4.9	0.1	0.1	2,783
Unmetered (999)	0.0	0.0	0.0	0.0	0
Total	38.8	556.3	6.0	8.4	253,798

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals.

BNI Efficient Product Rebates includes the Business Energy Rebates program component.

*BNI Efficient Product Rebates includes some residential customers as eligible participants (e.g., farms, community groups in charitable rate classes, rental apartment buildings, and condominium buildings).

Table 6: 2023 Custom Incentives Rate Class Results

	Custom Incentives (2023)				
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Projects / Participants (#)
Residential/Charitable (2,3,4)*	0.4	6.7	0.0	0.1	11
Small General (10)	1.4	16.8	0.1	0.3	10
General (11)	5.9	74.2	1.2	2.2	33
Large General (12)	1.6	10.0	0.0	0.4	15
Small Industrial (21)	0.5	6.0	0.0	0.1	12
Medium Industrial (22)	2.6	20.1	0.6	0.7	16
Large Industrial (23, 25)	12.7	73.8	1.5	2.5	22
Municipal (24)	0.0	0.0	0.0	0.0	0
Unmetered (999)	0.0	0.0	0.0	0.0	0
Total	25.1	207.5	3.4	6.3	120

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals.

Custom Incentives includes the Custom program component and the SEM program component. SEM participants are each counted once, but their participation is ongoing throughout the year.

*Custom Incentives includes some residential customers as eligible participants (e.g., farms, community groups on charitable rate codes, rental apartment buildings, and condominium buildings). Participation total contains mixed units, as per the tracked participation unit within each program component.

Table 7: 2023 Direct Installation Rate Class Results

	Direct Installation (2023)				
	First-Year Energy Savings (GWh)	Lifetime Energy Savings (GWh)	Peak Demand Savings (MW)	Expenditures (\$ million)	Products (#)
Residential/Charitable (2,3,4)	1.1	16.8	0.3	0.7	2,352
Small General (10)	1.2	18.8	0.3	0.8	10,245
General (11)	4.6	70.4	0.8	3.0	24,766
Large General (12)	0.0	0.0	0.0	0.0	0
Small Industrial (21)	0.3	5.5	0.1	0.2	519
Medium Industrial (22)	0.0	0.0	0.0	0.0	0
Large Industrial (23, 25)	0.0	0.0	0.0	0.0	0
Municipal (24)	0.2	2.4	0.0	0.1	915
Unmetered (999)	0.0	0.0	0.0	0.0	0
Total	7.5	113.8	1.5	4.9	38,797

Numbers may not sum due to rounding. Energy and demand savings are calculated at the generator and are net of free-ridership and spillover. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals.
Direct Installation includes the Small Business Energy Solutions program component.

Table 8 provides a breakdown of available capacity, expenditures, and participation achieved, by rate class within the Demand Response program.

Table 8: 2023 Demand Response Rate Class Results

	Demand Response (2023)		
	Available Capacity (MW)	Expenditures (\$ million)	Participation (#)
Residential/Charitable (2,3,4)	0.1	0.7	159
Small General (10)	0.0	0.0	0
General (11)	0.3	0.2	5
Large General (12)	0.8	0.4	2
Small Industrial (21)	0.0	0.0	0
Medium Industrial (22)	1.3	0.6	3
Large Industrial (23, 25)	0.0	0.0	0
Municipal (24)	0.0	0.0	0
Unmetered (999)	0.0	0.0	0
Total	2.4	1.9	168

Numbers may not sum due to rounding. Expenditure amounts are unaudited. Savings and expenditures reported in previous quarters may have been updated and are reflected in the totals.
The Demand Response program includes the Residential and BNI Demand Response program components.
Demand Response results reflect available capacity savings achieved during the 2022/2023 utility peak period season (i.e., December 1, 2022 through to February 28, 2023). Utility peak period is defined as December through February, non-holiday weekday evenings between 5-7 p.m.

