

NOVA SCOTIA ENERGY BOARD

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

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**

CLOSING ARGUMENT OF EASTWARD ENERGY INC.

October 14, 2025

Table of Contents

<u>Heading</u>	<u>Page</u>
INTRODUCTION	1
MEMBERSHIP IN THE DSMAG	1
STRATEGIC ELECTRIFICATION	3
HYBRID PEAKING RESOURCES	5
AVERAGE VERSUS MARGINAL EMISSIONS RATES	8
NATURAL GAS TO ELECTRIC CONVERSIONS	9
RELIABILITY IMPACTS	10
CONSENSUS AGREEMENT	10
SUSTAINABLE DEVELOPMENT AND SUSTAINABLE PROSPERITY CONSIDERATIONS	11
CONCLUSION	13

INTRODUCTION

Eastward Energy (“Eastward”) appreciates the opportunity to provide this final written argument to the Nova Scotia Energy Board (“Board”). As this is the first Application by EfficiencyOne (“E1”) addressing a new test and how it may impact the broader delivery of its offerings, Eastward has a direct interest in this matter and the impact it may have on the full provincial energy landscape. Eastward raised various areas of concern in its pre-filed evidence and the pre-filed testimony of its consultant, Posterity Group (“Posterity”), and will address each of the issues raised in that evidence below, along with related matters that arose in the oral hearing.

MEMBERSHIP IN THE DSMAG

Eastward has requested that E1 accept it as a member of the Demand Side Management Advisory Group (“DSMAG”) but E1 has declined to do so, and instead has proposed that it engage Eastward through one-on-one meetings with the DSMAG¹.

E1’s refusal to allow Eastward membership in the DSMAG is essentially based on its view that Eastward has a conflict of interest with the goals of E1 and the DSMAG. However, nowhere in the record is there any evidence of there being a conflict. Rather, as noted by Mr. Hawkins in his Opening Statement², at page 2:

“Eastward Energy does not see any conflict between the ultimate aims of E1 and the DSMAG and Eastward Energy, but rather sees a need for the parties to work collaboratively to determine the most effective and efficient approach to advancing total energy supply in the Province.”

Through the recent changes to the *Gas Distribution Act* and the creation of the Nova Scotia Energy Board with a mandate which includes supporting competition and innovation in the provision of energy resources in Nova Scotia, the Province has made clear the desire to have an integrated gas and electric system.

Eastward wants to be a robust participant in the processes to determine broad solutions to the energy needs of the Province, and to do so believes it is appropriate for it to be a full participating member of the DSMAG, where it can work with all the other parties in a constructive manner to ensure the most cost effective and environmentally sound overall energy solutions are available for the Province. In this regard Eastward is aligned with the goals of E1 and the DSMAG and does not have a conflicting interest.

Ms. Thompson confirmed that the DSMAG is an advisory group which acts as a forum for the timely sharing of information, exchange of ideas, and discussion among its members³. She also confirmed that E1’s proposed evergreen periodic review process is to occur through the DSMAG⁴, and that it is not unusual for E1 and the DSMAG not to have consensus⁵. In fact, in this process itself, the Industrial Group, a member of the DSMAG, has a fundamental disagreement with E1 over the primary test to guide program development going forward⁶ after more than a year of

¹ Exhibit E-24, Rebuttal Evidence of EfficiencyOne, page 20.

² Exhibit E-30.

³ Transcript page 43, line 15 to page 44, line 1.

⁴ Transcript page 47, line 17 to page 48, line 2.

⁵ Transcript page 45, lines 5-9.

⁶ Transcript page 45 line 19 to page 46 line 3.

iterative consultation with the DSMAG⁷. A settlement agreement with the Consumer and Small Business advocates was necessary to address their concerns with E1's Application⁸. Nova Scotia Power, whose business is the provision of electricity service, and who earns a return on the capital it employs to provide that service, is also a member of the DSMAG.⁹

As noted by Mr. Hawkins:

"The *Gas Distribution Act* has been recently amended to include as one of its purposes to "facilitate the use of gas as a hybrid peaking resource to satisfy the integrated electricity system demand", with hybrid peaking resources defined as "electricity and non-electricity resources used in combination to satisfy the integrated electricity system demand".

