

NOVA SCOTIA ENERGY BOARD

IN THE MATTER OF: **The *Public Utilities Act*, RSNS 1989, c. 380 as amended**

- and -

IN THE MATTER OF: **An Application by EfficiencyOne for Approval of a New
Benefit-Cost Analysis Test for Evaluating Demand Side
Management (DSM) Plans – Matter M12282**

EVIDENCE OF EASTWARD ENERGY INC.

July 17, 2025

Introduction

Eastward Energy Inc. (“Eastward”) is the incumbent natural gas supplier in the Province of Nova Scotia. As this is the first Application by EfficiencyOne (“E1”) to substantively raise the issue of potential strategic electrification initiatives by E1, Eastward has a direct interest in this proceeding and the impact it may have on the full provincial energy landscape. The following evidence addresses various concerns of Eastward raised by E1’s Application and Information Request (“IR”) responses.

Participation in the DSMAG

In response to Eastward’s IR-03 E1 stated three specific reasons why in its view Eastward’s participation in the Demand Side Management Advisory Group (“DSMAG”) is not suitable. Eastward wishes to address each of these points.

First E1 stated that Eastward’s *“strategic interests may conflict with the DSMAG’s objectives of promoting DSM”*¹. E1 provided no evidence that Eastward’s interests would conflict with the DSMAG’s objectives except to note that Eastward’s primary business revolves around fossil fuel-powered energy uses. In the first instance, Eastward notes at page 19 of its Application that Nova Scotia Power Inc. (“NSPI”) is already a member of the DSMAG, and as the supplier of electricity in the Province is in a greater potential conflict with the demand side management (“DSM”) supplier than Eastward could be. NSPI’s system is also approximately 50% fossil fuel fired and has been during the entire time that E1 has been providing DSM in the Province². Eastward does not see how it could be in any greater conflict with E1 than NSPI. If Eastward was to be denied involvement in the DSMAG on the basis of some perceived conflict than it would only be logical to remove NSPI from the DSMAG. Eastward does not advocate such a position, but simply notes the inconsistency with having NSPI a part of the DSMAG and not Eastward on the basis of some perceived conflict in the view of E1.

More importantly, this Application is the first time that E1 has substantively referred to the potential for it to start strategic electrification, and has in its Application provided a direct example of how its proposed BCA test could be used to analyze the cost effectiveness of potential gas to electric conversions. In this regard, Eastward now has a direct interest in ensuring that the perspective,

¹ NSEB Matter No. M12282, Exhibit E-3, page 6, lines 8-9

² NSPI 2025 10-Year System Outlook Report (Matter No. M12386) Exhibit E-1, page 24, line 2

1 insight and information of Eastward, as the incumbent natural gas supplier, is provided to E1 and
2 the other members of the DSMAG. Eastward particularly notes that in its Application E1 mentions
3 amendments to the Gas Distribution Act (“GDA”).³ In relation to these amendments, Eastward
4 proposes it will be important for E1 to consider hybrid heating in their upcoming 2027-2031 plan
5 development, which Eastward believes it is appropriate that they have input into as a member of
6 the DSMAG.

7 The GDA has been amended to specifically reference the use of natural gas as a hybrid peaking
8 resource. Section 2(c) of the GDA specifically states that the purpose of the GDA includes to
9 “*facilitate the use of gas as a hybrid peaking resource to satisfy the integrated electricity system*
10 *demand*”⁴. Hybrid peaking resources are defined in the GDA as “*electricity resources and non-*
11 *electricity resources used in combination to satisfy the integrated electricity system demand*”⁵. As
12 such, not only is Eastward not in a conflict, but it is legislatively mandated to pursue as one of its
13 defined purposes hybrid peaking resource opportunities to assist in meeting the Provincial
14 electricity demand and is now integrally associated with issues related to the electric system
15 demand such as strategic electrification.

