

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-01:

Please discuss how the November 9, 2022, Public Utilities Act changes to the level of cost-effectiveness test from the program level to the portfolio level have changed the analysis results, citing analysis results, under the currently approved measures and methods, before and after November 9, 2022.

Response IR-01:

The November 9, 2022 *Public Utilities Act* amendment changed the level at which cost-effectiveness shall be evaluated, from the program level to the portfolio (i.e., Plan) level.¹ While this changes the level at which the Board shall evaluate the DSM Plan cost-effectiveness it does not change how EfficiencyOne performs cost-effectiveness testing or the results. Results will continue to be available at the measure, program component, program, resource and portfolio (i.e., Plan) level.

¹ Public Utilities Act (amended), SNS 2022, c 53 of the Acts of 2022, An Act to Amend Chapter 380, section 79H(2).

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-02:

Page 2 of 38 of EfficiencyOne’s (E1) Evidence states: “Including non-utility impacts reflects both best practice in benefit cost analysis test design, as well as recently enacted provincial legislation. While the relative weight of specific utility and non-utility impacts may change over time, the appropriate question for determining whether to include an impact category in the cost-effectiveness framework is whether it is relevant to DSM activities in Nova Scotia, based on policy priorities and objectives established under legislation. Applying this lens to non-utility impacts, in E1’s submission, supports the inclusion of the impact categories proposed under the BCA test framework.”

(a) Please identify all the indirect benefits and costs (costs and outcomes not directly related to DSM) that are used in the BCA.

- i) If there are indirect costs and benefits, for each, please explain how these are quantified.**
- ii) If there are indirect costs and benefits, for each, please explain and provide support demonstrating there is sufficient empirical evidence that supports the inclusion of the indirect costs or indirect benefit with the Public Utilities Act and Energy Reform (2024) Act or other directive placed on E1.**
- iii) Please explain how including these indirect benefits and costs is a “best practice” in BCA design for DSM.**
- iv) Please explain whether this “best practice” relates to the assessment of whether measures or programs to be included in a portfolio, but not whether a specifically proposed portfolio should be approved.**
- v) If indirect costs and benefits are removed from the proposed BCA, would the ratio of 1.0 or greater remain as the threshold?**

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 **(b) Please provide the list of the proposed weights to be assigned to each utility impact used**
2 **in developing the BCA test.**
- 3 **i) Please explain why each of these specific weights is considered appropriate for each**
4 **impact.**
5
- 6 **(c) Please provide the list of the weights to be assigned to each non-utility impact used in**
7 **developing the BCA test.**
- 8 **i) Please explain why each of these specific weights is considered appropriate for each**
9 **impact.**
10
- 11 **(d) Did E1 complete a sensitivity analysis on the BCA test impacts of using of different**
12 **weights?**
- 13 **i) If so, please provide a copy of this analysis.**
14 **ii) If not, why not?**
15
- 16 **(e) Please explain how the use of non-utility benefits supports the following policy objectives**
17 **in the Public Utilities Act:**
- 18 **i) The obligation on Nova Scotia Power in s. 79I(1) to undertake cost-effective**
19 **demand-side management that is “reasonably available”.**
- 20 **ii) The obligation on Nova Scotia Power in s. 79I(1) to undertake cost-effective**
21 **demand-side management in an effort to “reduce costs for its customers”.**
- 22 **iii) The requirement in s. 79L(4) that the demand-side management purchase**
23 **agreement be in the best interests of Nova Scotia Power Incorporated’s customers.**
24
- 25 **(f) Please explain whether or how the repeal of s. 79L, which required the Board to take into**
26 **account the affordability of demand-side management to Nova Scotia Power**
27 **Incorporated’s customers, impacted or affected the proposed BCA.**

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 **(g) Please confirm E1’s intention to propose performance requirements associated with the**
2 **achievement of non-utility benefits used to justify demand-side management through**
3 **the proposed BCA. If not confirmed, please explain why benefits would be included in**
4 **cost-effectiveness testing but not subject to measurement, verification and performance**
5 **requirements to ensure that electricity ratepayers are realizing the benefits they are**
6 **paying for.**

7
8 Response IR-02:
9

10 (a) The following IR response has been provided by Energy Futures Group (EFG).
11

12 All proposed impact categories are directly related to demand side management (DSM).
13 Some may be harder to quantify, but harder to quantify does not make them indirect.
14 Responses to the sub-questions below provide clarification of the suggested methods for
15 quantification of impacts that are directly related to DSM but may be more difficult to
16 quantify.
17

18 The three “harder to quantify” impact categories recommended for inclusion in the test
19 are a) health impacts from criteria air pollutants, b) avoided economic and environmental
20 damages from greenhouse gas emissions, and c) host customer non-energy benefits. The
21 recommended methods to quantify these are in turn: a) Health impacts from criteria air
22 pollutants are estimated based on air emission health impacts from electric generation,
23 using the United States Environmental Protection Agency’s (EPA) benefit per kWh
24 method¹ and with reference to impacts for the New England region, b) Avoided economic
25 and environmental damages from greenhouse gas emissions are estimated based on the

¹ <https://www.epa.gov/statelocalenergy/estimating-health-benefits-kilowatt-hour-energy-efficiency-and-renewable-energy>

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 interim updated guidance on the social cost of carbon estimates from the Government of
2 Canada², and c) proxy host customer non-energy benefits are estimated based on a set
3 of proxy adders that were developed by EFG and reviewed with the Demand Side
4 Management Advisory Group (DSMAG).³

5
6 Table 7 in the EFG Report⁴ provides a summary of the relationship between Nova Scotia
7 policies and regulations and impact categories. For the three harder to quantify benefits
8 discussed above, relevant regulatory, planning and policy references supporting their
9 inclusion are: a) for health impacts from criteria air pollutants, the Environmental and
10 Climate Change Reduction Act, Nova Scotia's Climate Plan for Clean Growth, and Nova
11 Scotia's 2030 Clean Power Plan, b) for the avoided economic and environmental damages
12 from greenhouse gas emissions all three of the prior references for a) along with the Nova
13 Scotia Energy Board (NSEB) Mandate, the Public Utilities Act, The Clean Energy Task Force
14 Report, and the Social Cost of Carbon Interim Guidance from the Government of Canada,
15 and for c) host customer impacts, all of the references for a) and b) with the exception of
16 the Social Cost of Carbon Interim Guidance from the Government of Canada.

17
18 i) No indirect benefits and costs are included in the Benefit-Cost Analysis (BCA).
19 Please refer to part (a) of this IR response.

20 ii) No indirect benefits and costs are included in the BCA. Please refer to part (a) of
21 this IR response.

² <https://www.canada.ca/en/environment-climate-change/services/climate-change/science-research-data/social-cost-ghg.html>

³ See Table 14 of the EFG Report for a listing of EFG's recommended proxy adders for host customer non-energy benefits, and supporting narrative. M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 45 of 68.

⁴ Ibid., page 32

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 iii) No indirect benefits and costs are included in the BCA. Please refer to part (a) of
2 this IR response.
- 3 iv) No indirect benefits and costs are included in the BCA. Please refer to part (a) of
4 this IR response.
- 5 v) No indirect benefits and costs are included in the BCA. Please refer to part (a) of
6 this IR response.
- 7
- 8 (b) The following IR response has been provided by Energy Futures Group (EFG).
9
- 10 The weight for each impact category is 1.0.
- 11 i) Following principles and steps from the National Standard Practice Manual
12 (NSPM), EFG does not recommend weighting any of the impact categories. Instead
13 of category weighting the best available estimation in net present value dollars for
14 each impact category.
- 15
- 16 (c) Please refer to part (b) of this IR response.
- 17 i) Please refer to part (b) of this IR response.
- 18
- 19 (d) Please refer to part (b) of this IR response.
- 20 i) Please refer to part (b) of this IR response.
- 21 ii) Please refer to part (b) of this IR response.
- 22
- 23 (e)
- 24 i) Including non-utility benefits in the BCA analysis is consistent with policy, planning
25 and regulatory requirements as discussed in part (a) of this IR response. Including
26 non-utility benefits in the BCA test has no impact on the “reasonable availability”

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 of potential measures. E1's portfolio and program design process consider the
2 reasonable availability for all elements in a proposed plan.

3 ii) Including non-utility benefits in the BCA analysis is consistent with policy, planning
4 and regulatory requirements as discussed in part (a) of this IR response. Including
5 non-utility benefits in the BCA does not prevent assessment of ratepayer impacts.
6 A rate and bill impact analysis (RBIA), which serves a different purpose and is
7 distinct from a benefit cost test is conducted and filed alongside each DSM Plan
8 Application. The purpose of the RBIA is to assess the rate impacts and bill impacts
9 for three categories of ratepayers 1) participants 2) non-participants 3) total
10 customers. E1 expects this practice to continue for future DSM Plan Applications.

11 iii) Please refer to sub-part (e) ii) of this IR response.

12
13 (f) While the repeal of section 79L from the *Public Utilities Act*⁵ removed the explicit
14 requirement for the Board to consider DSM affordability, it did not directly affect the
15 development of the proposed BCA.

16
17 (g) E1 acknowledges the importance of ensuring that electricity ratepayers receive value for
18 the benefits included in cost-effectiveness testing. However, E1 is not proposing
19 performance requirements specifically tied to non-utility benefits included in the
20 proposed BCA framework in E1's BCA Application. Part of each DSM Plan development
21 includes the identification of appropriate Performance Targets and performance
22 indicators which are included in the DSM Plan Application for Board approval. E1 expects
23 this to be part of the 2027-2031 DSM Plan development discussion with the Demand Side
24 Management Advisory Group (DSMAG).

⁵ Bill No. 228, Public Utilities Act (Amended), Chapter 53 of the Acts of 2022, November 9, 2022.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-03:

With regards to Table 2 on page 4 of 38 of E1's Evidence:

(a) Did E1 review any Canadian jurisdictions with similar policy objectives as Nova Scotia to assess how the current TRC test aligns with standard for cost-effectiveness testing?

i) If so, please provide a Table similar to Table 2 describing the cost-effective testing in those jurisdictions.

ii) If not, why not?

(b) For each state listed in Table 2, please identify the DSM policy objectives that are similar to those of Nova Scotia.

Response IR-03:

The following response has been provided by Energy Future's Group (EFG).

(a) No. EFG's research on behalf of EfficiencyOne (E1) did not include review of Canadian jurisdictions with similar policy objectives. The development of a Nova Scotia-specific benefit cost analysis (BCA) must reflect the province's own legislative, regulatory and policy context. As such, a jurisdictional scan of similar policy objectives in other regions is not considered relevant or instructive to the development of a Nova Scotia-specific BCA. The information provided in Table 2¹ was readily available and known to EFG, was provided for limited context, and was not a focus of the BCA development process led by EFG with the Demand Side Management Advisory Group (DSMAG). Please see Table 5 on page 26 of the

¹ M12282, E1 BCA Test Application, May 16, 2025, E1 Evidence, page 4 of 38.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 BCA application² for a comparison of the prior Total Resource Cost (TRC) test used in Nova
2 Scotia in past demand side management (DSM) applications with the new recommended
3 BCA test.
- 4 i) Please refer to part (a) of this IR response.
5 ii) Please refer to part (a) of this IR response.
6
- 7 (b) Policy objectives and legislation for the four states listed in Table 2³ that are similar to Nova
8 Scotia objectives are commitments to reduction of greenhouse gas emissions and
9 maintaining energy affordability and equity. Policy objectives and legislation for the four
10 states listed in Table 2⁴ that are similar to Nova Scotia objectives are legislatively adopted
11 commitments to reduction of greenhouse gas emissions and maintaining energy
12 affordability and equity.

² M12282, E1 BCA Test Application, May 16, 2025, E1 Evidence, page 26 of 38.

³ Ibid, page 4 of 38.

⁴ Ibid, page 4 of 38.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-04:

Page 4 of 38 discusses the shortfalls of the TRC test as ignoring the symmetrical benefits corresponding to a cost, arguing that such an approach “unjustly favour or disadvantage certain resources.”

(a) In the BCA are there any benefits included that do not have a direct cost?