Accordingly, Eastward is legislatively mandated to pursue as one of its purposes hybrid peaking resource opportunities to assist in meeting the Provincial electricity demand, and is now integrally associated with issues related to the electric system demand such as hybrid heating."¹⁰

As such, Eastward submits that it is appropriate for Eastward to be a member of the DSMAG where it can fully bring its knowledge, information and expertise to bear on the important issues facing the energy landscape in Nova Scotia in the coming years. At the end of the day, as Ms. Thompson confirmed, it is the responsibility of E1 as the franchise holder to make any Application, and notwithstanding consultation with the DSMAG, it is not unusual for there not to be consensus.¹¹ Certainly to the extent that E1, or in fact any member of the DSMAG, has issues with any position advocated by Eastward, E1 at the end of the day is free to advocate and advance a differing position. There is simply no legitimate reason to keep Eastward out of the DSMAG and there is significant value having it as a fully participating member of the DSMAG.

From the pre-filed evidence and oral testimony of E1 and its consultants it is abundantly clear that the DSMAG is the forum through which E1 primarily receives input and evaluates the information it obtains, and that this role of the DSMAG is intended to continue into the future. Eastward has the ability and desire to provide valuable strategic input into these discussions.

Notable in this regard is the confirmation by Dr. Hill that that the *Gas Distribution Act*, which directly refers to the integrated electricity system, was not included in Table 7 of Appendix B of the Energy Futures Group ("EFG") Direct Testimony¹². Table 7 was to identify the DSMAG working group review of Nova Scotia policies and relevant impacts.¹³ Neither was there any reference in E1's Application to the \$2.3 billion savings for electric ratepayers associated with hybrid heating¹⁴. These are oversights that would not have occurred if Eastward was a member of the DSMAG.

Accordingly, Eastward respectfully requests that the Board order that Eastward be added as a full member of the DSMAG in accordance with its general supervision of E1 pursuant to section 79(G)(1) of the *Public Utilities Act*. As E1's 2027-2031 plan is being developed throughout 2025

⁷ Transcript page 46 lines 15-19.

⁸ Exhibit N-32.

⁹ Transcript page 47, lines 6-16.

¹⁰ Exhibit E-30, Eastward Energy – Opening Statement, page 1.

¹¹ Transcript page 45, lines 5-9.

¹² Exhibit E-1, Application of EfficiencyOne, Appendix A.

¹³ Transcript page 55, line 6 to page 56, line 16.

¹⁴ Transcript page 57, line 4 to page 58, line 8.

with an expected filing date in early 2026¹⁵, and E1 is currently only working through the initial iterations of their model¹⁶, Eastward views it as very important that it join the DSMAG in a timely manner so that E1's plans and measures do not become so advanced as to not be able to capture the input that Eastward can provide at the early stages of modelling and plan development. Eastward has specific knowledge and information in regard to hybrid heating that will be discussed in more detail below, and if not fully evaluated in the 2027-2031 plan development a tremendous potential opportunity for cost effective DSM in this regard will be delayed by over six years¹⁷.

As such, if the Board is in agreement that Eastward should be a member of the DSMAG, Eastward requests that the Board make an early finding in this regard so that Eastward can join the DSMAG before its input may be too late to incorporate into E1's 2027-2031 plan development, as the plan is anticipated to be filed in early 2026. This could be done with reasons to follow, or the Board could provide a partial decision addressing this discrete item with the remainder of its decision on the wider issues to follow. This would allow E1, Eastward and the other members of the DSMAG to be able to commence working co-operatively in accordance with the Board's decision in this regard.

STRATEGIC ELECTRIFICATION

With respect to the recently added definition of strategic electrification in section 79A(b)(iv) of the *Public Utilities Act*, Ms. Thompson confirmed that strategic electrification requires both a reduction in overall greenhouse gas emissions and in electricity costs¹⁸. She also noted that although E1 is continuing to explore how it can demonstrate reductions in electricity costs resulting from strategic electrification, that work has not been fairly well advanced¹⁹. As such, if Eastward can be made a member of the DSMAG in a timely manner it can provide input into the work that needs to be progressed on this issue.

Interestingly, when Mr. Bowman was asked whether he was suggesting that beneficial electrification could be considered a benefit in terms of added revenue in using the PAC test he stated that:

"But if you're going to pursue electrification using a benefit-cost test, the utility costs are easy. The question is what goes in the benefit side. If you only want to focus on the customers' benefits, which are the fuel they save and the greenhouse gases, you can get your way past a DRC or a social cost test, but you still haven't got a good assessment of what it does to the utility, and you certainly don't pass that definition of DSM that's in the Act where electrification must lower costs. So I don't see another way through that challenge without putting revenue.

And just one other minor point on that. Again, that's not necessarily a difficult hurdle. Like as long as you're not adding to peak, electrifying in this province will pass a PAC test because your marginal costs of energy are seven and a half cents or something, if I remember correctly from the Excel spreadsheet, and your retail rates are higher than that. So it'll generate more revenue than the cost to meet

¹⁵ Transcript page 48, lines 16-21.

