BEFORE THE NOVA SCOTIA ENERGY BOARD

IN THE MATTER OF *The Public Utilities Act, R.S.N.S. 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

DIRECT EVIDENCE OF
MELISSA WHITTEN
ON BEHALF OF
THE SMALL BUSINESS ADVOCATE

July 17, 2025

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I. INTRODUCTION

Q. What is your name and business address?

A. My name is Melissa Whitten, and I am a Managing Consultant for Daymark Energy Advisors, Inc. ("Daymark") 370 Main St, Worcester, MA 01608. Daymark is a consulting firm that has provided policy, planning, and strategic decision support services to the energy industry for over 35 years.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of the Nova Scotia Small Business Advocate ("SBA").

Q. Please describe your background and expertise.

A. I have been a consultant with Daymark since 2009. Daymark provides integrated policy, planning, and strategic decision support services to the North American electricity and natural gas industries. Daymark serves a diverse clientele by providing consulting services to organizations involved with energy markets, including renewable energy producers, private and public utilities, transmission owners, energy producers and traders, energy consumers and consumer advocates, regulatory agencies, and public policy and energy research organizations. Our technical skills include cost allocation, rates and pricing, power market forecasting models and methods, economic analysis and planning for energy procurement and portfolio management, and reliability assessments. Our experience includes detailed analyses of energy and environmental performance of electric systems, economic planning and procurement of electric and natural gas transmission and distribution service, and market analytics.

In my role as a managing consultant, I apply my knowledge and understanding of how regulatory change and competitive energy market conditions may impact utilities and their customer classes. In doing so, I also assess transmission and distribution issues for both electric and natural gas service, review energy commodity market trends, and conduct procurement, rate design and cost of service, and cost-benefit analyses. I have represented the SBA in proceedings involving pilot studies conducted to determine whether incentive programs that encourage shifting usage from peak to off-peak and am especially interested in whether these programs will offer bill savings to small business customers. In addition, I work on projects for a broad range of clients including utilities, regulators, industrial end-users, and stakeholders involved in regulatory processes. In this capacity, I have been involved in reviewing demand side management programs for utilities in Massachusetts and have represented the SBA during DSMAG stakeholder sessions since 2015.

Q. Have you previously testified before the Nova Scotia Energy Board ("Board"), the Nova Scotia Utility and Review Board ("NSUARB"), or regulators in other jurisdictions?

A. Yes, I have submitted evidence and testified before the NSUARB several times, however, this is the first time I have submitted evidence before the Board as the NSEB. In addition, I have submitted testimony in many state jurisdictions including in Arkansas, Maryland, Massachusetts, Michigan, New Hampshire, Ohio, Pennsylvania and Texas, as well as before the U.S. Federal Energy Regulatory Commission ("FERC").

A copy of my resume, including a summary of evidence filed in Nova Scotia, as well as testimony filed in other jurisdictions, is provided as Exhibit 1.

Q. What is the purpose of your testimony?

A. The purpose of my evidence today is to outline my concerns with the conclusion reached by EfficiencyOne (E1) that their proposed new Benefit-Cost Analysis (BCA) test is appropriate to be used to evaluate the cost effectiveness of E1's Demand Side Management (DSM) plans going forward (the "Application").[1] I also discuss the two concerns I have with this Application regarding the inclusion of non-energy benefits, which are:

1) Whether E1's proposed non-energy benefits can be accepted when there remains concern about the ability to quantify them; and
2) Whether the inclusion of host customer benefits and/or host customer costs in the proposed BCA test used to determine the cost effectiveness of future DSM plans is consistent with the legislative support cited in the Application.

II. SBA PERSPECTIVE ON DEMAND SIDE MANAGEMENT INVESTMENTS

Q. What is the perspective of small businesses regarding DSM versus other types of investments recovered through customer rates?

A. Having participated in DSMAG meetings for several years, I understand that there is the potential for DSM to provide savings in future capital investments to the extent that, in addition to meeting the Province's Clean Energy goals, a well-crafted DSM plan can be successful in reducing or delaying an increase in peak demand that then should translate into customer bill savings. But it should be noted that this is an "all else equal" comparison, because other factors including maintenance, load growth, and regulatory requirements, may require additional capital expenditure, as seen in NS Power's annual capital expenditure filings, that would offset any DSM induced savings.