(b) In the BCA are there any costs included where a benefit has not been identified or has not been measured?

Response IR-04:

The following IR response has been provided by Energy Futures Group (EFG).

(a) No. All the measures screened using the proposed benefit cost analysis (BCA) test will have costs. The costs in the BCA test are applied to the demand side management measures, and each of these will have utility system costs and host customer costs. The benefits in the recommended test include the utility system impacts other fuel impacts, greenhouse gas and other air pollutants, and host customer non-energy benefits. The symmetry principle for cost effectiveness testing in the National Standard Practice Manual (NSPM) indicates that in general if host customer costs are accounted in the BCA test, then host customer energy and non-energy benefits should also be counted.

(b) Yes. In the BCA framework it is measures, programs and portfolio that are screened, and each and all of these will have costs associated with them. Despite the symmetry principle, some benefits have not been measured and are not recommended for inclusion, as they

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 are deemed to be “not material” in scale. Distribution voltage is an example of a utility
- 2 system benefit that is not measured and is considered not material.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-05:

Please describe how the BCA as proposed by E1 aligns with the Treasury Board of Canada Secretariat Canada's Cost-Benefit Analysis Guide for Regulatory Proposals, 2019 and Canada's Policy on Cost-Benefit Analysis (2018) for the following elements of BCA:

(a) Benefits and costs in scope

(b) Time horizon

(c) Market price distortions

(d) Estimating value of benefits

(e) Valuation of impacts on human health

(f) Social costs of greenhouse gases

(g) Estimating costs

(h) Discount rates

Response IR-05:

The benefit cost analysis (BCA) framework proposed by EfficiencyOne (E1), demonstrates broad alignment with the Treasury Board of Canada Secretariat's Cost-Benefit Analysis Guide for

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 Regulatory Proposals (2019)¹ and the Policy on Cost-Benefit Analysis (2018).² E1's approach
2 reflects the federal guidance's core principles of transparency, comprehensiveness, and
3 evidence-based decision-making.

4
5 (a) Treasury Board of Canada Secretariat Guidance (TBCS): Include all relevant economic,
6 environmental, and social impacts
7 BCA: includes utility system impacts, host customer and societal benefits, and
8 greenhouse gas (GHG)

9
10 (b) TBCS: utilizes full lifecycle of costs and benefits
11 BCA: full lifecycle inclusion of DSM measures

12
13 (c) TBCS: calls for adjustment for market failures or distortions
14 BCA: The E1 DSM programs are designed to reduce or eliminate market barriers to the
15 adoption of clean and cost-effective demand-side measures. The proposed BCA does not
16 include demand induced price reduction (DRIPE) estimates as Nova Scotia is not part of an
17 organized wholesale electricity market.

18
19 (d) TBCS: Utilizes market prices or proxies where direct valuation is not possible
20 BCA: Monetized proxies used for benefits such as GHG reductions and customer
21 comfort developed through DSMAG consultation process

22
23 (e) TBCS: health impacts monetized where feasible
24 BCA: health impacts to be monetized

¹ [CBA Guide-EN.doc](#)

² [Policy on Cost-Benefit Analysis - Canada.ca](#)

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 (f) TBCS: Use federal social cost of carbon (SCC) values or justify alternatives.
2 BCA: GHG reductions are included
3
4 (g) TBCS: Account for all direct and indirect costs, including opportunity costs.
5 BCA: Program and participant costs are included using consistent methodology.
6
7 (h) TBCS: utilizes a 3% discount rate
8 BCA: propose a 2% real social discount rate

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-06:

Page 17 of 38 of E1's Evidence states: "To perform cost effectiveness testing of strategic electrification you must include the relevant benefits and costs. In the case of strategic electrification, the electric utility impacts become the primary costs and the non-utility impacts (other fuel savings and GHG emissions savings) become the primary benefits."

(a) Do costs related to strategic electrification also include host customer costs, such as the cost of EV chargers?

i) If so, please describe the types of host customer costs related to strategic electrification that have been included in the BCA test.

ii) If not, why not?

(b) The definition of "demand-side management" in the *Public Utilities Act* includes, in s. 79A(b)(iv), "strategic electrification of energy end uses currently powered by fossil fuels in a manner that reduces overall greenhouse gas emissions and electricity costs". Please explain how the proposed BCA ensures that any proposed strategic electrification reduces overall electricity costs. If it does not, how is the requirement that a proposed strategic electrification reduce electricity costs assessed?

Response IR-06:

(a) The following IR response has been provided by Energy Futures Group (EFG).

Yes.

i) The appropriate related costs for strategic electrification would be counted. These costs could include electric vehicle (EV) chargers for at home charging, and the

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 incremental cost of an EV in comparison to a similar internal combustion engine (ICE)
2 vehicle. Costs associated with EV strategic electrification may also include some
3 percent of participants that would require an electric service panel upgrade.

4 ii) Please refer to sub-part (i) of this IR response.
5

6 (b) The proposed benefit cost analysis (BCA) is not a test intended to demonstrate whether
7 proposed strategic electrification activities reduce electricity costs. The proposed BCA is
8 intended to demonstrate whether the benefits outweigh the costs for proposed demand
9 side management (DSM) activities, including for strategic electrification, based on the
10 benefits and costs that are included in the test.
11

12 The upcoming five-year DSM Plan for the period 2027-2031 is the first time that
13 EfficiencyOne (E1) will be exploring the inclusion of strategic electrification in its DSM Plan.
14 The 2027-2031 DSM Plan is being developed throughout 2025 with an expected filing date
15 in early 2026. Through the development process for the 2027-2031 DSM Plan, E1 is
16 exploring how to demonstrate reductions in electricity costs resulting from strategic
17 electrification.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-07:

On page 18 of 38 of E1's Evidence, a hyperlink to the "National Energy Screening Project (NESP), National Standard Practice Manual (NSPM) for Benefit-Cost Analysis of Distributed Energy Resource" is provided:

(a) Please describe the "National Energy Screening Project" and its members.

(b) Page 18 notes that the design of the proposed BCA test adheres to the NSPM where possible. Please identify each specific item of the BCA test that does not adhere to the NSPM and explain why.

(c) The website referenced by the hyperlink states: "While the NSPM provides guidance on identifying what benefits and costs should be accounted for in a jurisdiction's primary cost-effectiveness test, the "Methods, Tools and Resources (MTR)" handbook provides technical information on how benefits and costs of DER investments can be quantified (monetized or otherwise), with links to resources and tools." Please explain how the MTR handbook has been used, or will be used, to quantify the benefits and costs associated with each specific measurement criteria/impact within the proposed BCA test.

(d) The website referenced by the hyperlink provides a "Database of Screening Practices (DSPs)" as a tool designed to help policymakers, regulators, and stakeholders understand how different states evaluate the cost-effectiveness of energy efficiency programs. Based on this database:

i) How many states in the database have formally adopted the use of the NSPM framework? (Please identify the related states)

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 ii) How many states in the database are currently using a Societal Cost Test (SCT) for
2 DSM portfolios, programs or measures? (Please identify the related states and
3 whether the test is applied at the measure, program or portfolio level)
- 4 iii) How many states in the database are currently measuring Societal “Resilience”
5 impacts for their related BCA test? (Please identify the related states and whether
6 the test is applied at the measure, program or portfolio level)
- 7 iv) How many states in the database are currently measuring Societal “Other
8 Environmental” (excluding GHG emissions) impacts for their related BCA test?
9 (Please identify the related states and whether the test is applied at the measure,
10 program or portfolio level)
- 11 v) How many states in the database are currently measuring Societal “Public Health”
12 Impacts for their related BCA test? (Please identify the related states and whether
13 the test is applied at the measure, program or portfolio level)
- 14 vi) How many states in the database are currently measuring Societal “Economic
15 Development and Jobs” Impacts for their related BCA test? (Please identify the
16 related states and whether the test is applied at the measure, program or portfolio
17 level)
- 18 vii) How many states in the database are currently measuring Societal “Energy
19 Security” Impacts for their related BCA test? (Please identify the related states and
20 whether the test is applied at the measure, program or portfolio level)
- 21 viii) How many states in the database are currently measuring Non-Utility System
22 “Other Fuels” impacts for their related BCA test? (Please identify the related states
23 and whether the test is applied at the measure, program or portfolio level.)
- 24 ix) How many states in the database are currently measuring Host Customer “Asset
25 Value” impacts for their related BCA test? (Please identify the related states and
26 whether the test is applied at the measure, program or portfolio level.)

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 **x) How many states in the database are currently measuring Host Customer “Water**
2 **Cost” impacts for their related BCA test? (Please identify the related states and**
3 **whether the test is applied at the measure, program or portfolio level.)**
- 4 **xi) How many states in the database are currently measuring Host Customer “O&M**
5 **Cost” impacts for their related BCA test? (Please identify the related states and**
6 **whether the test is applied at the measure, program or portfolio level.)**
- 7 **xii) How many states in the database are currently measuring Host Customer**
8 **“Productivity” impacts for their related BCA test? (Please identify the related states**
9 **and whether the test is applied at the measure, program or portfolio level.)**
- 10 **xiii) How many states in the database are currently measuring Host Customer**
11 **“Economic Well-Being” impacts for their related BCA test? (Please identify the**
12 **related states and whether the test is applied at the measure, program or portfolio**
13 **level.)**
- 14 **xiv) How many states in the database are currently measuring Host Customer**
15 **“Comfort” impacts for their related BCA test? (Please identify the related states and**
16 **whether the test is applied at the measure, program or portfolio level.)**
- 17 **xv) How many states in the database are currently measuring Host Customer**
18 **“Amenity” impacts for their related BCA test? (Please identify the related states**
19 **and whether the test is applied at the measure, program or portfolio level.)**
- 20 **xvi) How many states in the database are currently measuring Host Customer “Health**
21 **and Safety” impacts for their related BCA test? (Please identify the related states**
22 **and whether the test is applied at the measure, program or portfolio level.)**
- 23 **xvii) How many states in the database are currently measuring Host Customer**
24 **“Empowerment” impacts for their related BCA test? (Please identify the related**
25 **states and whether the test is applied at the measure, program or portfolio level.)**

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

xviii) How many states in the database are currently measuring Host Customer “Pride” impacts for their related BCA test? (Please identify the related states and whether the test is applied at the measure, program or portfolio level.)

(e) Please explain how the NSPM for Benefit-Cost Analysis of Distributed Energy Resource aligns with the Ontario IESO Cost Effectiveness Guide for Energy Efficiency.

f) Beyond the NSPM for Benefit-Cost Analysis of Distributed Energy Resource, is E1 or its consultant aware of any other documents and/or practices upon which Utilities, Regulators and/or stakeholders use to assist in the development of DSM/DER BCA tests?

i) If so, please describe each of these documents and/or practices and explain why E1 and its consultant opted not to use these in developing its proposed BCA test

Response IR-07:

The following IR response has been provided by Energy Futures Group (EFG).

(a) The National Energy Screening Project (NESP™) mission is to improve cost-effectiveness screening practices for distributed energy resources (DERs). NESP joins organizations and individuals with a common interest in improving cost-effectiveness assessment — also referred to as benefit-cost analysis (BCA) — of DERs. The National Energy Screening Project (NESP) convenes stakeholders and is open to all organizations and individuals interested in working collaboratively to improve BCA practices. E4TheFuture serves as coordinator of the NESP and manages its publications and products. Its main products are the National Standard Practice Manual™ (NSPM) and the Methods, Tools, and Resources Handbook (MTR Handbook). NESP is primarily funded by E4TheFuture with support from the U.S.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 Department of Energy. A list of 2025-2026 advisory group members is available at the NESF
2 website.¹

3
4 (b) The design of the proposed BCA framework adheres to the principles of the NSPM and the
5 steps laid out for development of a cost effectiveness test. A deeper analysis and
6 consideration of the utility system impacts such as avoided collection or disconnection
7 costs, and a more granular assessment of avoided distribution system costs (accounting for
8 anticipated growth of electrification and distributed energy resources, and marginal line
9 losses) as part of finalizing the impact quantifications for the 2027-2031 DSM Plan, could
10 further enhance alignment, however it is EFG's professional opinion that the benefits of
11 conducting this analysis may exceed the cost.