¹⁶ Transcript page 49, lines 5-9.

¹⁷ Transcript page 50, lines 6-11.

¹⁸ Transcript page 39, lines 9-12.

¹⁹ Transcript page 41, line 15 to page 42, line 3.

energy as long as you're not adding to peak. **But that's just a mathematical result that accords with the commonsense result, which is the utility is having a really hard time figuring out the peak in the future.** That's the challenge. So those numbers are telling us something that actually fits with sort of the common understanding of the utility and the challenge it faces.

Q. Okay. And if I can just distill that down, it's, really, what you're recommending to the Board is the PAC test, but with this particular modification in terms of accounting for benefits for electrification.

A. Correct. And again, because I think that's the only way to get through that test that's in the legislation."²⁰ (emphasis added)

And similarly. Bowman stated:

"Electrification is a tricky topic when you get into traditional DSM metrics, and Mr. Neme pointed this out, but it doesn't fit easily into any of the tests, but particularly it doesn't fit in when you have legislation saying electrification is only considered DSM if it reduces cost to customers, which I believe is the language. I can pull it up if you like. And so I think you need to look at electrification in this province under that legislative test using a utility focused PAC test and, in doing so, you have to consider the beneficial revenue to the utility from doing that electrification. Otherwise, all you're going to have is costs."²¹

When asked if using the PAC test together with the revenue was Mr. Bowman's proposal for evaluating the benefits versus costs or as a test to satisfy the definition of strategic electrification that electricity costs be reduced, he concluded that:

"I think it's both. I think it would be the PAC with revenue both helps you assess the benefit cost of electrification and it also serves as your measure to show that you are reducing electricity costs, which I'm reading in a net electricity cost basis."²²

Using fuel oil to heat pump conversion as an example Mr. Bowman went on to say that:

"The fuel oil one, though, however, only shows costs on the utility side, and it shows it because energy generation, which would basically be fuel, is 8.56 million, but then there's all these capacity driven costs, the 8.7 for generation capacity and the 1.86 for transmission capacity and the 1.86 for distribution capacity. So all those costs build up. And so this program does not look great for a utility. And I believe Mr. Neme explained that this will always look bad, but this one looks particularly bad because of the heating, and it drives a lot of peak.

[Posterity] came in and -- oh, and by the way, just to finish, as you scroll down the page, if you throw in the other things, you get to the bottom, you'll see this thing passes the proposed BCA, \$25 -- 25 million to the positive because of the [cu]stomer fuel savings and the greenhouse gas savings. So those other

²⁰ Transcript page 428, line 3 to page 429, line 19.

²¹ Transcript page 426, line 16 to page 427, line 10.

²² Transcript page 443, lines 11-16.

considerations drag it over the line. And if E1 is operating focused on a BCA and how to make positive programs, it might run that program. **But what [Posterity] is coming in and saying is, “No, wait. You can do a lot better because if you combine that heat pump with gas peaking, you will eliminate large numbers of those values at the top of the page. You won’t need the transmission -- generation capacity, you won’t need the transmission, and you won’t need the distribution”. And if you do all of that, that 26 million negative to the utility will be much lower.** It will come out, as I did the math, about -- actually, [Posterity] did the math in their -- but it will come out much lower. It’s about half of that. And if you design it that way, you’ve now brought the utility costs down to 13 million. And if you consider the revenue they’re going to get from selling that power, it’s more than 13 million. So that would pass a PAC test and lower net cost to customers. It would pass 79I of the Act.

We’ve run an electrification program, we’ve had the utility incur some costs, but there’s more revenue than cost coming in, so the net cost to everybody else is passed, and that’s how electrification can meet the terms of 79I of the Act.

But if you’re only focused on this broad BCA, you might not even think about the stuff [Posterity] is talking about because you’ve already passed it by just putting in the heat pump and not thinking about all those extra cost savings.

And as a service provider at NSP, I don’t think E1 can ignore all of that. Like E1 is NSP’s arms and legs, and any utility would want to be thinking about that stuff.”²³ (emphasis added)

The materials and discussion above demonstrate the value of the information and analysis which Eastward would be able to bring forward if the Company was part of the DSMAG - which will advise on E1’s 2027-2031 plan.

HYBRID PEAKING RESOURCES

Subsection 2(c) of the *Gas Distribution Act* was added to the Act to make one of the specified purposes of the Act to facilitate the use of gas as a hybrid peaking resource to satisfy the integrated electricity system demand, with hybrid peaking resources defined to mean electricity resources and non-electricity resources used in combination to satisfy the integrated electricity system demand.