[1] M12282, Exhibit E-1, EfficiencyOne (E1) Notice of Application and Evidence, (May 16, 2025)

The SBA represents a constituency of small businesses who receive service under three of NS Power's rate classes, specifically the Small General, General and Small Industrial classes. These small businesses pursue investments they hope will support growth but at the same time are less well insulated from economic volatility compared to larger entities.

The purpose of a BCA should be to minimize the cost of the DSM Plan while also achieving the energy policy objectives. It is acknowledged that a DSM Plan may be approved even though certain programs or measures that are not cost effective may be approved because they benefit low income residential customers and it is important for small businesses to participate in and realize benefits from the programs that apply to those classes. This does not mean, however, that the DSM Plan should be based on the inclusion of new factors whose values cannot be reliably defined, measured and verified but instead are to be supported by subjective proxy values in order to show that in total the DSM Plan benefits exceed costs.

While it remains important for small businesses to benefit from a DSM plan that supports the Province's 2030 Clean Energy transition goals, the BCA test must not result in customers facing increased costs from the DSM rider in the absence of benefits and in addition to any rate increase that may result from a future general rate applications ("GRA").

In its closing submissions in the most recent GRA, the SBA acknowledged that:

> The future of electricity in Nova Scotia is in flux, as we navigate delays from the

Maritime Link, the requirement to decarbonization generation, necessary hydro-electric maintenance and increasing storm costs. The SBA will continue to hold NSPI to account for every ratepayer dollar that is spent, while maintaining its position that reliability and consistency are essential for small businesses.[2]

The SBA's commitment to hold NS Power accountable applies equally to E,1 for both the costs and the benefits of a DSM plan that is to be assessed by the proposed BCA test presented in this Application. The concern for the SBA is increased because of recent results from NS Power's pilot programs that have had mixed success in obtaining participation among small businesses in TVP and CPP programs that could offer bill savings[3] and the historically low participation rates by small businesses in E1 programs.

III. OBSERVATIONS AND RECOMMENDATIONS

Q. Please summarize your observations regarding the Application.

A. After reviewing the Application I have the following observations:

- The proposed BCA test framework relies on proxy values for certain non-energy benefits as E1 does not have sufficient information to quantify them.
- Relying on benefits in a benefits-cost analysis that cannot be quantified nor independently measured and verified could introduce bias into the test results.

2 M10431(December 14, 20220 , Closing Submission of Small Business Advocate page 2 of 2.

3 M11822 Exhibit N-1, NS Power's application for approval of 2024/2025 Time-Varying Pricing Tariffs, 2024 NSUARB 158 Decision and Order (Sept 23, 2024) where the Board directed NS Power to continue its stakeholder collaborative process which has resulted in stakeholder sessions that reviewed the results of NS Power's 2022-2023 and 2024-2025 TVP and CPP Pilot Program Results, the most recent of which was held April 7, 2025.

- A BCA test framework that is at risk of bias can result in less than optimal decision making when determining the composition and cost of the entire DSM Plan.
- A DSM Plan that costs more than a plan that results from an unbiased BCA framework should not be considered in the best interest of customers.

Q. What recommendations do you have?

A. Based on the observations stated above, I recommend that E1's proposed BCA test not be approved until E1 has completed a thorough assessment of the proposed non-energy benefits presented in this Application. In addition, I respectfully submit that the Board direct E1 to do the following:

1. Obtain from an independent third party, not associated with this Application, evidence that shows the following non-energy benefits can be quantified:
    - Comfort;
    - Amenity;
    - Empowerment'; and
    - Pride.

(collectively the "Unquantified Non-Energy Benefits")

2. Present this independent third-party evidence to the members of the DSMAG in a stakeholder proceeding that allows for information requests to be included on the record and determine through DSMAG consensus whether and how the BCA test should be amended.
3. Submit an update to the Board of this Application including the amended BCA test.