12
13 (c) The BCA proposed framework submitted in the Application identifies the impact categories
14 to be included in the new Nova Scotia jurisdictional specific test. Please refer to Tables 7-
15 10 of the EFG Report² for description and examples of each of the impact categories. The
16 focus of the current BCA application, and the workshops conducted to date with the
17 Demand Side Management Advisory Group (DSMAG), is on the structure of the proposed
18 cost effectiveness test, not on the quantification of the impacts. The quantification of each
19 impact category will occur as EfficiencyOne (E1) develops and completes the 2027-2031
20 DSM portfolio and plan. The MTR handbook provides a useful technical reference for the
21 steps and resources that will be used in quantifying individual impact categories.

22
23 (d)

¹ <https://www.nationalenergyscreeningproject.org/wp-content/uploads/2025/05/NSPM-v2-Advisory-Group-2025.pdf>

² M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 32-38 of 68.

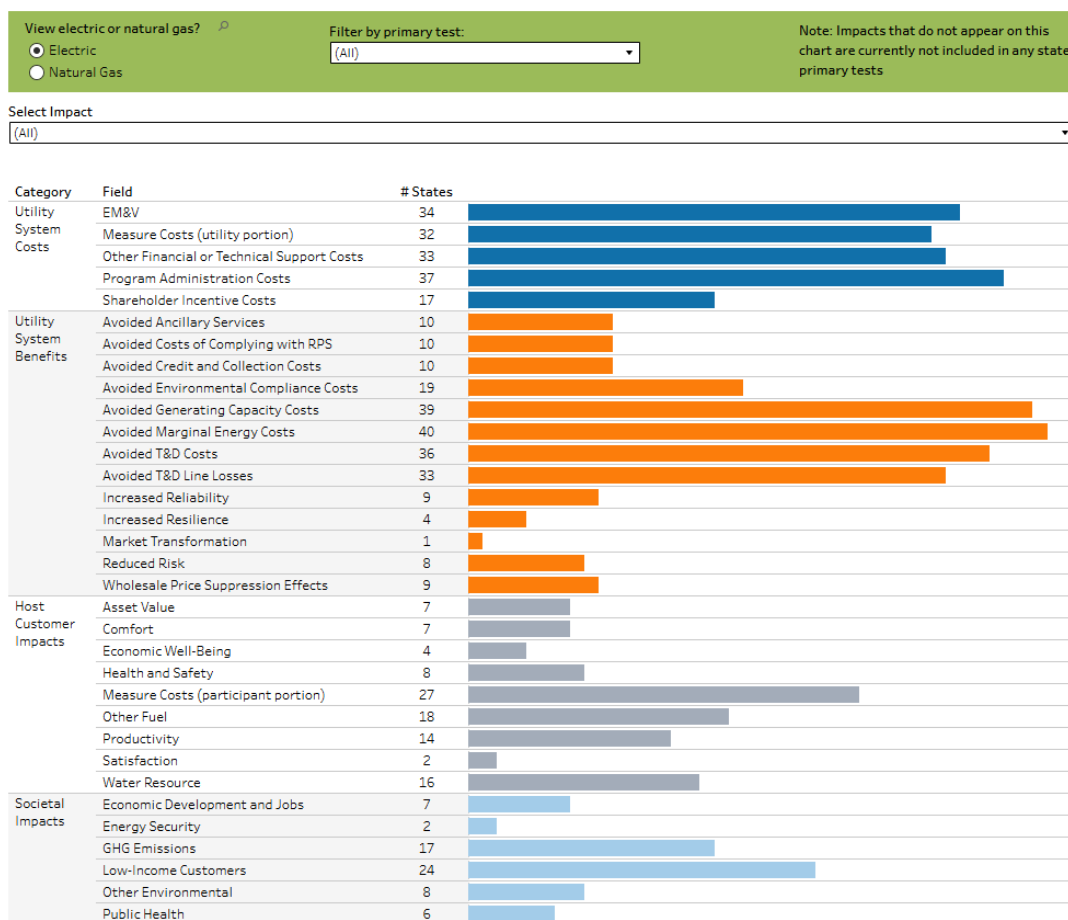
E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 i) Equating the development of a jurisdictional specific test with “formally adopting the
2 NSPM”, the database of screening practices³ identifies the following as adopting a
3 jurisdictional specific test (Connecticut, Maine, Maryland, Minnesota, New
4 Hampshire (state specific test), Puerto Rico, and Rhode Island).
- 5 ii) The database identifies the societal cost test as the primary test in Arizona, District
6 of Columbia, Iowa, New York and Vermont. The primary test is applied at the measure
7 level in Arizona and Vermont, at the program level in the District of Columbia and
8 Iowa, and at the portfolio level in New York.
- 9 iii) The data requested for inquiries (iii) through (xviii) are set out in the database as
10 depicted in the Impacts Summary graphic below taken from the website:

³https://public.tableau.com/app/profile/ac3e/viz/DatabaseofStateEfficiencyScreeningPractices_17377419994200/DatabaseofScreeningPractices

M12282 – EfficiencyOne (E1) Application for Approval of a New Benefit-Cost Analysis (BCA) Test for Evaluating Demand Side Management (DSM) Plans

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL



Notwithstanding, it is respectfully suggested that such information is not relevant to the consideration of the proposed Nova Scotia specific BCA test subject to this Application. The NSPM process does not recommend that a jurisdiction-specific test should be based on surveys and analyses of practices from other areas. Instead, it emphasizes the importance of investing time and resources in developing a test that aligns with the specific policy priorities of a jurisdiction and adheres to principles that ensure a comprehensive and balanced assessment.

- iv) See reply to (iii).
- v) See reply to (iii).
- vi) See reply to (iii).

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 vii) See reply to (iii).
2 viii) See reply to (iii).
3 ix) See reply to (iii).
4 x) See reply to (iii).
5 xi) See reply to (iii).
6 xii) See reply to (iii).
7 xiii) See reply to (iii).
8 xiv) See reply to (iii).
9 xv) See reply to (iii).
10 xvi) See reply to (iii).
11 xvii) See reply to (iii).
12 xviii) See reply to (iii).
13
14 (e) EFG has not reviewed and is not familiar with the Ontario IESO Cost Effectiveness Guide for
15 Energy Efficiency and therefore is not able to explain how it aligns with the NSPM for DERs.
16
17 (f) The California Standard Practice Manual⁴ has served as a standard reference for cost
18 effectiveness testing for energy efficiency programs. This manual provides what have
19 become the standard definitions for the societal cost test, total resource cost test, utility
20 (also known as program administrator) cost test, the participant cost test, and the rate-
21 payer impact (or non-participant) cost test.
22 i) The consultant team and E1's professional judgement was that using the NSPM was
23 the best way to comply with the Nova Scotia Energy Board's directive to develop and

⁴ https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy_electricity_and_natural_gas/cpuc-standard-practice-manual.pdf

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 propose an optimal cost effectiveness test specifically aligned with Nova Scotia's
- 2 policy objectives.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-08:

With respect to the NSPM for Benefit-Cost Analysis of Distributed Energy Resource:

(a) Please identify any Canadian jurisdictions that have adopted the NSPM as their standard approach to BCA for DSM or Distributed Energy Resources (DER).

i) For each jurisdiction identified above, please explain how their application of the NSPM differs from E1's proposal.

(b) Please identify the BCA methodology, other than the NSPM, that is being used by Canadian jurisdictions, and whether it is applied at the measure, program or portfolio standard. Is anyone basing their BCA on a version of the California Standard Practice Manual?

Response IR-08:

The following IR response has been provided by Energy Futures Group (EFG).

(a) EFG is not aware of any Canadian jurisdictions that have adopted the National Standard Practice Manual (NSPM) as their approach to developing an optimal cost effectiveness test.

i) Please refer to part (a) of this IR response.

(b) EFG has not conducted a survey of the BCA methodologies used by other Canadian jurisdictions. The development of a Nova Scotia-specific benefit cost analysis (BCA) must reflect the province's own legislative, regulatory and policy context. As such, a jurisdictional scan of cost-effectiveness testing methodology in other regions is not considered relevant or instructive to the development of a Nova Scotia-specific BCA.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-09:

Please provide a summary of the feedback provided by the DSMAG regarding the final draft EFG report, as referenced on page 20 of 38 of E1's Evidence.

Response IR-09:

The proposed benefit cost analysis (BCA) was developed through multiple stakeholder engagements facilitated between EfficiencyOne (E1), David Hill, Energy Futures Group (EFG), and the Demand Side Management Advisory Group (DSMAG). To encourage participation in open dialogue through the DSMAG, stakeholder input and submissions are managed with confidentiality consistent with the DSMAG Terms of Reference. This approach ensures stakeholders can share their opinions and positions on a without prejudice basis. This approach has been effective in establishing a collaborative environment for dialogue and decision-making.

The Terms of Reference of the DSMAG provide that "*...., all submissions, comments, and/or positions taken by any Members in the DSMAG meetings or technical sessions shall be considered as confidential by Members and shall not be reproduced or made public, directly or indirectly, by any Members, including any future regulatory proceeding.*"¹

The current version of the DSMAG Terms of Reference was filed with the Nova Scotia Utility and Review Board on September 20, 2021.²

¹ M09096, Document No. 84486, DSMAG Revised Terms of Reference, September 20, 2021, page 7

² Ibid.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 **Request IR-10:**

3 **Table 4: NSPM BCA Guiding Principles**

5 **(a) Principle 5 identifies that the analysis should be forward looking and compared against a**
6 **scenario without the Distributed Energy Resources (DER). Please explain why a scenario**
7 **without DER should be the basis for comparison, as opposed to a scenario without**
8 **another DSM activity/measure/program.**

10 Response IR-10:

12 The following IR response has been provided by Energy Futures Group (EFG).

14 (a) Principle 5 is further described in the National Standard Practice Manuals (NSPM)¹:

16 ***Conduct Forward-Looking, Long-Term, Incremental Analysis***

17 *Cost-effectiveness analysis of [distributed energy resources] DERs should be*
18 *forward-looking, capturing the difference between benefits and costs that would*
19 *occur over the life of the DERs and those that would occur absent the*
20 *implementation of the DERs.*

22 *[Benefit cost analyses] BCAs should consider only incremental impacts, i.e., the*
23 *changes that will occur because of the DERs, relative to a scenario where the DERs*
24 *are not in place. This concept is applicable to both benefits and costs.*

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix A: Attachment 2: National Standard Practice Manual, pages 51-52 of 302.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 Principle 5 relates to the impacts that will be used in the benefit cost analysis (BCA). In
2 developing appropriate impacts (e.g., utility system avoided costs), a scenario without the
3 DER(s) being assessed is the basis for comparison for a given DER. This allows the BCA result
4 to provide information on the cost effectiveness of the measure, program or portfolio being
5 assessed. The impact baseline should include all existing or known to be coming DER
6 activity/measures and programs.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-11:

With regards to Table 6 on page 27 of 38 of E1's Evidence:

**(a) Are there any Utility System Impacts not identified in Table 6 that are currently included
in E1's TRC test?**

i) If so, please identify each of these impacts.

Response IR-11:

The following IR response has been provided by Energy Futures Group (EFG).

(a) No, all utility system impacts currently included in EfficiencyOne's (E1) TRC test are also
identified in Table 6 of E1's Evidence.¹

i) Please refer to part (a) of this IR response.

¹ M12282, E1 BCA Test Application, May 16, 2025, E1 Evidence, page 27-29 of 38.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-12:

Page 29 of 38 of E1’s Evidence states: “As explained in the NSPM, best practices suggest that all impacts relating to a jurisdiction’s policy goals and objectives should be included in a jurisdiction’s BCA test.”

(a) Is E1 or its consultant aware of any other documents and/or practices upon which Utilities, Regulators and/or stakeholders use to assist in the development of DSM/DER BCA tests that do not suggest all impacts relating to a jurisdiction’s policy goals and objectives should be included in a jurisdiction’s BCA test?

i) If so, please describe each of these documents and/or practices.