16 In addition to the changes to the GDA, the procurement guidelines for the NSISO includes the
17 following within its mandate: *conduct procurement for energy resources, including: ...hybrid*
18 *peaking resources*.⁶

19 As of May 2025, the province of Nova Scotia has designated 16 special planning areas with more
20 than 60,000 proposed dwelling units in Halifax Regional Municipality⁷. Eastward previously
21 submitted in response to NSUARB Staff IR-2 in Eastward’s Mains Feasibility Test Review
22 proceeding (NSUARB Matter No. M10960), that the Company believes the majority of newly
23 constructed dwelling units in the HRM urban core (homes/multi-unit residential buildings or
24 MURBs) will be located with close access to our existing infrastructure given our mains within
25 Halifax, Dartmouth and Bedford.⁸ As such, installing hybrid heating systems in new construction
26 MURBs is expected to be a cost effective measure.

³ Matter No. M12282 – An Application by EfficiencyOne for Approval of a New Benefit-Cost Analysis Test for Evaluating Demand Side Management (DSM) Plans - page 14, line 12

⁴ [Gas Distribution Act](#), Section 2(c)

⁵ [Gas Distribution Act](#), Section 3(1) (da)

⁶ [More Access to Energy Act](#), Section 9(m)(v)

⁷ [Minister Designates New Special Planning Area; Two Major Studies Complete | Government of Nova Scotia News Releases](#)

⁸ NSUARB Matter No. M10960, Exhibit E-49, pages 2-7

1 E1's second rationale for why in its view Eastward should not be part of the DSMAG, is that the
2 DSMAG members have expertise in DSM and strategic electrification, and Eastward's primary
3 focus on the promotion of fossil fuels use does not align with the group's specialized mandate.
4 Eastward has as one of its defined purposes to facilitate the use of gas as a hybrid peaking
5 resource to satisfy the electric system demand, and it brings with it the specialized expertise of a
6 sophisticated energy utility supplier in Nova Scotia. Eastward is presently actively involved in work
7 to study hybrid peaking resource opportunities, and is carrying out pilot projects to study the use
8 of gas fired heat pumps at both residential and commercial sites in Nova Scotia

9 Eastward has highly specialised knowledge and information on the cost and greenhouse gas
10 emissions data relevant to natural gas appliances and heating systems which it can bring to bear
11 on the DSMAG. This knowledge and data will inform the DSMAG and E1 on the potential for
12 hybrid peaking resources that can cost effectively meet the needs of the overall electric system
13 in an environmentally sound manner. As such, Eastward respectfully submits that it has a focus
14 and expertise equal to the existing DSMAG members when it comes to Demand Side
15 Management in Nova Scotia.

16 Finally, E1 states that Eastward's participation would not align with the DSMAG's aim to support
17 regulatory and policy goals that emphasize reducing reliance on fossil fuels and enhancing energy
18 efficiency. Eastward notes its discussion above regarding the recent amendments to the GDA that
19 set out its regulatory mandate in relation to the integrated electric system, but also that the GDA's
20 first stated purpose in section 2 is to "*provide a framework for the orderly development and*
21 *operation of a gas delivery system in the Province*"⁹. There is no specific regulatory mandate to
22 reduce the direct use of natural gas in the Province, and NSPI's own recent IRP analysis provides
23 for greater development of natural gas fired resources to support the integration of more
24 intermittent renewable generation, as set out in NSPI's May 29, 2023 Evergreen IRP Final
25 Modelling Results model CE1-E1-R2 Current Policy and Trends – No Atlantic Loop¹⁰.

26 That same modelling analysis shows savings of \$2.3 Billion for a hybrid peak scenario (CE1-E2-
27 R2) compared to the base line CE1-E1-R2 scenario¹¹.