In Posterity’s Opening statement they summarized their pre-filed evidence and noted as follows:

“In our filed evidence, Posterity Group recommended that “E1 specifically recognize the benefits of hybrid heating to reduce peak load impacts as part of the 2027-2031 DSM Plan.”

This recommendation is supported by Nova Scotia Power and E3’s acknowledgment of the ability of hybrid systems to reduce peak load impacts. Governments and utilities in Québec, Ontario, and British Columbia have also

²³ Transcript page 363, line 3 to page 365, line 17.

recognized the value of hybrid heating to the electricity system to ensure system reliability and cost-effective service.

The recommendation is also supported by illustrative examples developed by Posterity Group using the proposed BCA framework. These examples show substantial net benefits for hybrid heating systems in Nova Scotia compared to alternatives, including electric resistance heating.

E1's response to Posterity's evidence explicitly recognizes the value of hybrid heating and acknowledges that hybrid heating measures "can accurately be evaluated under the proposed BCA framework".

The inclusion of hybrid heating within the 2027-2031 DSM Plan is consistent with analysis showing system benefits for Nova Scotia and other Canadian jurisdictions, and consistent with E1's response to Posterity's evidence.

Hybrid heating will provide substantial net benefits in Nova Scotia under the proposed BCA framework, and will provide Nova Scotians with a practical, cost-effective pathway in the province's energy transition."²⁴

Posterity's evidence is consistent with Nova Scotia Power's most recent Integrated Resource Plan ("IRP") which shows a potential savings of \$2.3 billion for a hybrid peaking scenario compared to the IRP baseline scenario.²⁵

Mr. Bowman stated in this regard that:

"If, in step three, your test is going to be the social test, in step two you're going to be thinking about how to achieve those benefits in terms of customer fuel savings and greenhouse gas emissions because those are the big numbers. If your test in step three is going to be the administrative test, the utility focus, step two might look a little bit different. And in step two is where [Posterity] is saying E1 went askew on their example of 1,000 heat pumps because they considered whether you convert 1,000 heat pumps from oil to a fully heat pump supply, which offsets the maximum oil, offsets the maximum greenhouse gases, but it also actually does pretty poorly on a PAC test because you're driving up peak and that's driving up the utility's cost. That's really hard for them to supply.

If you know that at step three your focus is going to be the PAC test, during step two you'd be thinking about hybrid heating, like [Posterity] said, because you already know in your head that that energy I've got to supply in November is not that big a deal, it's that energy I've got to supply on January 27th when there's a weather bomb or whatever your term for it is here, that's going to be the key. And so you'll already be thinking about designing that measure and program in the guts of it, never mind the measure level, even below that.

Like what is the thing I'm doing? Am I trying to get people to install heat pumps? No, I might be getting them to install a mixture of a heat pump with

²⁴ Posterity Group – Opening Statement, Exhibit E-31, page 1.

²⁵ Exhibit E-11, Evidence of Eastward Energy Inc., page 4, lines 26-27 and footnote 11.

a natural gas supplement or a natural gas furnace, and it costs a bit more, but if I can avoid that peak the utility measures, the utility -- the PAC gets immensely better. And so this decision is not about what do we do at step three or step six or when the Board gets it. It's about how do I send a signal to E1 about how far back in that process they're already thinking about things like I need to -- **if I'm going to electrify, I should sell more energy but avoid peak, and if I'm going to do energy efficiency, I should really be avoiding peaks, to send that signal right from the outset.** I think that communication aspect of the test as opposed to the sort of calculation aspect of the test is where I think it's really important."²⁶ (emphasis added)

And he further commented as follows:

"But in that measure design, hybrid heating being an easy one to talk about, like you say, it's already got people talking about it, there's going to be others that aren't yet on our agenda that I want people spending their time sharpening their pencils at E1 figuring out how to do. But it's going to be in step two where they're thinking about design and that, and they think, well, you know, what, you know, **maybe people converting oil to heat pumps are already doing it on their own and what I really need to pile on is the incentive to install a natural gas furnace while you're doing it to avoid peak.** And that churning, that creativity, I don't think that level of information will easily before this Board, and it's certainly hard to imagine how an Intervenor could come in and say not just this measure was wrong, but, like, "When you started with a big whiteboard and drew up the plans for this measure, you were focused in the wrong place and here's how. Let's redo it. Let's recreate it in the middle of a hearing room." I don't think those are very effective things to do try to do in a hearing. I think you want to have E1 on that job right from the start."²⁷ (emphasis added)