4. In the alternative, make the value assigned to the Unquantified Non-Energy Benefits Nil until the work outlined above can be completed and approved by the Board.

IV. NEED FOR A NEW BENEFITS-COST ANALYSIS (BCA) TEST

Q. Why did Efficiency One (E1) submit this Application at this time?

A. E1 submitted this Application in response to a directive in the 2022 Decision issued by the NSUARB that directed E1 to develop an optimal cost-effectiveness test in consultation with the DSMAG.[4] This Application presents the proposed BCA test prepared by Energy Futures Group (EFG) that E1 says is informed by changes in policy objectives required due to recent changes in Nova Scotia legislation and regulations, since the NSUARB issued its directive in 2022.[5]

Q. What does E1 seek from the NSEB with this Application?

A. E1 submits that this BCA test provides an appropriate framework to assess future DSM plans and should replace the existing total resource cost (TRC) test on a go-forward basis.[6] E1 seeks an order granting the Board's approval of the BCA test, which includes an

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4 M10473 Exhibit E-1, E1 Application for approval of a Supply Agreement for Electricity Efficiency and Conservation Activities between E1 and Nova Scotia Power Inc, the establishment of a final agreement between the parties and approval of a 2023-2025 Demand Side Management (DSM) Resource Plan; 2022 NSUARB 137, (September 6, 2022) Board Decision, page 26, at para 73. At that time, the Board directed E1 to work with the DSMAG before the 2026-2028 DSM Application, however, the Board recently approved a one-year extension to the 2023-2025 DSM plan to include 2026, so the proposed new BCA Test for this Application will apply to the 2027-2031 DSM Plan application, which has yet to be filed.

5 M12282, Exhibit E-1, Application, the Evidence accompanying the Application references the Nova Scotia *Energy Reform (2024) Act* ("ERA"), the Nova Scotia *Energy and Regulatory Boards Act ("ERBA")* and the goals articulated in the Nova Scotia *Environmental Goals and Climate Changes Reduction Act,* pursuant to the Nova Scotia *More Access to Energy Act* ("MAEA"). Evidence, Section 1, page 1 of 38, lines 1-12.

6 M12282, Exhibit E-1, Application, page 5 at paragraph 26.

expanded list of factors beyond what is mentioned in recent legislation, on the basis that the BCA it serves the interests of ratepayers and provides a framework for the Board to assess future DSM plans.[7]

Q. How does E1 justify that recent changes in regulation support their proposed BCA test framework?

A. In the Application, E1 notes that when the provincial government approved the amendment to the *Public Utilities Act* (PUA*),* the term *electricity efficiency and conservation activities* was replaced with the term *demand side management"*

> The new definition of "demand-side management" under section 79A(b) states as follows:
>
> (b) "demand-side management" means activities, programs or plans relating to
>
> (i) the efficient use of electricity,
>
> (ii) the conservation of electricity,
>
> (iii) the alteration of the consumption pattern of an end user of electricity that has the effect of reducing demand during Nova Scotia Power Incorporated's periods of highest demand,
>
> *(iv) strategic electrification of energy end uses currently powered by fossil fuels in a manner that reduces overall greenhouse gas emissions and electricity costs,*
>
> (v) the delivery of a reduction in the amount of electrical energy or capacity that Nova Scotia Power Incorporated would otherwise be required to supply to its customers, or
>
> vii. any other prescribed activities, plans or programs;[8]
>
> *[emphasis added]*

7 M12282, Exhibit E-1,Application, page 6 at paragraph 27 and Evidence, Section 1,page 3 of 38, lines 1-2.

8 M12282, Exhibit E-1, Application, Evidence, Section 6.1 Changes to Public Utilities Act, page 13 at lines 14-38.

> This legislative amendment expanded the definition of demand-side management to now include strategic electrification programs targeted at reducing GHG emissions and electricity costs consistent with current environmental goals and legislation."[9]

In the Application, E1 explains that the amendment to the PUA that included strategic electrification to help reduce overall greenhouse gas emissions and electricity costs requires expanding the scope of the BCA test to include non-utility impacts, which include other fuel savings and GHG emissions savings. E1 goes further to use a similar strategy to support its use of host customer benefits by explaining that the ERBA and MAEA[10] require consideration of sustainability focused factors and sustainable development and prosperity, which it supports with specific citations. However, E1 then submits its own interpretation that non-utility impacts also include host customer benefits and costs – some of which ultimately will be represented by proxy rather than being quantified in a manner similar to the other factors.