(b) The NSPM notes at page 27 of 302 that, “In analyzing portfolios of multiple DER types across a utility service territory, it is important to first establish a single primary cost-effectiveness test that can be used for all DER types. Then, it is useful to articulate the jurisdiction’s DER planning objectives, which can include, for example, one or some combination of: implement all cost-effective DERs; implement the lowest-cost-effective DERs; maximize capacity benefits from DERs; encourage a diverse range of DER technologies; encourage customer equality; achieve GHG or electrification goals at lowest cost; and avoid unreasonable rate impacts.” The NSPM then goes on to discuss how BCA results for DER portfolios can be presented in ways that facilitate comparison across DER types. Please confirm E1’s understanding, or explain otherwise that, while the Board must “evaluate the proposed cost-effective demand-side management at the portfolio level”, the Board retains the discretion to approve any portfolio, or any measure or program in a portfolio, whether it satisfies the BCA test or not, based on its assessment of “planning objectives” or any other factors it is required to or deems appropriate to consider.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Response IR-12:

(a) The following IR response has been provided by Energy Futures Group (EFG).

No, EFG is not aware of other documents or practices suggesting that impacts related to a jurisdiction's policy goals and objectives should be excluded from a benefit cost analysis test.

i) N/A.

(b) The Nova Scotia Energy Board retains discretion to allow inclusion of DSM portfolio components that may not individually satisfy the BCA test. This discretion is grounded in both the Board's broader mandate to consider planning objectives, policy alignment, and the public interest, and its requirement to assess cost effectiveness at the Portfolio level rather than at the measure or program level.

The Board is directed under the *Public Utilities Act*, in its review of a DSM Plan filing, to determine the "cost-effective demand-side management that must be undertaken".¹ The Board has established the threshold passage of the current cost effectiveness test at 1.0 or greater. This application was initially implemented at the measure level prior to 2012, and later at the program level, following the Board's decision to approve E1's 2012 DSM Plan. Recent legislation mandates that the Board now evaluate the cost-effectiveness of the proposed DSM Plan at the portfolio level.² DSM Plans that do not achieve or exceed a cost-effectiveness score of 1.0 will fail to meet the current Board-established cost-effectiveness threshold. The Board, in approving a DSM Plan, also retains discretion to consider "any

¹ Public Utilities Act, R.S., c 380, s. 79H(1).

² Public Utilities Act, R.S. c 380, s. 79H (2).

M12282 – EfficiencyOne (E1) Application for Approval of a New Benefit-Cost Analysis (BCA) Test
for Evaluating Demand Side Management (DSM) Plans

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 other matters considered appropriate” and “matters deemed appropriate by the Energy
2 Board”.³

³ Public Utilities Act, R.S., c 380, ss. 79L(4) and (5).

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-13:

Page 30 of 38 of E1’s Evidence states: “The impact of changes in pipeline gas consumption are based on commodity prices, and do not reflect gas utility system impacts. However, presuming gas commodity prices are the largest contributor to total system impacts, they are an approximation for use in the BCA test.” As it relates to Eastward Energy customers, please confirm that avoided gas costs related to DSM include not only the gas commodity cost, but also the base energy charge and the transportation cost.

(a) If not confirmed, please explain.

Response IR-13:

The following IR response has been provided by Energy Futures Group (EFG).

The impacts related to decreased pipeline gas consumption in the proposed BCA test are based on gas commodity costs. As stated in the EFG Report, these can reasonably be expected to represent the majority of gas utility system impacts and are available. Estimating the gas system impacts related to changes in fixed base energy charges or transportation costs requires a level of gas system planning and avoided cost calculations that to the consultant team’s knowledge are not readily available at this time. If analysis of these components becomes available, they can be included as impacts.¹

(a) Please see IR response above.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 17, page 40 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-14:

With regards to Table 7 on page 30 of 38 of E1's Evidence:

(a) Please describe the environmental compliance costs that are embedded in the commodity price.

(b) Please describe the non-embedded environment and economic impacts reflected in the Social Cost of Carbon.

Response IR-14:

The following IR response has been provided by Energy Futures Group (EFG).

(a) The environmental compliance costs that are embedded in the commodity price are any costs required for fuel to be compliant with environmental regulations. Examples would include costs associated with low sulfur heating oil, or fuels that have a carbon surcharge in their commodity price.

(b) The non-embedded economic and environmental impacts reflected in the social cost of carbon are based on Federal guidance on the social cost of carbon. To avoid double counting of greenhouse gas impacts, any greenhouse gas impacts that are embedded in the commodity price for a fuel would be subtracted from the social cost of carbon.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-15:

Page 31 of 38 of E1’s Evidence states: “These host customer impacts, as developed in the DSMAG workshops, are quantified by EFG using a proxy adder method used in other jurisdictions rather than quantifying a value stream for each separate impact.” Further, Table 14 on page 45 of 68 of EFG’s report, summarizes the recommended proxy values.

(a) Please explain specifically how each recommended proxy value in Table 14 was developed and why each is considered appropriate.

i) Please identify the proxy values used by each of the jurisdictions noted in Appendix F of the EFG report.

(b) Please describe the alternate methodology used to quantify a value stream for each separate impact.

(c) How will E1 assess the accuracy of the proxy in the proposed evergreen process?

(d) Please explain how the proposed proxy adders facilitate the development of performance requirements for the identified benefits in the “Notes” column in Table 14.

Response IR-15:

The following IR response has been provided by Energy Futures Group (EFG).

(a) In the fourth through the sixth Demand Side Management Advisory Group (DSMAG) working group meetings, the consultant team reviewed approaches and recommendations on the development of appropriate proxy adders for the host customer non-energy

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

benefits. The consultant team's rationale for the recommended approach is that it recognizes that host customer non-energy impacts, which may be hard to quantify, are not zero, while not attempting to individually quantify each of the non-energy impact categories listed in Table 13 of the EFG Report.¹ The values in Table 14 of the EFG Report² are based on the consultant team's expert opinion and are meant to represent an average across projects in each category. The notes column in Table 14 describes the components contributing to the estimated proxy for each measure type and market segment. Generally, EFG recommended higher values for custom projects (which often highlight productivity or process improvements) and for income qualified projects which often provide higher levels of comfort, durability, health and safety and affordability impacts, in comparison to market rate activities.

The proxies in Table 14 recommend different values depending on the measure type and the customer segment. For example, for residential customers, building shell measures are deemed most likely to result in improved comfort, durability, and health. For business and institutional customers, custom measures that are often designed to help improve specific aspects of the workplace environment or processes are most likely to have additional non-energy benefits. For all the measure categories the recommended non-energy impact proxy is twice as high for income-qualified or other target market segments (such as First Nation, or disadvantaged, underserved communities). The higher proxy values are a recognition that the value of non-energy host-customer impacts can reasonably be expected to be higher for customers who due to economic constraints may not have been able to make as many demand side energy investments in the past.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 42 of 68.

² Ibid., page 45 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 i) The EFG report contains citations for comparative information on the non-energy
2 proxy values adopted by Vermont, Colorado and Nevada on page 46. As discussed in
3 the response to NSEB IR-07, the detailed analysis and comparison to values across all
4 jurisdictions for impacts and impact categories was not part of EFG's mandate or
5 required by the process undertaken with the DSMAG to develop the recommended
6 jurisdictional BCA test.

7
8 (b) An alternative method to develop an estimate for each impact would be to conduct
9 detailed statistically valid survey research on the customer's valuation of each impact. This
10 would be a significant evaluation undertaking, and the additional certainty gained from
11 such research, in the expert opinion of the consultant team, is highly unlikely to warrant
12 the time and resources required. As discussed in the report and with the DSMAG, the proxy
13 method is recommended as being an appropriate approximation approach that is practical,
14 cost efficient, and is properly aligned with the overall magnitude of impacts.

15
16 (c) The evergreen process can include research objectives and objectives that help to validate,
17 and if necessary, refine the proposed proxy adder values. Scoping an appropriate level of
18 research to validate or adjust the proxy values can be targeted to address impact categories
19 of particular concern, greatest level of interest or magnitude.

20
21 (d) The question is unclear. The Notes column for Table 14 does not reference performance
22 requirements, nor do the proxy adders.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-16:

**Table 8: Host Customer Impacts, please elaborate on the following terms and definitions
relating to energy efficiency:**

(a) Asset Value

(b) O&M costs

(c) Productivity

(d) Economic well being

(e) Comfort

(f) Amenity

(g) Empowerment

(h) Pride

Response IR-16:

The following IR response has been provided by Energy Futures Group (EFG).

(a) The value of an asset could be a property or an energy device.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

(b) Operations and maintenance costs refers to Efficient items, and strategic electrification measures because they often have lower operations and maintenance than a standard measure.

(c) Unit of output per unit of input can be related to labor and non-labor inputs in an office or non-office environment. Efficient measures (for example efficient lighting and climate control) and processes can have productivity benefits.

(d) Economic well being relates to affordability and economic security for households and businesses.

(e) Comfort is occupant comfort in the built environment, residential and commercial. Efficiency and strategic electrification can improve comfort through better controls, distribution systems, and thermal envelope improvements. Improved comfort refers to the ability to better maintain a building's temperature, humidity and air circulation to benefit occupants. In winter and summer improved building shell thermal performance can increase comfort. In the event of power outages improved building shell performance can maintain proper space conditioning for a longer period of time, enhancing occupant's comfort levels and potentially avoiding adverse health consequences.

A practical example of how comfort impact from energy efficiency is addressed, is provided in Tables 13 and 14 of the EFG Report,¹ with comfort being one of the host customer non-energy benefit impacts included by the proxy adder approach. The results from the Table 5 Illustrative Example² for heat pumps include a 10% host customer proxy adder benefit

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 42 and page 45 of 68.

² Ibid., page 19 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 that includes the comfort and other non-energy benefits estimated for a heat pump
2 (beneficial electrification) for a market rate program. As indicated in Table 14 notes, the
3 proxy adder for beneficial electrification is recommended to account for multiple impact
4 categories, including reduced risk, asset value, comfort, amenity, improved indoor air
5 quality, pride and empowerment. It is the combination of all of these impacts that is
6 assigned the 10% proxy adder value.

7
8 (f) Amenity refers to a customer “liking” a feature, a desirable or valued attribute. A customer
9 may “like” a new induction range top, or smart thermostat and consider them of value.

10
11 (g) Empowerment refers to a customer feeling greater control over energy system costs,
12 expenditures and services.

13
14 (h) Pride is a feeling of satisfaction related to “doing a good thing”. Pride is related to amenity
15 and empowerment but also has distinct elements of being proud of ownership or
16 contributions to affordability and environmental stewardship.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-17:

**Please provide supporting empirical evidence demonstrating causation for the following Host
Customer Impacts:**

**(a) energy efficiency investments and increases in business productivity in industries that
operate in Nova Scotia.**

(b) Energy efficiency investment and economic benefits

(c) Energy efficiency investment and health and safety

Response IR-17:

The following IR response has been provided by Energy Futures Group (EFG).

(a) EFG has not conducted, nor are we familiar with empirical research conducted demonstrating causality of energy efficiency investments and business productivity in industries that operate in Nova Scotia. Our expert opinion, based on general research findings is that while it may be hard to quantify and will vary significantly project by project, it is very reasonable to assign some productivity benefit to efficiency measures, particularly for custom projects. A 2022 citation for research based on findings of a study of 15,000 European firms across 28 countries, finding a positive causal relationship between energy efficiency investments and labor productivity is: *“Labour productivity improvements from energy efficiency investments: The experience of European firms”*, at the following website:

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 <https://www.sciencedirect.com/science/article/abs/pii/S0360544222007812> ¹

2
3 (b) There is significant literature documenting the broader economic benefits of energy
4 efficiency, but estimating those impacts was not included in the recommended BCA test
5 for Nova Scotia. The broader economic impacts, which can include indirect and induced
6 spending (estimated by use of input/output modeling), and job retention or creation are
7 not recommended or typically included in a benefit cost analysis (BCA) framework. As
8 noted in the EFG report, the National Standard Practice Manual (NSPM) and EFG
9 recommend a separate methodological approach and study is the best means for
10 estimating the broader economic impacts for a DSM portfolio.