And Mr. Bowman concluded:

"So the PAC is signalling even more savings than the TRC, and I think in some cases it may signal even more savings than the BCA. But it will also help achieve more investment, for example, in the -- again, something like the [Posterity] evidence, that it will -- I think it will have the opportunity to show what parts of the plan can be modified to bring bigger utility benefits and also support more of that while you're paring out the things that weren't bringing utility benefits."²⁸

Ms. Thompson confirmed that electrification will generally drive the peak upwards and that hybrid peaking resources will generally correlate with peak electric system hours.²⁹ She also acknowledged the potential value of hybrid heating and that it could be accurately evaluated under E1's proposed BCA framework.³⁰

Commissioner Murphy specifically queried why in its Rebuttal E1 stated that the "inclusion of specific hybrid heating measures may be considered in the 2027-2031 DSM Plan" and not that

²⁶ Transcript page 452, line 9 to page, 455, line 6.

²⁷ Transcript page 457, line 6 to page 458, line 9.

²⁸ Transcript page 464, line 16 to page 465, line 6.

²⁹ Transcript page 50, line 12 to page 51, line 8.

³⁰ Transcript page 59, lines 11-18.

they will be considered. Ms. Thompson stated that “we do think there is value in it and, as we work through our modelling, we will be looking at considering it”.³¹

Eastward is concerned with what it saw and heard in the information request responses, E1 Rebuttal and during the oral hearing with respect to hybrid heating. There simply does not appear to be the level of acknowledgement of the significant value hybrid heating can bring to the integrated electricity system, and the focus on this item which Eastward would expect from E1. As one of Eastward’s specified purposes is to facilitate the use of gas as a hybrid peaking resource to satisfy the integrated electricity system demand, it believes it necessary to highlight the need for a substantial review of the potential value of plans and measures at this time that can assist in this facilitation.

The value of hybrid heating is uncontroverted on the record. Eastward believes that due to the potential very substantial economic benefits of hybrid heating it would be useful for the Board, which has a mandate to support competition and innovation in the provision of energy resources including hybrid peaking resources³², to highlight in its decision the necessity for E1 to focus on hybrid heating measures as a key factor for consideration in the development of the 2027-2031 E1 plan. This would be consistent with the Chair’s questioning of Mr. Neme on the correct test to track the DSM policy objective of a reduction of costs for customers set out in section 79I of the *Public Utilities Act*.³³

AVERAGE VERSUS MARGINAL EMISSIONS RATES

On cross-examination Dr. Hill confirmed that the emissions rates that EFG used for the illustrative examples in the Application “were based on information from Nova Scotia Power and represented average emissions rates”³⁴ and that the Difference in Carbon Emissions (“DICE”) methodology is also “an average emissions rate comparison”³⁵. He also stated that in the opinion of EFG “the most appropriate values to use would be the long-run marginal emissions rates, but for the purpose of the recommended BCA test and illustrative examples from that test we used what was the available data, which would be the average emissions rates”.

E1 itself noted that the DICE method requires that the IRP inputs and assumptions remain valid³⁶. It is unclear whether this will be the case in the dynamically changing electricity environment in Nova Scotia, and with the fast approaching environmental targets.

When asked if hybrid heating is generally intended to assist in lowering the electricity peak Dr. Hill responded that “It is – it can be lowering the peak or meeting the overall demand during colder temperatures. So the combined impact of that might be to lower the peak across the system, yes.”³⁷ As noted above, Ms. Thompson agreed that hybrid peaking resources will generally

³¹ Transcript page 268, line 2 to page 269, line 11.

³² Energy and Regulatory Board’s Act, section 6(2) and the definition of “energy resources”.

³³ Transcript page 271, line 8 to page 273, line 9.

³⁴ Transcript page 62, lines 11-15.

³⁵ Transcript page 64, lines 7-11. Dr. Hill also confirmed that the Electric Emission Intensity figures used in the DICE analysis were the figures provided to them and that they did not redevelop or reanalyze those numbers (Transcript page 65, line 4 to page 66, line 4).

³⁶ Exhibit E-4, Rebuttal Evidence of E1, page 17, lines 26-27.

³⁷ Transcript page 68, lines 12-16.

correlate with peak electric system hours³⁸ and that “electrification will generally drive the peak upwards”³⁹.