⁹ [Gas Distribution Act](#), Section 2(a)

¹⁰ [Nova Scotia Power Evergreen IRP Final Modeling Results \(May 29, 2023\)](#), page 52 of PDF

¹¹ [Nova Scotia Power Evergreen IRP Final Modeling Results \(May 29, 2023\)](#), page 62 of PDF

1 NSPI's consultant E3 recognized the value of dual fuel resources in its October 2023 report The
2 Economics of Electrification in Nova Scotia¹²:

- 3 ○ *"When electrification occurs at scale, the marginal cost to serve load from new*
4 *heat pumps could trigger **significant new investments in generation,***
5 ***transmission and distribution as heat pumps add new load to existing***
6 ***winter peaks when adopted in buildings currently using fossil fuels for***
7 ***heating; this in turn would reduce ratepayer benefits of current***
8 ***performance heat pumps, adding urgency to the need to incentivize best-***
9 ***in-class heat pumps and dual-fuel heat pumps to reduce the peak load***
10 ***impact"***. (page 81) (emphasis added)

11 Further, as a regulated energy utility in the Province, Eastward seeks ways to enhance energy
12 efficiency for the benefit of its customers and the Province as a whole. It can bring its knowledge
13 on energy efficiency to bear as a member of the DSMAG. Eastward is investigating Renewable
14 Natural Gas ("RNG") and exploring hydrogen blending to distribute hydrogen enriched natural
15 gas, as demonstrated by Eastward's joint initiative with Dalhousie to launch the *Dalhousie*
16 *University Hydrogen Applications Research Lab*. Both initiatives would lower the emissions from
17 natural gas consumed in the province and further support the total net benefits of hybrid solutions
18 for Nova Scotians. These initiatives bear consideration by the DSMAG, and Eastward's
19 participation will ensure the DSMAG is aware of developments in these areas.

20 In response to Eastward's IR-02(a), and elsewhere throughout its IR responses, E1 states that
21 through the development of its 2027-2031 DSM plan in 2025, it expects to continue exploring the
22 inclusion of strategic electrification in a way that ensures value for customers and supports
23 broader energy system and policy objectives. In response to Eastward's IR-07(c), E1 also stated
24 that the electric utility benefit of hybrid peaking or dual fuel opportunities as a minimization or
25 elimination of electric utility capacity generation costs associated with peak capacity impacts may
26 be considered as part of the modelling and program design of E1's 2027-2031 DSM Plan and
27 reflected in any benefit cost analysis. Eastward believes its participation as a member of the
28 DSMAG will greatly assist in this work and for the reasons noted above it should be made a part
29 of the DSMAG to better inform both the DSMAG and E1 on potential opportunities including hybrid
30 peaking opportunities.

¹² [The Economics of Electrification in Nova Scotia](#), page 81

Marginal Emissions

In relation to NSPI's marginal emissions, in response to Eastward's IR-11 E1's consultant, Energy Futures Group ("EFG"), notes that its use of average emissions rates for calculating impacts for the portfolio is an approximate estimate and that "[w]ith sufficient data and analytics, calculating emissions impacts based on each measure's change in marginal generation and marginal emissions rates for each hour can provide a more granular estimate of the emission reduction impacts"¹³. Notable in this regard is that Figure 6 from NSPI's 2024 Report on the Application of Short Run Marginal Cost (SMRC) Test to Rates shows that Baseload (coal-fired) generation is on the margin more than three quarters of the time (highlighting added)¹⁴.

Figure 6. Estimated Percentage of Time on the Margin by Type of Generation

Figure 6											
Estimated Percentage of Time on the Margin by Type of Generation											
Type of Generation	2014 (%)	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)	2023 (%)	2024 (%)
Combustion Turbines (CTs) (diesel-fired)	1	1	0	2	3	1	0	0	3	1	0
Imports	7	0	0	0	0	0	0	0	0	0	0
CTs (nat. gas-fired)	3	3	1	7	6	7	9	2	4	8	4
Baseload (HFO or Nat. Gas - Fired)	13	7	4	9	12	16	14	8	19	29	17
Baseload (Coal-fired)	<u>76</u>	<u>89</u>	<u>94</u>	<u>82</u>	<u>79</u>	<u>76</u>	<u>77</u>	<u>90</u>	<u>74</u>	<u>62</u>	<u>79</u>
Average or Total	100	100	100	100	100	100	100	100	100	100	100

This suggests that the use of average versus marginal emissions rates is not appropriate given that going forward incremental generation will be served by coal and later by heavy fuel oil and natural gas/fuel oil combustion turbines operating at low efficiencies¹⁵. Hybrid heating systems when utilizing natural gas infrastructure will operate at over 90 percent efficiency. Therefore, using marginal generation emissions is a more appropriate and representative approach.