ATTACHMENT 2: EVALUATOR AND VERIFIER RECOMMENDATION UPDATES

Table 1: Update on Implementation of 2018-2021 Evaluation Recommendations

Table 2: Update on Implementation of 2018-2021 Verification Recommendations

Table 3: Update on Implementation of 2022 Evaluation Recommendations

Table 4: Update on Implementation of 2022 Verification Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2018	Evaluation	Conduct a billing analysis to review the overestimation ratio when a sufficient participant sample becomes available. The billing analysis conducted in 2018 was initially aimed at estimating a new overestimation ratio for the new version of HOT2000, although it revealed that the space heating systems in place, particularly heat pumps, had a much more significant impact on the overestimation than the difference between the versions of HOT2000 that are used. Moreover, the Evaluator believes that further analyses should be conducted to evaluate the impact of the different HOT2000 versions on the overestimation ratio and confirm whether there is no significant difference on the overestimation ratio established for the D and E assessment periods. The Evaluator believes that version 11 of HOT2000 will progressively be used more in upcoming years and will enable conducting a billing analysis on a sample of participants large enough to consider: (1) D assessments and E assessments; (2) the various versions of HOT2000 (i.e. versions 11.3; 11.4; 11.5); and (3) evaluate the impact of the different heating systems in place, including the presence of wood or pellet stoves. Since overestimations significantly impact HEA net energy and peak demand savings, the Evaluator recommends conducting a billing analysis when a large enough participant sample becomes available.	2018 HEA - R1	In Progress	E1 agrees with this recommendation and plans to have the Evaluator complete a billing analysis in 2024. A billing analysis was planned for 2022 to reassess the overestimation ratio. The billing analysis was deferred in 2022 due to the number of participants with sufficient billing data being too low to establish reliable overestimation ratio values for subcategories of participants. In 2022, the Evaluator researched potential changes to the billing analysis approach and the savings calculation methodology to produce more robust savings values in future evaluations and simplify savings calculations. The proposed new billing analysis approach is described in the 2023 Existing Residential Evaluation Report filed with NSUARB on April 1, 2024. A billing analysis using the above mentioned new approach was performed by the Evaluator in 2023, although the results of the billing analysis conducted were inconclusive. The Evaluator and E1 will further explore the results of the 2023 billing analysis in 2024, and develop a new impact evaluation approach for the 2024 Evaluation. Depending on the outcome of this further exploration, an alternate approach to a billing analysis may be required in 2024.	2024
2020	Evaluation	Update the unconverted D assessment spillover calculation assumptions to reflect the current participation mix and obtain more representative results. The 2016 assumptions currently used by EOne and the Evaluator are not representative of the evolution of HEA toward more non-electrically-heated projects being completed.	2020 HEA-R1	In Progress	E1 agrees with this recommendation. In 2022, The Evaluator analyzed the evolution of the average savings per electrical participant to determine if an adjustment to the savings value per unconverted D assessment should be applied to align with changes in HEA since the unconverted D assessment spillover study was conducted. The analysis revealed that no adjustment was needed, but the Evaluator still recommends that new activities be conducted to reassess all parameters used to calculate unconverted D assessment spillover savings. E1 plans to have the Evaluator update these parameters in 2024 with results presented in the 2024 Existing Residential Evaluation Report to be filed March 31, 2025.	2025
2020	Evaluation	Consider tracking the parameters of heat pumps installed through HEA to increase the accuracy of the new heat pump peak demand savings calculation. Currently, the calculation consists of multiplying the capacity of each heat pump installed under HEA with the average unitary peak demand savings per capacity obtained from the mini-split heat pump measures installed under Green Heat. Including the heating capacity and the coefficient of performance (COP) at -15°C, the AHRI certificate number, as well as the indoor and outdoor heat pump models in the tracking sheet would allow for a more precise calculation of the peak demand savings for heat pumps, similar to that of Green Heat and NHC. Another consideration to improve the accuracy of the heat pump peak demand savings calculation would be to isolate mini-split heat pumps from the other heat pump measures by establishing a calculation specific to this measure. Mini-split heat pumps account for more than 80% of the heat pumps installed under HEA. The second most popular type of heat pump is central-air source heat pumps, for which a specific calculation could also be applied in the future.	2020 HEA-R2	Complete	E1 agrees with this recommendation. In 2021, E1 updated heat pump information using information from HOT2000 and clarified HOT2000 procedures for Energy Advisors to ensure this information is being consistently tracked and shared with E1. In 2022 and 2023, E1 now tracks the actual coefficient of performance (COP) at -15C, the installed heat pump capacities, the AHRI certification number, and indoor and outdoor heat pump models in the tracking sheet to allow for a more precise calculation of the peak demand savings. E1 also updated the tracking sheet with the Mini split demand savings formula recommended in the 2022 evaluation report. This calculation is also used to determine demand savings for central-air source heat pumps. In 2023, E1 completed changes to the HEA tracking sheet to better track the heat pump parameters recommended.	Complete