11
12 (c) There is likewise a significant body of research documenting the health and safety benefits
13 arising from energy efficiency. For example, see the US Department of Energy webpage:
14 “How Do Energy Innovations Help Improve Health and Safety?” which includes the
15 following recent estimates for the United States:

16 “Energy efficiency measures in homes and buildings are helping ensure
17 good air quality, healthy temperatures, and lower humidity levels. A
18 study found that a single-family home in Atlanta, Georgia, built to high
19 energy-efficiency standards would remain habitable for 5 times
20 longer than a typical home during a seven-day cold event. Effective
21 home-efficiency measures include weatherizing and retrofitting
22 buildings by adding or replacing insulation, windows, heating and cooling

¹ Fotios Kalantzis, Hanna Niczyporuk, Labour productivity improvements from energy efficiency investments: The experience of European firms, Energy, Volume 252, August 2022, 123878, ISSN 0360-5442. Abstract: This paper investigates the link between energy efficiency investments and the labour productivity. It uses novel data from a firm-level survey conducted by the European Investment Bank. The survey covers more than 15,000 firms in 27 European Union member states and the United Kingdom during 2018–2019. The results show a positive and causal relationship between energy efficiency investments and labour productivity.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 systems, and major appliances, among other things. Sulfur dioxide (SO₂),
2 nitrogen oxides (NO_x), and particulate matter reductions attributable to
3 just three of EERE's recent appliance and equipment standards will lead
4 to nearly \$45 billion in health benefits over the lifetime of the equipment.
5 These measures can reduce the incidence and symptoms of heart and
6 respiratory conditions, allergies, and more. They also provide physical
7 comfort, which supports mental health and well-being.”²
8

9 The US Department of Energy webpage references the research report *Enhancing*
10 *Resilience in Buildings Through Energy Efficiency*³, among others, *How National Appliance*
11 *and Equipment Energy Conservation Standards Can Improve Public Health and Advance*
12 *Justice40 Initiative Goals*,⁴ *Technical Support Document: Energy Efficiency Program for*
13 *Consumer Products and Commercial and Industrial Equipment: Dishwashers*⁵ and
14 *Miscellaneous Refrigeration Projects*.⁶

² <https://www.energy.gov/eere/health-safety-and-environmental-impacts#:~:text=Energy%20efficiency%20measures%20in%20homes,the%20next%20generation%20of%20America ns.>

³ Franconi, E, E Hotchkiss, T Hong, M Reiner et al. 2023. *Enhancing Resilience in Buildings through Energy Efficiency*. Richland, WA: Pacific Northwest National Laboratory. PNNL-32737, Rev 1. Prepared for the U.S. Department of Energy, page ix and 58, [Efficiency for Building Resilience PNNL-32727 Rev1.pdf](#)

⁴ Boucher, Lauren, CLASP, March 2024, page 5, [CLASP US Health Study Final.pdf](#)

⁵ US Department of Energy, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Dishwashers, April 2023. [US DOE Technical Support Document, April 2023](#)

⁶ US Department of Energy, Technical Support Document: Energy Efficiency Program for Consumer Products and Commercial and Industrial Equipment: Miscellaneous Refrigeration Products, April 2024. [US DOE Technical Support Document Misc.Refrigeration April 2024](#)

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-18:

**Table 9: Societal Impacts, please elaborate on the following terms and definitions relating to
energy efficiency:**

(a) Resilience

(b) Other Environmental

i) Please differentiate between Greenhouse Gas Emissions

(c) Public Health

(d) Energy Security

Response IR-18:

The following IR response has been provided by Energy Futures Group (EFG).

(a) See definition of key terms in the EFG Report, page 9.¹ “Resilience: Increased ability for customers and the utility system to recover from and endure electric system outages.”

(b) See EFG Report Summary Table 1 page 12.² “Other Environmental: Estimated health impacts from particulate matter (PM), Sulfur Dioxide (SO₂) and Nitrogen Oxides (NO_x).”

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 9 of 68.

² Ibid., page 12 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 i) The primary greenhouse gas emissions are carbon dioxide (CO₂), methane (CH₄), and
2 nitrous oxide (N₂O) and fluorinated gases.

3
4 (c) Public health benefits are related to a reduction in mortality and morbidity rates and
5 associated health care and economic costs associated with each. Energy efficiency reduces
6 the need for electric generation, and associated combustion of fossil fuels. It can also
7 reduce the on-site or transportation related combustion of fossil fuels. The
8 recommendation for the new Nova Scotia benefit cost analysis (BCA) test is that public
9 health benefits are considered to be embedded within the estimated impacts for the other
10 air emissions discussed in part (b) of this IR response.

11
12 (d) Energy security impacts refer to an improvement or worsening of danger, risk, or harm
13 related to energy supplies. While increased distributed energy resources including energy
14 efficiency are likely to improve energy security, EFG did not recommend including the
15 energy security impact in the new BCA test (see Summary Table 1)³.

³ Ibid., page 12 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-19:

**Please provide supporting empirical evidence demonstrating causation for the following
Societal Impacts:**

(a) energy efficiency investments and changes in medical outcomes and costs.

Response IR-19:

The following IR response has been provided by Energy Futures Group (EFG).

(a) Please refer to EfficiencyOne's (E1) response to NSEB IR-17 part (c).

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-20:

(a) Please cite the source for the cost of carbon used in the BCA.

(b) Please explain how the proxy for the host customer was selected and measured.

i) Please describe how the proxy is estimated and applied in the BCA.

(c) Please explain why a 2% discount rate on societal and GHGs is appropriate for Nova Scotia.

i) Table G-1 in Appendix A on page 278 of 302, provides a list of Discount Rates, all of which are American. Has E1 applied Canadian discount rates?

a. If Canadian discount rates are not used in the BCA, please explain why.

Response IR-20:

The following IR response has been provided by Energy Futures Group (EFG).

(a) Please see the EFG Report page 50, and Appendix C.¹ “The social costs of greenhouse gases are based on the Interim Updated Guidance for the Government of Canada issued in December 2022.² The values are estimated through 2080 and are based on global damage estimates. A 2% real discount rate is recommended for estimating impacts.

(b) Please see the EFG Report page 41-49, and EfficiencyOne’s (E1) response to NSEB IR-15.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 50 of 68 and section VII (Appendix C), page 64 of 68.

² <https://www.canada.ca/en/environment-climate-change/services/climate-change/science-research-data/socialcost-ghg.html>

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 i) Please refer to part (b) of this IR response.

2

3 (c) In a benefit cost test for demand side management, the social discount rate is used to

4 convert future costs and benefits into their present-day values. This allows for a

5 comparison of costs and benefits that occur at different points in time. The social discount

6 rate is used to represent the perspective of society as a whole, rather than a specific

7 individual or company. When determining the social discount rate, factors like inflation, the

8 time value of money, and societal preferences regarding the distribution of costs and

9 benefits across generations are taken into account. A 2% real social discount rate is

10 recommended to reflect these considerations and to align with Nova Scotia policy

11 objectives related to sustainability for the environment and prosperity. A social discount

12 rate of 2% is recommended to account for the interests (economic and environmental) of

13 future generations. A social discount rate is typically lower than a utility weighted average

14 cost of capital and therefore places greater value on impacts that occur in the future. Social

15 discount rates therefore are recommended for use in screening as an appropriate reflection

16 of the regulatory perspective. Figure G-1 in the National Standard Practice Manual (NSPM)

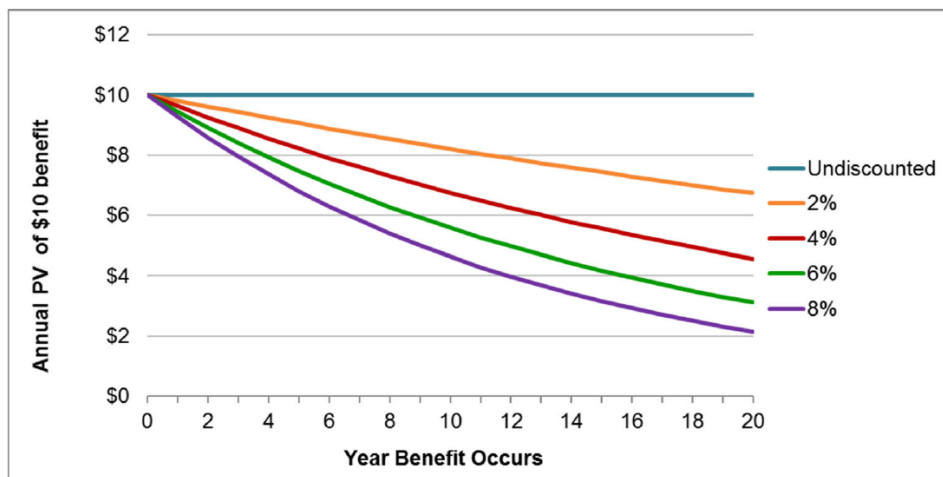
17 illustrates how distributed energy resources (DER) benefits (for instance, avoided

18 generating fuel costs) can be affected by different discount rates, provided below.³

³ M12282, E1 BCA Test Application, May 16, 2025, Appendix A, Attachment 2: National Standard Practice Manual, page 276 of 302.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Figure G-1. Implications of Discount Rates (annual present value dollars)



Note: These benefits are presented as real dollars (i.e., adjusted for inflation), and the discount rates are real discount rates.

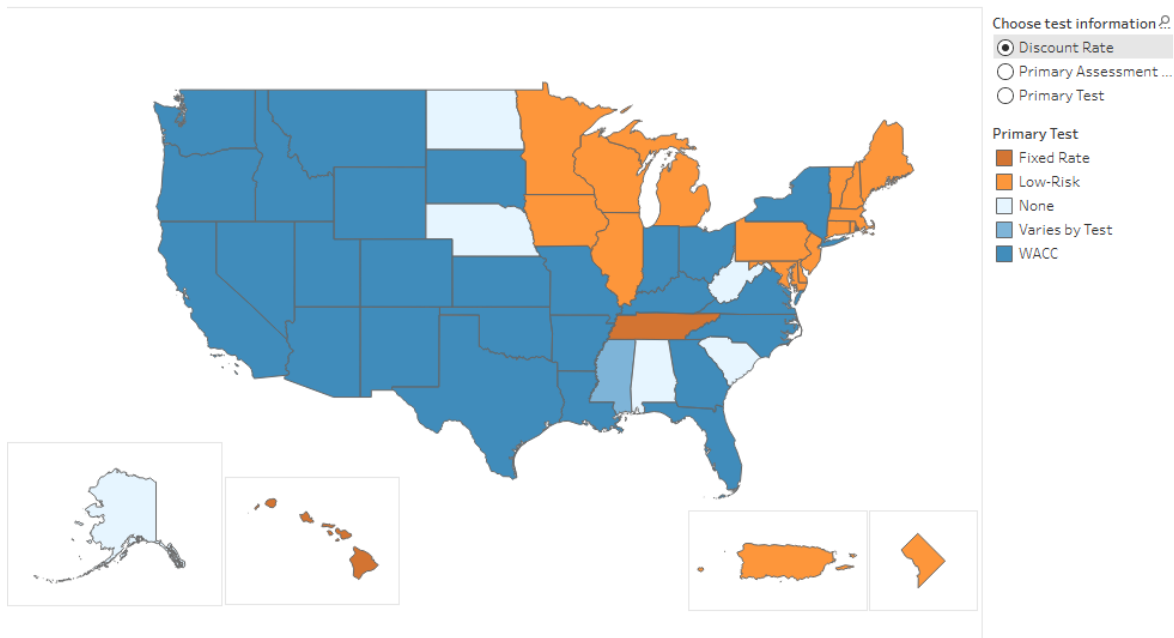
- i) EFG did not conduct a review of discount rates used in cost effectiveness testing in Canadian jurisdictions. The important element of developing a jurisdiction specific BCA, such as the Nova Scotia proposed test, is to ensure the test reflects Nova Scotia's policy goals and objectives. American discount rates are readily available to EFG, as provided in the graphic below taken from the National Energy Screening Project's Database of State Screening Practices.⁴

⁴ [Database of State Efficiency Screening Practices \(DSP\) | ACEEE](#), "Maps", Choose test information "Discount Rate".