Natural Gas to Electric Conversions

In response to Eastward's IR-04(a), EFG confirmed that "if 1,000 heat pumps were all replacing gas as a primary heating fuel, the results of the illustrative example are a negative net benefit of \$17.4 million, and a benefit cost ratio of 0.45". In response to Eastward IR-05, EFG also stated

¹³ NSEB Matter No. M12282, Exhibit E-3, page 22, lines 17-19

¹⁴ NSP 2024 Short Run Marginal Cost (SRMC) Test to Rates Report, NSEB Matter No. M12350, Exhibit N-1, page 16, line 6

¹⁵ NSPI 2025 10-Year System Outlook Report (Matter No. M12386) Exhibit E-1, page 17, line 1 & page 24, line 9

1 that “[t]he savings of utility natural gas from EfficiencyOne’s(E1) demand side management
2 (DSM) portfolio are expected to be significantly less than savings for electricity and other fuels”¹⁶.

3 Despite these conclusions of its own consultant, when E1 was asked in Eastward IR-04(b) to
4 confirm that it would not propose to implement such a measure as the heat pump example above
5 with a 0.45 benefit cost ratio as a strategic electrification project, E1 did not provide such
6 confirmation. Rather it stated that throughout 2025 it would be exploring potential strategic
7 electrification program components and measures for its 2027-2031 DSM Plan, and that while
8 legislation requires the DSM Plan’s cost-effectiveness to be screened at the Plan level, E1 must
9 provide justification for any measures included in the DSM Plan that do not pass the Board
10 approved cost-effectiveness test for DSM in Nova Scotia. Eastward is concerned that
11 notwithstanding EFG’s finding that savings of utility natural gas from DSM are expected to be
12 significantly less than the savings for electricity and other fuels, that E1 would not be able for its
13 upcoming Plan, the first to potentially address strategic electrification, to confirm that a natural
14 gas example that had a negative benefit of \$17.4 million and a benefit cost ratio of 0.45 could still
15 potentially be put forward by E1 as a viable DSM measure. Eastward does not believe this could
16 in any way be a valid strategic electrification measure.

17 **Reliability Impacts**

18
19 In response to Eastward’s IR-08(e), E1 stated that “*reliability impacts are assumed to be*
20 *embedded in the avoided cost values provided by NS Power*”¹⁷, and in response to Eastward’s
21 IR-08(d) EFG stated that “[t]he value of increased or decreased system peak impacts and
22 reliability are assumed to be embedded in the avoided cost values provided by NS Power”¹⁸.
23 Eastward is concerned that this key item of peak costs and system reliability is only “assumed” to
24 be embedded in the avoided cost values provided by NS Power, and believes this should be
25 confirmed and an explanation provided of how such costs are captured by the avoided cost values
26 if they are so captured.

27 Notably in response to Eastward’s IR-10(b) EFG states that “[a] potential increase in risk
28 associated with beneficial electrification could be prolonged exposure to grid outages”¹⁹. Eastward
29 believes this risk needs to be evaluated as a part of any benefit cost analysis. Eastward notes

¹⁶ NSEB Matter No. M12282, Exhibit E-3, page 7, lines 20-22

¹⁷ NSEB Matter No. M12282, Exhibit E-3, page 17, lines 11-12

¹⁸ NSEB Matter No. M12282, Exhibit E-3, page 17, lines 7-9

¹⁹ NSEB Matter No. M12282, Exhibit E-3, page 19, lines 18-19

1 that electric grids are facing increasing reliability challenges associated with electrification of
2 building heat and transportation and severe weather events. Multiple grid alerts have been issued
3 in BC, Alberta, and in Quebec. To avoid rotating outages, these alerts have included requests to
4 customers to turn down heat, put off doing laundry, running dishwashers and charging
5 EV's^{20/21/22/23}. Some of these alerts are the result of prolonged periods of low wind generation.