Table 1
Update on Implementation of 2018-2021 Evaluation Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2021	Evaluation	Update and simplify the tracking sheet in time for next year's evaluation to minimize risks of calculation errors. For instance, columns could be reorganized to follow the calculations steps from gross savings at meter to net savings at generator in that order. Also, formulas could be simplified by using named variables instead of cell references, and information that is no longer relevant to the calculations could be removed. This should be done alongside the integration of the Canada Greener Homes Grant data and before the conversion into the new data management system.	2021 HEA- Recommendation 1:	Complete	E1 agrees with this recommendation. In 2023, E1 completed updates to the HEA participant tracking sheet to include co-delivery of the Canada Greener Homes Grant. Updates included the reorganization of columns to follow the calculation steps from gross savings at meter to net savings at generator in that order, the simplification of formulas to the greatest extent possible, and the removal of unused or obsolete information and references.	Complete
2021	Evaluation	Develop and implement a process to identify project types more suited to quasi-prescriptive approaches (including solar PV, compressed air leaks, and possibly others such as domestic water booster pumps), and explicitly distinguish these project types from traditional custom projects within the Custom service. This should include developing appropriate protocols, documentation, and allowances for reviews of underlying savings determination methodologies as part of the annual evaluation plan. EOne should work with the Evaluator to determine savings methodologies, parameters, M&V documentation, and applicant requirements for these project types. For solar PV and compressed air leak projects, these should be accomplished on a priority basis given the popularity of such projects in Retrofit.	2021 Retrofit - Recommendation 2:	Complete	E1 agrees with this recommendation. In 2022 and 2023, E1 worked with the Evaluator to develop processes specific to project types that are better suited to a quasi-prescriptive approach. Since 2022, domestic water booster pumps now have a rebate available through BER and efforts were made to simplify compressed air leak audits. In 2023, E1 worked with the Evaluator to establish criteria for Solar project eligibility. Solar projects must provide production data after implementation to verify the system is operating as expected. A savings verification approach relying on standardized savings assumptions has been implemented for Compressed air leak audit projects since 2022, and a semi-prescriptive approach was developed as part of the 2023 evaluation.	Complete

Table 2
Update on Implementation of 2018-2021 Verification Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2018	Verification	For SEM and EMIS , experiment with provision of a circuit rider to maintain contact and occasional sociotechnical engagement projects to help maintain technologies and self- and corporate discipline when the service provider is no longer available to a project. A pragmatic rule of thumb is that changes stay in place if they can be maintained for over five years and through at least one change of lead personnel.	Recommendation 2018 SEM/EMIS-SVR-6	Complete	E1 agrees with this recommendation. E1 has and will continue to look for opportunities to keep participants engaged. E1 works with Service Providers to help determine the best approach that would result in sustained energy savings and changes through processes and engagement. The Evaluator performed a process evaluation for SEM in 2023 and interviewed nine participants regarding their motivations and barriers related to participation and satisfaction, as well as their satisfaction and recommendations for improvement in the program. The results of the Process Evaluation are in the Custom Incentive Program Evaluation filed with the NSUARB on April 1, 2024.	Complete
2021	Verification	Expected Useful Life for BNI Energy Management Information Systems (EMIS) seems low. We recommend that Efficiency Nova Scotia develop a review to check if EUL for this program could be increased. We recommend that Efficiency Nova Scotia look at the history of EMIS projects for Efficiency Nova Scotia and assess whether focusing on optimization via supervisory control coupled with particular optimized devices (measures) could increase the EUL for this program component.	2021 SVR-2	Deferred	E1 agrees with this recommendation. Due to the low participation numbers of the program in recent years, with no EMIS participation in 2023, and the merging of SEM and EMIS in the 2023-2025 DSM Plan, E1 is assessing how to move forward with the program and is therefore deferring review of current EUL values for EMIS.	N/A
2021	Verification	We recommend that Efficiency Nova Scotia look at this program component to see if EUL could be increased. The EUL for this program component seems low. We recommend that Efficiency Nova Scotia consider if there may be ways to increase EUL by emphasizing certain measures and/or by adding an EMIS controlled optimization component. (for SEM)	2021 SVR-3	Deferred	E1 agrees with this recommendation. Due to the low participation numbers of the program in recent years, and the merging of SEM and EMIS in the 2023-2025 DSM Plan, E1 is assessing how to move forward with the program and is therefore deferring review of current EUL values for EMIS.	N/A
2021	Verification	Several jurisdictions, for example Minnesota, have completed reviews of benefit cost testing using the new edition of the National Standard Practice Manual which emphasizes a full integrated planning approach for Distributed Energy Resources. Efficiency Nova Scotia should review the new manual and determine its possible usefulness going forward. Set up a study group to review the new Standard Practice Manual with a view towards expanding planning and practice for Distributed Energy Resources.	2021 SVR-5	In Progress	In late 2023, E1 engaged an external consultant, Energy Futures Group to support the review and development of an optimal cost effectiveness test for Nova Scotia with the Demand Side Management Advisory Group, per the NSUARB's directive to E1 in their decision on E1's 2023-2025 DSM Plan. This work with the DSMAG was initiated in Q4 2023 and is expected to be ongoing in 2024.	2025