Eastward specifically noted in its Evidence, which is uncontroverted on the record, that Figure 6 from Nova Scotia Power’s 2024 Report on the Application of Short Run Marginal Cost Test to Rates shows that Baseload (coal-fired) generation is on the margin more than three-quarters of the time. This suggests that the use of average versus marginal emissions rates is not appropriate given that going forward, as provided in Nova Scotia Power’s 2025 10-Year System Outlook Report, incremental generation will be served by coal and later by heavy fuel oil and natural gas/fuel oil combustion turbines operating at low efficiencies,⁴⁰ in the range of 30%. In contrast, hybrid heating systems when using natural gas infrastructure will operate at over 90 percent efficiency.⁴¹

Nova Scotia Power’s 2025 10-Year System Outlook Report also indicates a need to add 600 MWs of gas/fuel oil combustion turbines.⁴²

Eastward submits that using marginal generation emissions is both a more appropriate and representative approach which should be utilized by E1 in its modelling analysis.

NATURAL GAS TO ELECTRIC CONVERSIONS

In its Rebuttal Evidence E1 stated that:

“In the actual event that conversion of gas heating systems to electric heat pumps results, under that application of the proposed BCA yielded a negative benefit of \$17.4 million and a benefit-cost ratio of 0.45, under existing Board directives, E1 would be required to provide justification to the Board for inclusion of these measures in any future DSM plan.”⁴³

In response to Undertaking U-1, using the E1 proposed BCA test with host customer impacts removed, the benefit cost ratio for the illustrative replacement of natural gas systems is still only 0.50.

Eastward does not believe that such a measure could in any way be considered a valid strategic electrification measure and is concerned that E1 believes it could potentially put forward a justification for such a measure.

Eastward submits that for process efficiency purposes it would be of value for the Board to provide guidance to E1 with respect to the level of justification that would be required to possibly justify a measure that would have such a negative benefit and a benefit cost ratio substantially below 1.0.

³⁸ Transcript page 50, lines 12-16.

³⁹ Transcript page 51, lines 5-8.

⁴⁰ Exhibit E-11, Eastward Evidence, page 6, lines 2-13 and footnotes 14 and 15.

⁴¹ Ibid, lines 13-14.

⁴² Matter No. M12386, Exhibit N-1, pages 16 and 17, Figures 6 and 7.

⁴³ Exhibit E-24, Rebuttal Evidence of EfficiencyOne, page 18, lines 16-19.

RELIABILITY IMPACTS

In its Rebuttal Evidence E1 stated that “NS Power’s avoided cost of capacity implicitly includes reliability impacts through a planning reserve margin adjustment”⁴⁴, and “If reliability differs between modelled scenarios, there may be an opportunity to assess the incremental reliability impacts beyond those captured in the existing avoided costs”⁴⁵.

Dr. Hill and Mr. Neme confirmed that if you add more capacity to the system you will have a larger absolute planning reserve margin⁴⁶, and that with respect to strategic electrification all of the utility system impacts, including potential distribution and transmission system capacity impacts, should be included.⁴⁷

Dr. Hill also confirmed that EFG assumed that Nova Scotia Power’s avoided costs incorporated the costs associated with ancillary services.⁴⁸

In its Rebuttal E1 also agreed in principle “that if a customer’s reliability decreases as a result of electrification this should be considered as part of the host customer impacts” subject to certain qualifications such as the need for backup generation or the ability for gas appliances to operate without electricity⁴⁹, and where the identified factors were met E1 would consider including reduced customer reliability within the host customer impacts proxy adder, with this review being dealt with through E1’s proposed “evergreen” process.⁵⁰

Eastward submits that the Board should confirm that any benefit-cost analysis related to natural gas must capture any lost value of natural gas system reliability, and if reliability differs between modelled scenarios an assessment of the incremental reliability impacts beyond those captured in the existing avoided costs shall be conducted. The record supports these requests and Eastward submits that these items do not need to be deferred to a future “evergreen” review process.

Furthermore, it would be beneficial for E1 to seek a more explicit confirmation from Nova Scotia Power that ancillary service costs, peak costs and system reliability are in fact embedded in the avoided cost values provided by them.

CONSENSUS AGREEMENT

In the Consensus Agreement by certain parties to the proceeding, E1 has agreed to “reflect an assumed quantification of zero for ...amenity, empowerment and pride”.⁵¹ However, at the same time it has not changed the Non-Energy Proxy Values for Beneficial Electrification although those values were initially specifically noted to reflect a combination of seven enumerated factors

⁴⁴ Ibid, page 19, lines 5-6.

⁴⁵ Ibid, lines 7-8.

⁴⁶ Transcript page 71, lines 5-18.

⁴⁷ Transcript page 72, lines 1-8.

⁴⁸ Transcript page 73, line 17 to page 74, line 2.