V. BCA FRAMEWORK PROXY VALUES FOR EVALUATING E1's DSM PLAN

Q. What are your objections to E1's proposed framework based on host customer non-utility impacts?

A. The Application is intended to persuade the Board and intervenors that the proposed new BCA Test necessarily follows from the new legislation cited. However, in my opinion, the Application falls short of this objective, as I discuss further below.

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9 E-1 Application, Section 6.1 Changes to Public Utilities Act, page 13, lines 14-38.

10 Energy and Regulatory Boards Act (ERBA) and the More Access to Energy Act (MAEA)

Q. Which factors included in the BCA test does E1 intend to represent with proxy values?

A. E1's consultant EFG produced a report that is included as Appendix B to E1's Application. In its report, EFG provided a table listing nine host customer non-energy impacts that could be included in the BCA test, represented by proxy values.[11] E1 appears to have selected 6 from those 9 host customer non-energy impacts to be included in the BCA test as proxy values. The 6 selected are set out in the table below, which is a selection from Table 8 in the Application.[12]

Table 1: Host Customer Impacts

Host Customer Impact	Description/Meeting Notes	Inclusion in new BCA
Economic well-being	Energy bill savings reducing stress of disconnections, foreclosures, etc. create direct and induced economic benefits.	✓
Comfort	Weatherization, possibly BE.	✓
Amenity	EE 2nd fridge removals; DR changing home temperatures, business DR shut-downs; EV "range anxiety" (cost) + avoided trips to gas stations (benefit)	✓
Health & Safety	E.g., improvements to indoor air quality	✓
Empowerment	Satisfaction from ability to control energy consumption and bills	✓
Pride	Satisfaction from contribution to addressing environmental concerns	✓

[11] M12282, Exhibit E-1, Application, Evidence, Energy Futures Group, (EFG) Appendix B, *Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia*; Table 13: *Host Customer Impacts*, page 42 of 68.

[12] M12282, Exhibit E-1, Application, Evidence, Section 10.3.2 *Host Customer Impacts*, Table 8: *Host Customer Impacts*, pages 33 of 38.

Q. How does E1 propose to quantify the non-energy benefits that rely on proxy values?

A. As stated in the Application, E1 will quantify host customer non energy benefits "using proxy adders applied as a percentage of net energy benefits or of measure costs (for electrification) depending on the impact category, target market and DER type."[13]

.

Q. Which of the host customer non-energy benefits listed above do you consider problematic?

A. I recognize that some of the host customer non-energy benefits in the table above, such as Health and Safety, could be quantified by evaluating an air purifier manufacturer's projected improvement in air quality, which in of itself could be sufficient motivation for the homeowner to pay for installing this equipment. The other categories listed, such as "amenity", "empowerment" and "pride" do not evince obvious sources of valuation from equipment manufacturers and E1 and EFG did not offer any third party sources. Instead, by using proxies in the first instance of their inclusion in the BCA, there is no requirement or motivation to further consider their appropriateness or and creates conditions for effectively embedding them in the BCA framework permanently.

Q. Did you express your concern with E1's and EFG's proposal to include these host customer non-energy benefits in the BCA test before now?