M12282 – EfficiencyOne (E1) Application for Approval of a New Benefit-Cost Analysis (BCA) Test
for Evaluating Demand Side Management (DSM) Plans

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Test & Application Info



Source: National Standard Practice Manual for Benefit-Cost Analysis of Distributed Energy Resources

a. Please refer to part (c) i) of this IR response.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-21:

Table 10: Impact Categories for BCA Test identifies that Impacts Measured for Gas is embedded in Other Fuels, Resilience is embedded in Host Customer, and that Public Health is embedded in another GHG Emissions. Please confirm that these measures are listed for presentation purposes.

(a) If confirmed, please explain why they are listed.

Response IR-21:

The following IR response has been provided by Energy Futures Group (EFG).

(a) Confirmed. They are listed to indicate that they are being considered, and are embedded in the appropriate impact category.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-22:

Reference: Appendix A, Mr. Hill's Evidence

Page 8 of 18 of Mr. Hill's Evidence states: "For the gas system, only gas commodity costs were considered. The gas utility system non-commodity impacts were not recommended for quantification for the new jurisdictional test. Additional data on gas system costs would be required to quantify the non-commodity gas system impacts." Please describe the additional data on gas system costs that would be required to quantify the non-commodity gas system impacts.

Response IR-22:

The following IR response has been provided by Energy Futures Group (EFG).

Information on the gas system infrastructure and operations would be required to estimate the non-commodity impacts. For example, what variable delivery and operating costs are avoided with a reduction in total gas demand? Or are there any capital infrastructure investments that are avoided if gas demand is reduced? These impacts are not captured by the commodity cost impact of gas. However, in the EFG team's opinion, using commodity costs to estimate the gas system's impacts was the best approach as the commodity cost captures the majority of the impacts.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-23:

Reference: Appendix A, Mr. Hill's Evidence

Page 8 of 18 of Mr. Hill's evidence notes that criteria air pollutant non-utility impacts for the proposed BCA test are based on modelling of estimated health impacts for the New England region. Are there any reasons to believe the potential health impacts in Nova Scotia could be different than those in the New England region? Please explain.

Response IR-23:

The following IR response has been provided by Energy Futures Group (EFG).

Yes, as noted in the EFG Report there are reasons to expect the potential health impacts in Nova Scotia to be different from those in New England. The four main reasons would be difference in the electric generation mix and associated emissions, ambient air quality, dispersion of air pollutants due to weather patterns, and population baseline health. As discussed in the EFG Report, the adoption of the New England per kWh values for other air pollutants from electric generation are at the low end of the regional values estimated by the United States Environmental Protection Agency (EPA).¹ EFG recommends them as a relatively conservative value for adoption in Nova Scotia given that there remains some coal generation in Nova Scotia, and that it is closest to New England in terms of regional weather patterns.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 51-53 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-24:

Reference: Appendix A, Mr. Hill's Evidence

With regards to Table 2 on page 11 of 18 of Mr. Hill's evidence:

(a) Please provide the names of the DSMAG organizations that provided completed homework assignments to inform the find outlined in Table 2.

i) Please provide a copy of the completed homework assignments for each of these organizations.

(b) How many organizations are members of the DSMAG working group?

Response IR-24:

(a) Please refer to EfficiencyOne's (E1) response to NSEB IR-09.

i) Please refer to part (a) of this IR response.

(b) As provided in the Demand Side Management (DSMAG) Terms of Reference¹, there are thirteen members of the DSMAG, inclusive of the following: ²

- EfficiencyOne;
- Consumer Advocate;

¹ M09096, Document No. 84486, Demand Side Management Advisory Group Terms of Reference, September 2021

² Ibid., page 3.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 • Small Business Advocate;
- 2 • Industrial Group Representative;
- 3 • Assembly of Nova Scotia Mi'kmaw Chiefs / Kwiłmu'kw Maw'klusuaqn Negotiation
- 4 Office;
- 5 • Nova Scotia Utility and Review Board (counsel and/or staff) [now the Nova Scotia
- 6 Energy Board];
- 7 • Nova Scotia Power Incorporated;
- 8 • Affordable Energy Coalition;
- 9 • Ecology Action Centre;
- 10 • Municipal Electric Utilities of Nova Scotia Cooperative;
- 11 • Nova Scotia Department of Energy and Mines [now the Nova Scotia Department of
- 12 Energy];
- 13 • Union of Nova Scotia Municipalities; and
- 14 • Halifax Regional Municipality.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-25:

Reference: Appendix A, Mr. Hill's Evidence

**Table 3 on Page 12 of 18 of Mr. Hill's Evidence: Data Sources and Application in Developing
Recommended Nova Scotia Test:**

**(a) For the Utility System Impact "Program Administration and Incentives", the Application
in Report and Illustrative Examples states "EFG made assumptions about program
administration and direct incentive costs."**

i) Please elaborate on the assumptions and their application in the BCA.

**(b) For the Non-Utility Impacts "Other Fuels", the Data Sources/References explains that the
carbon price for fuel oil and gas is removed. Why?**

**i) Please provide the future price trends for fuel and the current costs as provided by
the US Energy Information Administration to the current prices for these fuels in
Nova Scotia.**

**a. Please explain any adjustments made to the US Energy Information
Administration fuel costs.**

**(c) For the Host Customer Impacts "Measure Costs", the "Application in Report and
Illustrative Examples" explains EFG made placeholder assumptions on costs and incentive
levels. Please explain each of the placeholder assumptions on costs and why it was
necessary to make assumptions on E1 incentives.**

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

(d) For the Host Customer Impacts “Host Customer Non-Energy Benefits”, “Data Sources/References” indicates that proxy values based on energy benefits or measure costs are used.

i) Please list the measure costs used.

ii) Please explain why a percent of energy benefits makes a reasonable proxy.

a. Have the energy benefits been adjusted to avoid double counting of by applying them to the Host Customer Non-Energy benefits?

Response IR-25:

The following IR response has been provided by Energy Futures Group (EFG).

(a)

i) For the illustrative example represented in Figure 1 on page 15 of 18,¹ EFG assumed a market rate incentive of 40%, and installed measure cost for heat pumps of \$8,000 for a per unit incentive of \$3,200 in 2026. The non-incentive program administration costs were assumed to be \$2,000 per unit in 2026. The assumptions used in the illustrative example were not meant to reflect the incentives and program administration costs that E1 will include their 2027-2031 DSM Plan Application.

(b) The carbon cost for fuels is removed under the ‘Other Fuels’ impacts category to avoid double counting. The GHG impacts are accounted for under the ‘Societal’ impacts category using the social cost of carbon, and therefore the carbon costs for other fuels have been removed.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix A, Evidence of David Hill Energy Futures Group, Inc., page 15 of 18.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 i) The U.S. Energy Information Administration (EIA) Annual Energy Outlook was used
2 for projected escalation rates for heating oil, propane and natural gas. For each fuel
3 a simple average was used between the values of the high and low scenarios for
4 annual average escalation. To demonstrate illustrative examples of how the
5 proposed BCA framework is applied, the future fuel price estimates from the cited
6 source were deemed sufficient.

7 a. EFG did not adjust the projected rates of annual escalation that were obtained from
8 the EIA.
9

10 (c) To follow the National Standard Practice Manual (NSPM) principle of symmetry of impacts,
11 if host customer benefits are counted, then the accompanying host customer costs should
12 also be counted. Host customer costs should be net of incentives provided by E1. EFG's
13 assumption of a 40% incentive for market rate heat pump replacements in the illustrative
14 example is to demonstrate the mechanics of how the accounting works. The assumptions
15 used in the illustrative example were not meant to reflect the incentives and program
16 administration costs that E1 will include in their 2027-2031 DSM Plan Application.
17

18 (d)

19 i) Measure costs in the illustrative example are \$8,000 per unit for heat pumps.

20 ii) The percentage of energy benefits is a reasonable, albeit approximate, approach to
21 estimating the non-energy benefits across a number of individual impact categories.
22 For example, in relation to thermal shell measures, the non-energy benefits
23 associated with increased comfort, health and safety, and building durability can all
24 be reasonably expected to scale along with the level of energy savings. Higher levels
25 of treatment to improve the building shell's performance, can roughly speaking, be
26 expected to provide a proportionate level of non-energy benefits.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 a. No. The energy benefits are included in the other fuel impacts and are not
- 2 adjusted in relation to the estimate of non-energy host customer benefits.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-26:

Reference: Appendix B EFG Report

**Please provide the proposed BCA in excel format with cells intact and worksheets unprotected.
Additionally, provide references for each measure, with empirical evidence that supports the
link between the benefit and associated cost.**

Response IR-26:

The following IR response has been provided by Energy Futures Group (EFG).

The Demand Side Management Advisory Group (DSMAG) Illustrative Examples Workbook.xls
created by EFG to provide illustrative examples of the BCA application and to review the results
with the working group has been provided as Attachment 1 to this IR response, filed
electronically.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-27:

Reference: Appendix B EFG Report

Page 8, under Non-Energy benefits states “If host customer benefits are not included in a jurisdictional test, then the host customer costs should be excluded.”

(a) Please describe the host customer costs and if they include costs incurred by E1.

(b) Are host customer benefits assumed to be the same across E1 programs?

Response IR-27:

The following IR response has been provided by Energy Futures Group (EFG).

(a) Host customer costs refer to the costs borne by the customers, for example the remaining cost after an EfficiencyOne (E1) incentive payment. The costs incurred by E1 are accounted for under program incentives and program administration (under the Electric Utility Impacts), and these are not considered host customer costs.

(b) No. As described in Appendix B of the EFG Report, and with reference to Tables 13 and 14¹, the estimated host customer non-energy benefits vary by distributed energy resource (DER) type and by customer segment. The principle of accounting for host customer benefits symmetrically if host customer costs are counted, does apply the same across E1

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 42 and 45 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 programs, but the estimated non-energy benefit varies by measure category and customer
- 2 segment as illustrated in Table 14.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-28:

Reference: Appendix B EFG Report

Page 8, under Not Material explains that some outcomes that don't produce a large enough effect are excluded from the BCA. Please identify and briefly describe the outcomes/impacts identified by E1/EFG/DSMAG that have been excluded for not producing a large enough effect?

Response IR-28:

The following IR response has been provided by Energy Futures Group (EFG).

The following impacts are listed in the EFG Report as Not Material.¹ In EFG's professional opinion these impacts may be present but are unlikely to materially change the results of cost effectiveness screening.

Table 2: Summary of Generation, Transmission and Distribution System Impacts

- Renewable Portfolio Standard (RPS) or Clean Energy Standard Compliance for Demand Response and Distributed Storage.
- Ancillary services for electric vehicles and beneficial electrification.
- Distribution voltage for all distributed energy resources (DER) types.

Table 3: General Electric System Utility Impacts

- Credit and collection impacts or demand response and distributed storage.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, Table 2 - page 13, Table 3 - page 14 and Table 4 - page 15 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 • Resilience impacts for all DER types.
- 2 Table 4: Non-Utility Impacts Consistent with Nova Scotia Policy Goals
- 3 • GHG reductions for demand response and distributed storage.
- 4 • Other environmental and public health for distributed storage.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-29:

Reference: Appendix B EFG Report

With regards to Table 2 on page 13 of 68 of the EFG Report:

(a) Please describe any initiatives that E1 currently has underway or is considering related to Distributed Generation (DG).

(b) Please describe any initiatives that E1 currently has underway or is considering related to Distributed Storage (DS).

(c) Please describe any initiatives that E1 currently has underway or is considering related to Electric Vehicles (EV).

(d) Please describe any initiatives that E1 currently has underway or is considering related to Building and Industry Electrification (BE).

Response IR-29:

Incorporating the aforementioned resources within the benefit-cost analysis (BCA) framework enables their consideration in the BCA test. It does not indicate that EfficiencyOne (E1) will include each of the resources in future DSM Plan's.