⁴⁹ Exhibit E-24, Rebuttal Evidence of EfficiencyOne, page 19, lines 19-27. See also Transcript page 74, line 12 to page 75, line 18.

⁵⁰ Ibid, page 20, lines 1-3.

⁵¹ Exhibit N-32, Consensus Agreement, page 2.

including amenity, empowerment and pride.⁵² Dr. Hill noted that despite the valuation of zero for these specific impacts he would not suggest changing the umbrella overall value provided to beneficial electrification, and Mr. Neme stated that in his view the 10 percent value was already conservative.⁵³

Despite the comments of Dr. Hill and Mr. Neme, Eastward submits that where the umbrella value for beneficial electrification was initially set to take account of three of the seven enumerated factors, which factors are now suggested by the Consensus Agreement to be set at zero, that it is only logical that the value for beneficial electrification be adjusted downward if the Board otherwise accepts the Consensus Agreement. To do otherwise would suggest that no value was initially presumed for these factors, which was not the case.

It is also worthy of note that the host customer non-energy impact factor of comfort, which was another of the seven enumerated factors, was not given a zero value despite in Eastward's submission this being another of the harder to quantify non-energy impacts.⁵⁴

Finally, in regard to the impact factor of reduced risk, which was also one of the seven enumerated factors, E1 also noted that "a potential increase in risk associated with beneficial electrification could be prolonged exposure to grid outages"⁵⁵. Mr. Neme confirmed in this regard that EFG calls them "non-energy impacts as opposed to non-energy benefits because to be fair and unbiased, one needs to consider both sides of the equation"⁵⁶.

Taken as a whole, Eastward submits the evidence suggests the need for a downward adjustment in the values attributable to beneficial electrification. The Income Qualified value can simply be a doubling of the reduced Non-Income Qualified value, consistent with E1's approach to other measures.

Also notable in this regard is that Eastward was not a party to the discussions that led to the Consensus Agreement among only certain parties, and the issues noted above would likely have been addressed in those discussions if Eastward was a member of the DSMAG and invited to those settlement discussions.

SUSTAINABLE DEVELOPMENT AND SUSTAINABLE PROSPERITY CONSIDERATIONS

Considerable weight has been given by E1 and EFG in this process to the recent addition of sustainable development and sustainable prosperity as a factor which the Board is now mandated by the *Energy and Regulatory Boards Act* to give appropriate consideration.⁵⁷ These are of course only one of the factors that the Board must give appropriate consideration to, and the meaning and level of "appropriate consideration" remains in the judgement of the Board taking into account the full record in front of the Board on any identified matter.

As well, each of these terms as defined have been a part of the Nova Scotia legislation for some time, with the definitions not having been newly crafted for the requirements that the Board must

⁵² Ibid at page 3 and Exhibit 5, E1 response to Board IR 16(e).

⁵³ Transcript page 80, line 3 to page 82 line 4.

⁵⁴ Transcript page 87, lines 1-19.

⁵⁵ Exhibit E-3, E1's response to Eastward IR 10(b).

⁵⁶ Transcript page 86, lines 3-8.

⁵⁷ *Energy and Regulatory Boards Act*, section 6(2).

consider, but rather by reference to the pre-existing *Environment Act* and *Environmental Goals and Climate Change Reduction Act*.⁵⁸

Sustainable development means the broad concept of development that meets the needs of the present generation without compromising the ability of future generations to meet their needs, while sustainable prosperity means prosperity where economic growth, environmental stewardship and social responsibility are integrated and recognized as being interconnected.⁵⁹ In this regard there is a balancing act required.⁶⁰

E1 and EFG have taken these provisions to the point where they are suggesting that the social cost of carbon must be incorporated into the primary benefit-cost test. When Mr. Bowman was challenged on his proposal for not incorporating the governmental policies on sustainable development and prosperity he noted that:

“Well, I think it does in the sense that, you know, when you’re considering reducing fuel use at Nova Scotia Power by energy efficiency, you’re helping them avoid emissions. That is included to the extent it’s part of their output-based pricing system. And you know, all these environmental factors, the fact that they’re switching off coal and all of that and you’re helping meet those objectives, that’s already quantified as part of the IRP test you’re trying to meet.

So yeah, I think it is included in the way that governments have made the decision to include environmental charges in the things that utilities need to pay, or implicitly in the regulations that utilities need to meet, like phasing out coal.