A. Yes, we did. Daymark attended the series of stakeholder sessions held by EFG, and attended by E1, and asked questions about the appropriateness of including host customer non-energy benefits like empowerment and pride. While our concerns were

[13] M12282, Exhibit E-1, Application, page 5 at paragraph 24.

acknowledged, I do not feel that they were addressed in the Application. EFG included the following in its report:

> An important takeaway from this stakeholder process is that there is a lack of clarity among working group members on what is included in the current cost effectiveness test. The working group had discussions on many of the impacts and did not find consensus on several of the impacts discussed. Appendix B contains a summary of the working group's review of the current BCA test and the impacts that it does/does not include.
>
> The lack of agreement and common understanding of the impacts included in the current test underscores the value of having the new BCA test include clear and comprehensive documentation of the impacts and their quantification. E1 will be proposing in the BCA Application that quantification will be included and filed as part of each DSM Plan Application.[14]

Q. Did you find this summary of the stakeholder process addresses your concerns?

A. No, it does not satisfy Daymark's concerns expressed above, or at the stakeholder sessions mentioned in the EFG report in Appendix B, because it simply sidesteps our concern about how these host customer non-utility benefits would be able to be quantified using third party measurement and verification.

Q. Do you have any other concerns about this Application?

A. Yes, I am concerned that the Application rests its request for Board approval of its BCA Test on a broad overview of the recent changes in regulations and legislation but does not specify, in this overview, an actual reference to host customer non-utility energy impacts. Rather, E1 says that these legislative changes result in the Board considering "factors that

[14] M12282, Exhibit E-1, Application, Evidence, Appendix B, page 24 of 68.

are not restricted to utility-related impacts alone" citing that "sustainable development and sustainable prosperity invite consideration of … host customer impacts".[15] and even this reference does not explain how E1 and EFG can extrapolate from this invitation to include amorphous benefits such as "pride" and "empowerment".

E1 says that one of their goals for this Application is to be transparent, which is articulated in Principle 7 of the National Standard Practice Manual (NSPM) as:

> **Ensure Transparency**: Transparency helps to ensure engagement and trust in the BCA process and decisions. BCA practices should therefore be transparent, where all relevant assumptions, methodologies, and results are clearly documented and available for stakeholder review and input .[16]
> [Emphasis in original]

For this reason, Daymark would have expected E1 and EFG to have been prepared to discuss EM&V options as well as consider why, if these benefits are so compelling, the host would not be willing to self-fund them.

Q. What do you recommend for addressing the concern about the BCA test including these host customer non-utility benefits?

A. I recommend that E1 and EFG revise the proposed BCA test to exclude at least the three factors "amenity", "empowerment" and "pride", and revise the Application to include a commitment to an industry standard Evaluation, Measurement and Verification process for the remaining factors used in the BCA test.

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[15] M12282, Exhibit E-1, Application, Evidence, Section 2.1 Current Methodology, page 3 of 38, lines 23-24 and page 4 of 38, lines 1-2.

[16] M12282, Exhibit E-1 Application, Evidence, Section 7.5 Guiding Principles, Table 4: *NSPM BCA Guiding Principles*, p. 21 of 38.

VI. CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your observations and conclusions regarding the Application.

A. My review of the Application yielded the following observations:

- The Application's justification of the BCA test relying on proxy values for host customer non-energy benefits is deficient as E1 has not provided the necessary quantifiable supporting data.
- Relying on benefits in a benefits-cost analysis that cannot be quantified nor independently measured and verified could introduce bias into the BCA test results.
- A BCA test framework that is at risk of bias can result in less than optimal decision making when determining the composition and cost of the entire DSM Plan.
- A DSM Plan that costs more than a plan that results from an unbiased BCA framework should not be considered in the best interest of customers.

Q. What recommendations do you have?

A. Based on the observations and concerns discussed above, I respectfully submit that the Board direct E1 to do the following:

1. Obtain from an independent third party not associated with this Application reviewable evidence that shows the following non-energy benefits can be independently quantified:
    - Amenity
    - Empowerment
    - Pride

2. Present this independent third party evidence to the members of the DSMAG in a stakeholder proceeding that allows for information requests to be include on the record and determine through DSMAG consensus whether and how the BCA test should be amended.
3. Submit an update to this Application including the amended BCA test prior to E1 filing the 2027-2031 DSM Plan Application.
4. In the alternative, make the value assigned to the Unquantified Non-Energy Benefits Nil until the work outlined above can be completed and approved by the Board.

Q. Does the conclude your testimony?

A. Yes, it does.