Table 3
Update on Implementation of 2022 Evaluation Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2022	Evaluation	Develop a process for Application Rebates to ensure that, prior to offering a new quasi-prescriptive measure, savings algorithms are established and that key information is collected and tracked.	BER-R1	Complete	E1 agrees with this recommendation. Upon further consideration and to keep things standardized within E1, BER will be adopting E1's standardized approach to adding new measures which includes discussing new measures ahead of time with E1's Engineering and Planning team and following the TRC and PAC testing protocols established by E1. E1 will also discuss new measures with the third-party evaluator to determine key information required for data collection and tracking.	Complete
2022	Evaluation	Explore ways to increase BER decision-makers' awareness about the DLC Premium certification, for example through the promotion of the Premium lighting rebates, conferences, training sessions, and webinars.	BER - R2	Complete	E1 agrees with this recommendation. In 2023, E1 delivered a webinar with distributor partners and members of the public to discuss the evolution of the BER Program, and the potential for higher rebates for DLC premium products. An additional incentive was provided in 2023 for DLC Premium lighting products through a pilot with E1's Efficiency Preferred Partners. The results from this pilot will inform decision-making for future years. E1 intends to continue the pilot to encourage further uptake of DLC Premium products, and where possible, marketing will include DLC premium products in lighting-related promotional materials.	Complete
2022	Evaluation	Consider increasing DLC Premium rebates to counterbalance the higher prices of DLC Premium products compared to DLC Standard products.	BER - R3	Complete	E1 agrees with this recommendation and DLC premium products currently have a higher rebate in select measure categories compared to DLC standard products.	Complete
2022	Evaluation	For Retrofit solar PV projects, EOne should collect the required data to undertake a study to quantify, with reasonable confidence, a Nova Scotia relevant adjustment ratio between ex-ante simulation software package performance estimates and ex-post installed field performance. EOne should collect post-retrofit solar PV system performance data to undertake a study to develop reasonable local Nova Scotia post-retrofit performance estimates based on solar PV system pre-installation modelled performance. These data would allow for the development of a locally relevant adjustment ratio for BNI projects such that eventually post-retrofit data collection would be unnecessary for all projects in favour of updating this local adjustment. EOne should collect a minimum of 12 months of performance data for a representative sample of solar PV projects completed in 2022-2023, which the Evaluator would use to perform the study as part of the 2023 evaluation of Retrofit.	Retrofit - R1	Complete	E1 agrees with this recommendation. Program staff collected post-retrofit solar PV system performance data to support the development of a Nova Scotia relevant adjustment ratio between ex-ante simulation software package performance estimates and ex-post installed field performance for BNI projects. As part of the 2023 DSM Evaluation process, E1 provided full-year energy production data with modeled energy production for 18 Solar PV projects completed between 2021 and 2023 to the Evaluator. Eight of those projects were modelled with RETScreen and ten with PV Watts. The Evaluator determined a distinct adjustment ratio for each software, which will be applied in 2024 to calculate energy savings for future Custom Solar PV projects. The results from the solar PV study can be found in the 2023 Custom Incentives Evaluation Report to be filed with the NSUARB on April 1, 2024.	Complete
2022	Evaluation	For any future Retrofit indoor horticultural lighting projects, EOne should require M&V efforts involving the International Performance Measurement and Verification Protocol (IPMVP) Option C approach to allow for a more accurate representation of the interactive effects of such measures and a better understanding of the scale of these effects to inform program design.	Retrofit - R2	In Progress	E1 agrees with this recommendation. Program staff are currently exploring different methods for accurately representing the interactive effects associated with horticultural lighting projects including the International Performance Measurement and Verification Protocol (IPMVP) Option C approach. This review will also provide a better understanding of the scale of interactive effects which will feed into program design. E1 intends to provide findings in 2024 to the Evaluator.	2024
2022	Evaluation	EOne should revisit their model review process to ensure that as-built documents are used.	New Construction – R1	In Progress	E1 agrees with this recommendation. Program staff reviewed E1's Custom New Construction model review process in 2023. E1 will make revisions to improve standardization and accuracy of model reviews in 2024.	2024
2022	Evaluation	Update the Program Guide to include the new approach to the fan power baseline for MURBs. »For ductless split systems or ductless heat pumps, fan power in the baseline should be identical to the proposed case (Article 8.4.4.18-5 of 2017 NECB); »For ducted split systems or ducted heat pumps, fan power in the baseline should be modelled with 640 Pa static pressure and 40% combined efficiency (Article 8.4.4.18-.3 of 2017 NECB).	New Construction – R2	Complete	E1 agrees with this recommendation and has completed this recommendation by revising Section 7.4.1. of the New Construction Program Guide to include the new approach to the fan power baseline for MURBs.	Complete
2022	Evaluation	Monitor free-ridership for this service and undertake a process evaluation in 2023 or 2024 for New Construction to provide recommendations on the service given the potentially shifting market and regulatory context.	New Construction – R3	In Progress	E1 agrees with this recommendation. The Evaluator conducted a comprehensive impact evaluation on Custom New Construction in 2023 which included a review of the free-ridership algorithm to ensure different aspects of the decision-making process were captured. The free-ridership level in 2023 was established at 31%, participant interview responses indicate changes in the market. A process evaluation focused on a changing market and regulatory context for the program will be conducted in 2024.	2024