So I think those are absolutely adopted in the PAC. They’re not adopted at the broad global social cost of carbon level, but that’s already a concern about double counting because the utility’s plan already has a bunch of carbon provisions in it. And now we want to pancake on the entire social cost of carbon, which -- and not net out the fact that they’re already doing a lot of things like getting rid of coal and doing whatever to meet those carbon objectives.

It’s a sort of problematic aspect of the implementation of the BCA as proposed that I think you can avoid by focusing on PAC. If you don’t avoid it, the PAC, then you’ve got to get into how are we making sure we’re not double counting.”⁶¹

Eastward submits that in determining the primary benefit-cost test to be used by E1 going forward the Board has to balance the various legislative requirements that guide its actions and determine what best supports those requirements, and the level of appropriate consideration required in that regard.

Eastward also notes that to the extent a broad social cost of carbon test may be applied, EFG has gone so far as to recommend that for a comparison of resources on the supply and demand side on a fair basis applying the same test would be logical. In this regard they suggest that a similar test should be used in an IRP to identify what is the least cost path to meet future

⁵⁸ Exhibit E-1, Application of EfficiencyOne, page 15, lines 25-27.

⁵⁹ See Exhibit E-1, Application of EfficiencyOne, page 15 for legislative references.

⁶⁰ Cross-examination of Mr. Neme by the Chair, Transcript page 283, line 1 to page 284, line 7.

⁶¹ Transcript page 408, line 18 to page 410 line 8.

customers needs, and with respect to Nova Scotia Power's capital expenditure justification criteria when an element of capital budgeting is related to identification of least-cost alternatives for meeting needs.⁶²

Eastward submits that the use of the social cost of carbon, identified by Mr. Neme as an environmental externality⁶³, may not be warranted for other Board matters such as those noted above, and that no finding in this matter should presume an outcome in another. To the extent that environmental externalities could become a factor in IRP analysis this would be a significant change that would require serious consideration and input from many parties, some of whom are not represented in this process. If the Board believes that the primary test on the supply side should likely be consistent with that on the demand side, then it needs to be very cognizant of the wider potential implications of a decision to approve the primary BCA proposed by E1. Eastward notes that there are considerable costs associated with meeting the 2030 targets for being off coal and the requirement to be generating 80% of electricity from renewable resources. These include the reliability tie, cost of decommissioning the coal units before their end of life, addition of 600 MWs of combustion turbines, synchronous condensers, and battery storage.

The driver for the 2% discount rate was related to the emphasis that EFG put on sustainable development and its interpretation of the societal objectives of the Province, which was then applied across all areas that have impacts into the future.⁶⁴ Again this appears to be putting a stronger emphasis on the sustainability factors than may be warranted by a balanced approach to the overall policy objectives of the Province in relation to DSM. Eastward submits this needs to be carefully considered by the Board in such light.

CONCLUSION

In conclusion Eastward respectfully requests that the Board:

1. make a preliminary and final order that Eastward be added as a full member of the DSMAG in accordance with the Board's general supervision of E1 pursuant to section 79(G)(1) of the *Public Utilities Act*,
2. highlight in its decision that E1 should focus on hybrid heating measures as a potential key factor for consideration in the development of the 2027-2031 E1 DSM plan,
3. direct E1 to use marginal generation emissions in its modelling analysis,
4. provide guidance to E1 with respect to the level of justification that E1 would require to potentially justify a measure with a substantial negative benefit and a benefit cost ratio substantially below 1.0,
5. confirm that any benefit-cost analysis related to natural gas must capture any lost value of natural gas system reliability, and if reliability differs between modelled scenarios an assessment of the incremental reliability impacts beyond those captured in the existing avoided costs must be conducted,
6. order E1 to seek an explicit confirmation from Nova Scotia Power as to whether ancillary service costs, peak costs and system reliability are embedded in the avoided cost values provided by Nova Scotia Power,
7. adjust the values attributable to beneficial electrification downward if the Board otherwise accepts the Consensus Agreement,

⁶² Transcript page 182, line 7 to page 184, line 9, and Transcript page 254, line 4 to page 256 line 7.

⁶³ Transcript page 159, lines 4-11.

⁶⁴ Transcript page 189, line 3 to page 191, line 9, and Transcript page 238, line 15 to page 247, line 19.

8. in determining the primary benefit-cost test to be used by E1 going forward, balance the various legislative requirements that guide the Board's DSM related objectives while being cognizant of the wider potential implications of a decision to approve the primary BCA test proposed by E1, and
9. carefully consider the level of emphasis placed by EFG on sustainable development and its interpretation of the societal objectives of the Province, when evaluating the appropriateness of a 2% discount rate.

ALL OF WHICH IS RESPECTFULLY SUBMITTED.