6 The organization that represents Canada's electric utilities (Electricity Canada) has flagged
7 significant concerns with the reliability of the Canadian electric grids and notes that these
8 concerns are particularly concentrated in Nova Scotia, Ontario, Saskatchewan and Alberta^{24/25}.

9 In view of the above, any benefit cost analysis related to natural gas must incorporate the
10 expanded legislated mandate of the natural gas system as noted above. It must also capture the
11 lost value of the natural gas system reliability. In 2024, only 5 Eastward customers were impacted
12 by an Unplanned Outage, equating to a reliability of 99.99998%. This is equivalent to an average
13 gas customer experiencing a 1-hour outage less than once every 100 years. The underground
14 nature of the system makes it resilient to tropical storms, hurricanes and other significant events
15 that impact above ground infrastructure.

16 **Conclusion**

17
18 Eastward provides the following points to summarize its position on this matter:

- 19 • Participation in DSMAG
 - 20 ○ Eastward's involvement in the DSMAG would pose no further conflict of interest
 - 21 than what is currently present with NSPI.
 - 22 ○ The *Gas Distribution Act* and the *More Access to Energy Act* specifically reference
 - 23 the role of hybrid heating in managing electricity demand.
 - 24 ○ Eastward can provide DSM expertise with respect to hybrid heating systems,
 - 25 natural gas heat pumps, as well as expertise in cost and greenhouse gas
 - 26 emissions data related to natural gas heating systems and appliances. Eastward

20 [Quebec sets record for electricity consumption during cold snap | Montreal Gazette](#)

21 [Critical emergency alert issued as Alberta's power grid put under strain | Globalnews.ca](#)

22 [Alberta Energy System Operator issues grid alert over electricity use | Globalnews.ca](#)

23 ['A wake-up call': Alarm raised over B.C. electrical grid amid plans for natural gas heating ban - Business in Vancouver](#)

24 [Electricity needs to work in the real world | Electricity Canada](#)

25 <https://www.electricity.ca/files/reports/Final-Electricity-Canada-CER-Response.pdf>

1 can provide information on lowering GHG's through the blending of hydrogen and
2 RNG.

- 3 ○ Eastward's participation in the DSMAG aligns with its aim to support regulatory
4 and policy goals and enhancing energy efficiency, as the GDA's purpose is to
5 provide a framework for the orderly development and operation of a gas delivery
6 system in the Province. NSPI's IRP analysis supports the development of natural
7 gas resources to integrate more intermittent renewable generation, and hybrid
8 peaking or dual fuel opportunities may be considered as part of the modelling and
9 program design of E1's 2027–2031 DSM Plan.

- 10 • Marginal Emissions

- 11 ○ Marginal emissions would be a more appropriate and representative approach to
12 calculating emissions for DSM initiatives.

- 13 • Natural Gas to Electric Conversions

- 14 ○ Based on the illustrative example provided by EFG, Eastward does not believe
15 that the conversion of gas heating systems to electric heat pumps should be
16 considered as strategic electrification, as it has a negative net benefit of \$17.4
17 million and a benefit cost ratio of 0.45.

- 18 • Reliability Impacts

- 19 ○ Eastward is concerned that peak cost and system reliability impacts are only
20 assumed to be reflected in NSPI's avoided cost values, and believes this should
21 be confirmed with a clear explanation of how those costs are captured.
- 22 ○ E1's BCA test should capture the lost value of the natural gas system reliability.

23
24 Eastward appreciates the opportunity to provide this evidence and also notes its support for the
25 contemporaneously filed evidence of its consultants, Posterity Group.