(a) E1 is exploring solar-PV as part of its 2027-2031 DSM Plan development. This work is still preliminary, and no final decisions regarding its inclusion have been made.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 (b) E1 does not currently provide, and is not currently exploring incentives for the purchase or
2 installation of distributed storage projects (i.e. batteries). E1 currently provides incentives
3 for customers with batteries to participate in its demand response program. Participant
4 incentives compensate customers for the use of their battery during demand response
5 events. This initiative targets existing batteries and is therefore considered exclusively
6 within the demand response resource. E1 is exploring the continued inclusion of batteries
7 in its demand response program as part of its 2027-2031 DSM Plan development.

8
9 (c) E1 does not currently provide, and is not currently exploring incentives for the purchase or
10 installation of electric vehicles (EVs) or EV charger infrastructure. E1 currently provides
11 incentives for customers with electric vehicles to participate in its demand response
12 program. Participant incentives compensate customers for making adjustments to the
13 charging of their EV during demand response events. This initiative targets existing electric
14 vehicles and is therefore considered exclusively within the demand response resource. E1
15 is exploring the continued inclusion of electric vehicle charging in the demand response
16 program as part of its 2027-2031 DSM Plan development.

17
18 (d) E1 is currently exploring building and industry electrification as part of its 2027-2031 DSM
19 Plan development. This work is still preliminary, and no final decisions regarding its
20 inclusion have been made.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-30:

Reference: Appendix B EFG Report

**Table 4: Non-Utility Impacts Consistent with Nova Scotia Policy Goals in the Notes for Econ
Devt/Jobs state that these impacts should be separate from the BCA calculations to avoid
double counting. Please describe how E1 identifies the impacts that should be separate from
the BCA to avoid double counting.**

Response IR-30:

The following IR response has been provided by Energy Futures Group (EFG).

The analysis of broader economic impacts, for example from reduced spending on imported fuels
and greater spending on local labor for measure installation or weatherization and associated job
impacts are best assessed using a different approach than a benefit cost test for efficiency and
demand side measures. Energy savings and associated costs and benefits are counted in the BCA
framework, but indirect or induced spending and job creation are not counted in the BCA
framework. These are typically estimated using an input output model or other macro-economic
analytic approach.

EfficiencyOne (E1) has relied on the expert opinion and recommendations in the EFG report to
identify potential cases and avoid double counting of impacts within the BCA framework. For
example, since the benefits of avoided fuels are counted in the “Other fuels” category, host
customer impacts do not include fuel savings benefits for the host (these would be double
counted) and focus on the non-energy benefits.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-31:

Reference: Appendix B EFG Report

Text Box 1: Summary of Key EFG Recommendations item 3) states that actual avoided capacity cost stream should have a planning reserve margin adjustment. It also states that constrained and unconstrained locations can be used to estimate costs for transmission and distribution, along with cost growth assumptions.

(a) Please explain this avoided capacity adjustment as it relates to E1's costing and estimation of costs and benefits and the source for this data.

(b) Please describe the constrained and unconstrained transmission and distribution locations that E1's incentives and programs influence.

(c) Please explain the basis for which E1 plans to estimate cost growth for transmission and distribution.

Response IR-31:

(a) The Planning Reserve Margin (PRM) adjustment reflects the fact that any capacity reductions from demand side management (DSM) also reduce Nova Scotia Power's (NS Power) required planning reserve. The adjustment is provided by NS Power and applied to the actual annual avoided costs of capacity benefit stream that is also provided by NS Power. The most recent avoided costs were provided by NS Power on August 23, 2024¹ in

¹ M12249, E1 2026 DSM Extension Application, Exhibit 8(i), E1 Response to Synapse, RIR-05, Attachment 1, June 25, 2025.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 which NS Power applied a 9% unforced capacity (UCAP) PRM adjustment; this is consistent
2 with the PRM adjustment NS Power applied as part of the 2020 IRP avoided costs. E1 utilizes
3 the annual avoided cost of capacity with PRM adjustment provided by NS Power to
4 calculate the avoided cost of capacity benefits.

5
6 (b) NS Power's June and August 2024 avoided cost deliverables provided two streams of
7 transmission and distribution (T&D) avoided costs; system-wide avoided costs and
8 constrained-system avoided costs. The June 2024 deliverable also provided an indication
9 of the constrained substations across the province; however, E1 is currently unable to
10 connect these substations to individual customers.

11
12 While EFG's BCA report recommends consideration of constrained and unconstrained
13 avoided costs; E1 currently applies the system-wide T&D avoided costs to DSM. Locational-
14 specific DSM continues to be explored through the DSM Plan development process.

15
16 (c) T&D avoided costs provided by NS Power and used by E1 are based on historical T&D
17 infrastructure costs (adjusted for historical inflation), with 2% inflation per year applied for
18 future years.

19
20 E1 has advocated for an analysis of T&D avoided costs that considers how future changes
21 may affect the unitary T&D avoided costs (\$/MW-yr). This aligns with Principle 5 of the
22 National Standard Practice Manual (NSPM), "Conduct forward-looking, long-term,
23 incremental analyses".² Considerations could include forecast electrification load growth;
24 the impact of generation changes and distributed energy resources on the T&D system;
25 and escalating costs of T&D infrastructure. E1 has not proposed a specific methodology for

² M12282, E1 BCA Test Application, May 16, 2025, Appendix A, Attachment 2: National Standard Practice Manual, page 51 of 302.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 this calculation. E1 is interested in working with NS Power, the Demand Side Management
- 2 Advisory Group (DSMAG), and (in the future) the Nova Scotia Independent Energy System
- 3 Operator (NSIESO) to better understand this issue.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-32:

Reference: Appendix B EFG Report

Text Box 1: Summary of Key EFG Recommendations item 6) makes reference to an Appendix F and item 7) refers to Appendix C. Please provide the excel versions of the appendices at the end of Appendix B where applicable, with cells intact and worksheets unprotected.

Response IR-32:

The following IR response has been provided by Energy Futures Group (EFG).

Appendices C and F of the EFG Report do not have excel workbooks supporting them. Appendix C is a screenshot from the cited Interim Updated Guidance on Greenhouse Gases from the Government of Canada.¹ Appendix F is a word table from the National Energy Screening Project.²

¹ <https://www.canada.ca/en/environment-climate-change/services/climate-change/science-research-data/social-cost-ghg.html>, Table 1: Updated SC-GHG estimates (C\$2021, \$/tonne of respective GHG)

² [Database of Screening Practices - NESP](#). Access the Database: [Database of State Efficiency Screening Practices \(DSP\) | ACEEE](#), Summary of States, Host Customer Impacts.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-33:

Reference: Appendix B EFG Report

Text Box 1: Summary of Key EFG Recommendations item 8) recommends using benefit per kWh for local non-greenhouse gas air pollutants using estimates from the US Environmental Protection Agency for New England.

(a) Please list all local non-GHG pollutants in Nova Scotia and describe the connection to E1 incentives and programs.

(b) Please explain the appropriateness of using local non-GHG pollutant levels in the BCA of E1's portfolio.

(c) Please describe the local non-GHG pollutant levels in New England, in terms of source and measure.

(d) Please explain the appropriateness of using estimates from New England.

Response IR-33:

The following IR response has been provided by Energy Futures Group (EFG).

(a) The benefits per kWh method cited from the US Environmental Protection Agency (EPA) estimates the health impacts of avoided emissions of particulate matter 2.5 microns, and other precursor pollutants from electric generation. The pollutants included in this impact category include nitrogen oxides (NOx) and sulfur dioxide (SO₂). For Nova Scotia,

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 EfficiencyOne (E1) incentives and programs can either reduce electric generation and
2 consumption, or in the case of beneficial electrification through heat pumps or vehicle
3 electrification, increase electric generation needs. This impact category estimates the
4 associated health impacts from changes in electric generation needs. It does not consider
5 emissions reductions associated with the non-electric system combustion of other fuels
6 (for example avoided home heating oil due to a heat pump, or avoided gasoline from an
7 electric vehicle).

8
9 (b) As described in the report, the recommended adoption of the New England regional values
10 is deemed to be an appropriate approximation. If greater detail on ambient air quality,
11 emissions and health impacts for Nova Scotia are available, or become available in the
12 future, they can be used in place of the recommended New England regional values.

13
14 (c) The New England regional avoided air pollutant emissions were estimated using the AVERT
15 (Avoided Emissions and Generation Tool) model and the quantification and valuation of
16 associated health impacts were estimated using the COBRA (Co-Benefits Risk Assessment
17 Tool). The sources of the pollutants estimated are electric generating stations. The
18 approaches and details on estimation are described further in the cited EPA report.¹

19
20 (d) Please refer to part (b) of this IR response.

¹ United States Environmental Protection Agency (EPA), Public Health Benefits per kWh of Energy Efficiency and Renewable Energy in the United States: A Technical Report, May 2021, 2nd edition.
https://www.epa.gov/sites/default/files/2021-05/documents/bpk_report_second_edition.pdf

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-34:

Reference: Appendix B EFG Report

Text Box 1: Summary of Key EFG Recommendations item 11) states that secondary tests are not meant to be used in a sequential fashion or as a replacement of the recommended primary test. Please elaborate on this recommendation and application of the BCA as propose and how would secondary tests function in Nova Scotia given the evaluation of the cost-effective demand-side management at the portfolio level?

Response IR-34:

In Nova Scotia there is one regulator approved cost effectiveness test for demand side management (DSM), known as the screening test or primary test. Currently, the screening or primary test for Nova Scotia is the Total Resource Cost (TRC) test. The cost effectiveness of EfficiencyOne (E1)'s DSM Plans are assessed at the DSM portfolio level using the approved primary test. Through E1's benefit cost analysis (BCA) Application, E1 is seeking approval of a new primary cost effectiveness test for evaluating the DSM portfolio in Nova Scotia. The proposed BCA was developed through engagement with the Demand Side Management Advisory Group (DSMAG) and followed the National Standard Practice Manual (NSPM) framework. Developing a jurisdiction-specific test for Nova Scotia resulted from the 2023-2025 DSM Plan Decision where E1 was directed by the Nova Scotia Utility and Review Board (NSUARB) to work with the DSMAG to develop an optimal cost effectiveness test for DSM in Nova Scotia. The Board has acknowledged the need for a revised framework in recognition of the current Nova Scotia TRC

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 being unbalanced and biased by including host customer costs but not host customer benefits as
2 noted in Synapse Energy Economics Inc.'s Evidence.¹
3
4 Having a single jurisdictionally specific primary test that is used for cost effectiveness testing for
5 all distributed energy resources ensures consistency in how cost effectiveness is assessed across
6 all resources and DSM filings. Using multiple or secondary tests can lead to conflicting outcomes
7 creating ambiguity in decision making. A single primary test avoids this by providing a unified
8 framework for evaluation. Secondary tests may be used to provide additional insights, and to
9 help understand implications from different perspectives (e.g., utility), but decisions are
10 grounded in the primary test. E1 currently provides and intends to continue to provide the results
11 from the Program Administrator Cost (PAC) test (includes utility benefits and utility costs only)
12 for informational purposes.

¹ M10473 E1 2023-2025 DSM Plan, Exhibit 25, Evidence of Synapse, page 17

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-35:

Reference: Appendix B EFG Report

Please confirm that Table 5: Illustrative Example of Recommended Nova Scotia Test, provides only the summary of the benefits associated with 1,000 Heat Pumps Replacements in Program Year 2026. If the BCA test is and methodology is approved by the Board, does E1 intend to provide a more detailed analysis demonstrating how each of the estimated costs and benefits are calculated?

Response IR-35:

EfficiencyOne (E1) proposes that the benefit cost analysis (BCA) test, if approved, be subject to an ‘evergreen’ periodic review process through the Demand Side Management Advisory Group (DSMAG) to ensure that the included impacts and quantification of all impact categories are reflective of accurate and current data, and of any changes to Nova Scotia policy objectives. This ‘evergreen’ review would be conducted in advance of the development of a new demand side management (DSM) Plan. E1 would continue to include this information similar to what is currently provided as part of the DSM Plan.