Table 3
Update on Implementation of 2022 Evaluation Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2022	Evaluation	Investigate the impact of interruptible load rates on peak demand savings and, if needed, implement changes to peak demand savings calculation methodologies for participants on interruptible loads. Evaluator will work with EOne and NS Power to ensure that the conditions that trigger an interruption are clear and review reference documents to identify existing best practices for interruptible rates. Following this, the Evaluator will update project review protocols and savings calculation methodologies as needed to ensure clarity and consistency in the manner interruptible loads are treated in peak demand savings calculations. The Evaluator will also ensure that project review protocols include a validation of whether participants are on an interruptible load rate so that any interruptions are considered in M&V results for energy savings as well.	SEM – R1	Complete	E1 agrees with this recommendation. E1 has worked with NS Power and the Evaluator to validate participants on an interruptible load rate, identify the conditions that trigger a load interruption, and determine the best approach for calculating peak demand savings for participants on interruptible load rates. E1 also reviewed reference documents to identify existing best practices for interruptible rates. It was determined that peak demand savings should include both firm (non-interruptible) and non-firm loads, although this should be clarified in the peak demand savings definition. E1 will update project review protocols and savings calculation methodologies to ensure clarity and consistency in the manner interruptible loads are treated in peak demand savings calculations in 2024.	Complete
2022	Evaluation	Request that the Service Provider include the rationale for selecting an M&V approach in the M&V report.	SEM – R2	Complete	E1 agrees with this recommendation. E1 has informed Service Provider to include rationale for selecting an M&V approach in the M&V reports they produce.	Complete
2022	Evaluation	Conduct a process evaluation of SEM in tandem with a Custom Retrofit process evaluation. The Evaluator believes that, given the increasing similarities between SEM and the on-site energy manager component of Custom Retrofit, EOne should undertake a joint process evaluation to better define and differentiate between the various offers under the Custom Incentives program, ensuring both coherence of assumptions and methodologies across all components and that the range of components offered meets the current needs of the market. A process evaluation would also help ensure that the various aspects of SEM (such as the support offered by the Service Provider, M&V guidelines, etc.) are aligned with SEM program objectives.	SEM – R3	Complete	E1 agrees with this recommendation. The Evaluator performed a process evaluation in Custom Incentives in 2023. The 2023 Custom Incentives Evaluation Report will be filed with the NSUARB on April 1, 2024. The process evaluation includes results for both SEM and Custom Retrofit and was aimed at better defining the differences between the various offers within the Custom Incentives program and SEM.	Complete

Table 4
Update on Implementation of 2022 Verification Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2022	Verification	E1 should set up a study group to review the new Minnesota test and the basis for its construction, to assess relevance for Nova Scotia. Rationale: Recent advancements in cost-effectiveness assessment present opportunities for Nova Scotia. Minnesota has completed a review of benefit cost testing using the new edition of the National Standard Practice Manual which includes Distributed Energy Resources (DERs) in addition to Energy Efficiency and Demand Reduction projects/programs. One advantage of the Minnesota test is broader inclusion of jurisdictional policy goals.	SVR-2	In Progress	In late 2023, E1 engaged an external consultant, Energy Futures Group to support the review and development of an optimal cost effectiveness test for Nova Scotia with the Demand Side Management Advisory Group, per the NSUARB's directive to E1 in their decision on E1's 2023-2025 DSM Plan. This work with the DSMAG was initiated in Q4 2023 and is expected to be ongoing in 2024.	2024
2022	Verification	E1 should conduct a "looking ahead" exercise to game out long-term future electricity system costs through 2150 to assess current decisions on program operations. Rationale: E1 should conduct a "looking ahead" exercise, combining the most recent resource study results with a look at what the electric system and electricity costs will be through 2050 or 2075, along with what climate will be like. Then repeat through 2100 or 2150. The point would be to assess current decisions on program from the perspective of 2050/2075 and 2100/2150 to see if they need to be different, looking back from the future.	SVR-3	Not recommended for Action	E1 expects to file its next DSM Plan in February 2025 for the plan period 2026-2030 which will include the portfolio of DSM resources E1 is proposing for this five year period. E1 expects the 2026-2030 DSM Plan to be informed by the avoided costs of DSM (benefit streams) that have been used historically (energy and capacity from NS Power's Integrated Resource Plan, transmission and distribution from a NS Power led stakeholder process based on recent T&D investments, carbon which was used for the first time in the 2023-2025 DSM Plan and reflected the federal carbon tax trajectory) as well as any new benefit streams that may be identified in the cost effectiveness test review outlined in the recommendation above. These benefit streams typically come from a planning view that does not look forward 50+ years. E1 is unsure at this time how to look out at electricity system costs through to 2150 and how current decisions in the 2026-2030 DSM Plan development may be impacted by such a view. E1 understands such a looking ahead exercise would be conducted by the electric utility, which E1 is open to discussing.	Not recommended for Action
2022	Verification	Set up a seminar on how climate adaptation and energy work fit best together. For example, the EMERA DC residential loop pilot in Florida would be a possible topic for a seminar, as would a presentation from a jurisdiction that has moved recently to integrate climate policy and energy policy. Electrification and decarbonization, as well as preparation for receiving and housing climate migrants could be additional topics. Rationale: Even without formal integration of climate policy and energy policy, it is worthwhile to set up a seminar on climate adaptation and Distributed Energy Resources. Efficiency Nova Scotia should consider a seminar bringing climate expertise and ENS expertise together.	SVR-4	Not recommended for Action	E1 appreciates this recommendation and understands that climate adaptation is important. E1 also recognizes that climate adaptation is not currently part of the approved 2023-2025 DSM Plan. E1 does have involvement in various climate related activities. Notably, The Halifax Climate Investment, Innovation and Impact (HCI3) Fund is a subsidiary of E1 and seeks to invest in a net zero Halifax/Kjipuktuk and help Halifax reach its full emissions reduction potential while also promoting equity and reconciliation, and unlocking shared benefits for local communities. E1 also has Energy Managers who are funded by various federal and provincial sustainability programs (e.g. Sustainable Canadian Agricultural Partnership) who are able to recommend and secure non-DSM funding for climate adaptation measures. There are also other funding channels (non-DSM) available to Nova Scotian's like NRCan Low-Carbon Economy Fund, Canada Greener Homes program and the Climate Change Adaptation Program. E1 plans to bring in a climate adaptation expert to a virtual meeting where information can be shared with all E1 employees on available programs, funding and general knowledge on climate adaptation practices.	Not recommended for Action

Table 4
Update on Implementation of 2022 Verification Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2022	Verification	(MHEEP) Assess potential errors in tracking sheet treatments of heat pump savings and demand reduction as found by the Evaluator in the Affordable Multifamily Housing Program in other programs, such as MHEEP, that provided heat pump measures. Rationale: The Evaluator found tracking sheet errors in connection with the Affordable Multifamily Housing program attribution of savings and demand reductions to heat pump operations. This suggests a check for the possibility of similar errors for other programs that provide heat pumps, such as the MHEEP program. EOne should apply a thorough review of tracking sheet treatments of heat pumps for the MHEEP program and use lessons learned from the Evaluator's adjustments to these savings in other programs to update their tracking data.	SVR-5	Complete	E1 agrees with this recommendation. E1 has investigated the potential errors in tracking sheet treatments of heat pump savings and demand reduction as found by the Evaluator in the Affordable Multifamily Housing (AMH) Program and has determined that the heat pump calculation issue in AMH tracking sheet was related to the use of the CIRx tool. E1 has determined this is not used for MHEEP or SBES heat pump calculations and does not apply to those programs. E1 has determined that the new adjustment factor will be added to the CIRx tool for BER program.	Complete
2022	Verification	(Custom-NC) As part of the incentive application contract, New Construction should require all appliances installed in incentivized Multi-Unit Residential Buildings (MURB) that are furnished by the incentive recipient be rated as Energy Star or better efficiency. Rationale: New Construction could be improved by bundling a requirement for the installation of Energy Star (or better) rated appliances in all homes that are furnished by the recipient of the incentives. These additional savings provided by efficient appliances should be obtained through additional incentives provided per appliance to offset a portion of the incremental cost of the more efficient appliance.	SVR-6	Not recommended for Action	E1 appreciates this recommendation although does not recommend for action. The Custom New Construction program is non-prescriptive and does not mandate any specific measure to the customer or offer measure-specific rebates. Program staff do currently encourage developers of Multi-Unit Residential Buildings (MURBs) to consider Energy Star appliances, which would result in a higher incentive due to their inherent energy (kWh) savings. E1 agrees to ensure that Energy Star appliances are recommended in all kick-off meetings of MURB developments and have added the item to their kick-off list. This step will ensure that customers are aware of the rebates available for Energy Star appliances and will highlight the positives of incorporating energy efficient appliances.	Not recommended for Action
2022	Verification	(SEM) During the next cycle process evaluation, conduct exploration focused on feasibility of appropriate M&V activity, with specific attention toward the level of support provided by the program to implement IPMVP Option "A" (pre/post) monitoring of retrofit equipment. Rationale: Efficiency One should require a process evaluation for the SEM program to determine if program support for M&V is sufficient to capture savings according to IPMVP option "A" methods. In previous program cycles this has been missing from a sizable portion of the Custom program offerings and is essential as a form of best practices as well as the industry standard. It is important not to drift from pre/post measurement in programs for which pre/post measurement is possible.	SVR-7	Complete	E1 agrees with this recommendation. As part of the evaluation of the SEM program in 2023, a process evaluation was conducted to assess if the appropriate level of support is being provided when capturing savings using IPMVP Option "A" (pre/post) monitoring of retrofit equipment. Results of the evaluation are in the 2023 Custom Incentives Evaluation Report filed with the NSUARB April 1, 2024.	Complete

Table 4
Update on Implementation of 2022 Verification Recommendations

Year	Evaluation/ Verification	Recommendation Text	Source	Status	Comments	Expected Period of Completion
2022	Verification	(SBES) A process evaluation of SBES should be conducted to inform non-participant and partial-participant spillover that directly results from program activity. This activity should also inform rebate programs of potential upgrades to measure lists. Rationale: The small business program (SBES) may be missing some spillover credit. It is expected that there would be some non-participant spillover produced by an effective direct-install program that has delivered significant savings over previous years' operations. A process evaluation should be conducted to capture this potential non-participant activity, and should, at a minimum, follow up with partial-participants and participants from prior program cycles. This non-participant evaluation should be conducted using a survey method approach as informed by the Uniform Methods Protocols for net-to-gross evaluations¹⁶ as this effort may also inform other programs that may need to update their portfolio of incentivized measures.	SVR-8	Complete	E1 agrees with this recommendation. The 2023 SBES evaluation consisted of a comprehensive impact evaluation and a process evaluation. Both Dropped-Out and Overdue Participant surveys were conducted and yielded a 0% Spillover for 2023. Results of the process evaluation are in the 2023 Direct Installation Evaluation Report filed with the NSUARB April 1, 2024.	Complete