E1 expects the new BCA to be implemented for the first time in the development of the 2027-2031 DSM Plan, subject to the Nova Scotia Energy Board’s (NSEB) decision on E1’s BCA Application. It is expected that the 2027-2031 DSM Plan will be filed in early 2026. E1 anticipates that the 2027-2031 DSM Plan Application will include the following:

- The BCA test results by measure, program component, program, resource, and portfolio.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 • A memo or workbook which provides all impact streams used in the BCA test and
- 2 their source.
- 3 • Fulfillment of any directives provided by the NSEB outlined in their decision on E1's
- 4 BCA Application.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-36:

Reference: Appendix B EFG Report

Page 20 describes the example in Table 5 as showing that the cost effectiveness of the 1,000 heat pump replacements is influenced by which fuel is displaced.

(a) Are the costs to E1 for heat pump incentives and programs limited to Financial Incentives and Program Administration in Table 5?

i) If not, please identify all costs incurred by E1 for the 1,000 heat pump replacements in this example.

Response IR-36:

The following IR response has been provided by Energy Futures Group (EFG).

(a) Yes. EfficiencyOne (E1) is assumed to have financial incentives costs that can include direct customer incentives, direct install costs, and technical support and program administrative costs that include E1 staff, evaluation, marketing and overhead costs.

i) In the illustrative example,¹ the incentive costs were assumed to be \$3,200 per unit and the program administration costs were \$2,000 per unit. These were for illustrative purposes only and based on EFG assumption. Each would be refined and based on specifics related to program design, delivery and market conditions when presented by E1 in the program application.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, Table 5, page 19 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-37:

Reference: Appendix B EFG Report

Table 6: Illustrative Example Present Value Benefits, Costs and Ratios, provides the present value of the heat pump replacements. Not limited to this table, how many years will the costs and the benefits be discounted over? Please identify the years for each impact.

Response IR-37:

The following IR response has been provided by Energy Futures Group (EFG).

Impacts in the proposed benefit cost analysis (BCA) framework are estimated over each measure's estimated lifetime. In the case of the example in Table 6 of the EFG Report¹ the heat pump measure life is 15 years, from 2026 through 2040. The BCA application within a demand side management (DSM) Plan will include measures with varying lifetimes, and the time horizon over which costs and benefits are counted will vary accordingly.

Impacts in the proposed BCA framework are estimated over each measure's estimated lifetime. In the case of the example in Table 6 of the EFG Report² the heat pump measure life is 15 years, from 2026 through 2040. The BCA application within a DSM Plan will include measures with varying lifetimes, and the time horizon over which costs and benefits are counted will vary accordingly.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, Table 6, page 22 of 68.

² Ibid., page 22 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-38:

Reference: Appendix B EFG Report

Page 36, Credit and collections, highlights that NS Power hasn't found a change for costs associated with delinquent accounts, disconnection and reconnection costs. Why does E1 consider it appropriate to include this measure attributable to general or income targeted DSM?

(a) If NS Power does see a reduction in delinquent accounts, disconnection and reconnection costs, how will E1 determine the amount of costs saved are due to DSM and not due to the Customer Energy Management system bill alerts and the outcomes from the Low-Income Working Group or other non-DSM program?

i) Given that Credit and Collection are typically associated, although not limited to those customers with low incomes, and that there is a greater likelihood for these customers to rent their homes, please provide the reasons that E1 considers its DSM incentives and programs are able to reduce Credit and Collection expenditures in a significant way.

Response IR-38:

The following IR response has been provided by Energy Futures Group (EFG).

Credit and Collections impacts are included under Electric Utility System Impacts to ensure all Electric Utility System Impacts are considered in the benefit cost analysis (BCA), as a principle of the National Standard Practice Manual (NSPM). They should be included for consideration regardless of whether or not the impact value is available and/or positive.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

- 1 (a) The Demand Side Management Advisory Group (DSMAG) identified this impact category as
2 one where NS Power could provide more information. It is reasonable to assume that
3 efficiency efforts help to improve affordability of energy services in general, and that NS
4 Power might be able to attribute some level of reduction in credit, collection and
5 disconnection costs to DSM portfolio activities. NS Power is in the best position to further
6 distinguish and estimate what portion, if any of reduced costs for collection etc. is related
7 to DSM and what may be attributable to bill alerts or other utility initiatives.
- 8 i) While some renters may live in master metered buildings, others will still pay their
9 own electric bills, and efficiency initiatives and program services can help to make
10 electric service more affordable. Note at this time the reduction in bill collections or
11 disconnections is not quantified or estimated in the illustrative example, and further
12 information from NS Power on these avoided costs would be helpful.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-39:

Reference: Appendix B EFG Report

Page 36, Resilience, measures if a DER can help the electric system recover from a catastrophic event. Please list the incentives and programs that E1 offers that provide resilience value to the electric system.

Response IR-39:

The following IR response has been provided by Energy Futures Group (EFG).

Please refer to Table 3, EFG Report,¹ which indicates currently the resilience benefits to the electric system from the EfficiencyOne (E1) demand side management (DSM) portfolio are “not material”, that is likely not large enough to influence outcomes. However, as noted in the Report, in the Demand Side Management Advisory Group (DSMAG) workshop discussions it was noted that there could be resilience impacts from distributed generation and distributed storage in the future, even if there are not impacts now. Energy efficiency such as weatherization and electric vehicles through possible vehicle to building support can also support building comfort and services during recovery. It is also possible for some demand response (DR) assets to have cold-start capabilities and provide resilience value.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 14 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-40:

Reference: Appendix B EFG Report

Table 9 identifies the impacts included in the BCA. Please explain the reasons that E1 considers the effects from DSM on Transmission and Distribution are significant enough to be included.

Response IR-40:

The following IR response has been provided by Energy Futures Group (EFG).

Distributed energy resources (DERs) including efficiency, demand response, distributed generation, on-site storage, and electric vehicles, all have measurable impacts on capacity for the transmission and distribution system. Depending on a variety of factors, including DER type, location, electric system infrastructure age and conditions, DERs can provide savings or costs on the distribution and transmission system. Considering only the generation related energy and capacity benefits in the benefit cost analysis (BCA) test would be a mistake and fundamentally be leaving out key utility system impacts. In the case of beneficial electrification of buildings and vehicles, the increased electric system impacts should include consideration of the potential distribution and transmission system capacity impacts.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-41:

Reference: Appendix B EFG Report

Table 13 in Appendix B lists the Host Customer Impacts. How does E1 propose to quantify the following:

(a) Transaction Costs

(b) Risks

(c) Resilience

(d) Productivity

(e) Comfort

(f) Amenity

(g) Empowerment

(h) Pride

Response IR-41:

(a) EfficiencyOne (E1) is proposing that a proxy adder approach be used for the quantification of host customer impacts as recommended and described by Energy Futures Group (EFG)

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

1 in Appendix B Development of a Jurisdictional Benefit Cost Analysis Framework for Nova
2 Scotia (EFG Report) of E1's application. EFG recommended *"an approach based on proxy*
3 *adders, differentiated by measure category, [distributed energy resources] DER type, and*
4 *customer segment"*¹ to account for the host customer impacts outlined in Table 13 of the
5 EFG Report and referenced in the IR above. As noted in the EFG Report *"The consultant*
6 *team's rationale for the recommended approach is that it recognizes that host customer*
7 *non-energy impacts, which may be hard to quantify, are not zero, while not attempting to*
8 *individually quantify each of the non-energy impact categories listed in Table 13."*²
9

10 (b) Please refer to part (a) of this IR response.
11

12 (c) Please refer to part (a) of this IR response.
13

14 (d) Please refer to part (a) of this IR response.
15

16 (e) Please refer to part (a) of this IR response.
17

18 (f) Please refer to part (a) of this IR response.
19

20 (g) Please refer to part (a) of this IR response.
21

22 (h) Please refer to part (a) of this IR response.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost
Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 44 of 68.

² Ibid., page 44 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-42:

Reference: Appendix B EFG Report

**In reference to Table 14, please provide empirical evidence demonstrating cause between the
measure type and the customer segment.**

Response IR-42:

The following IR response has been provided by Energy Futures Group (EFG).

EFG has not conducted primary or secondary empirical research to demonstrate causality
between the measure type and customer segment. The proposed values have been proposed,
and reviewed with the Demand Side Management Advisory Group (DSMAG) based on EFG's best
professional judgement drawing upon our past observations and experience, and a common-
sense approach to hard to quantify non-energy benefit impacts.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-43:

Reference: Appendix B EFG Report

**With regards to Table 15 on page 47 of 68 of EFG’s report, please explain what is meant by
“weatherization”.**

Response IR-43:

The following IR response has been provided by Energy Futures Group (EFG).

Weatherization refers to actions to improve the thermal shell performance of buildings. The most common and cost-effective measures to take are generally air-sealing, paying particular attention to the “top and bottom” of the thermal envelope, followed by insulation. Weatherization measures reduce energy consumption, improve building durability by avoiding or mitigating issues like rot and mildew, and increase occupant comfort and health.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-44:

Reference: Appendix B EFG Report

Table 17: Societal Impacts lists Energy Security which is described as changes in energy independence. Please elaborate on this description and link to E1's incentives and program services.

Response IR-44:

The following IR response has been provided by Energy Futures Group (EFG).

EFG's Report does not recommend energy security be quantified in the proposed new jurisdictional cost effectiveness test.¹ EfficiencyOne (E1) activities, incentives and program services, serve to reduce reliance on imported fossil energy resources and support growth in local renewable energy resources. This improves energy security, but currently, the impact is not recommended for quantification or inclusion in the BCA test.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, Table 1, page 12 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-45:

Reference: Appendix B EFG Report

Page 51 suggests that because Nova Scotia and New England have similar geographies, New England is a reasonable substitute for Nova Scotia with respect to air quality public health benefits. Please elaborate on how the measures from New England are appropriate with respect to the benefit per kWh for air pollutants. Please ensure to provide comparisons with rates of chronic disease associated with air pollutants, public health investments and the sources and levels of air pollution.

Response IR-45:

The following IR response has been provided by Energy Futures Group (EFG).

EFG has not conducted primary or secondary research on the rates of chronic disease associated with air pollutants, public health investments and ambient air quality conditions in New England and Nova Scotia. As stated in the report¹, the proposed adoption of the New England values is considered relatively conservative, as they are the lowest regional values estimated by the United States Environmental Protection Agency (EPA). New England has less coal fired generation than Nova Scotia and this supports the assumption that air impacts from electric generation in Nova Scotia are not likely to be less than they are in New England. EFG applied the principle of not assuming impacts are zero, because they may be hard to quantify.

¹ M12282, E1 BCA Test Application, May 16, 2025, Appendix B: Development of a Jurisdictional Benefit Cost Analysis Framework for Nova Scotia (EFG Report), Prepared by Energy Futures Group, page 51-53 of 68.

E1 Responses to Nova Scotia Energy Board (NSEB) Information Requests
NON-CONFIDENTIAL

Request IR-46:

Reference: Appendix B EFG Report

Page 58 notes that the cost of carbon is based on December 2022 updates from Environment Canada. Given that Canada has effectively abolished the federal carbon tax system in April 2025. Does E1 propose to change this measure?

Response IR-46:

The complete reference on page 58 of the EFG Report states, “The social cost of carbon is based on December 2022 updates from Environment Canada”. The federal carbon tax does not impact the social cost of carbon, which remains unchanged.

The removal of the federal carbon tax does mean that for fossil fuels there is no longer any embedded cost of carbon (carbon tax); this will correspondingly reduce the fossil fuel impact stream, while increasing the net social cost of carbon impact stream (with a net impact of zero). This does not impact electricity avoided costs where the industrial carbon price (Nova Scotia GHG Output Based Pricing System) continues to be applied and is embedded within the avoided cost of energy.

The Benefit Cost Analysis (BCA) framework, as proposed by Energy Futures Group (EFG), seeks to establish relevant impacts, calculation methodologies, and transparent documentation. EfficiencyOne (E1) is committed to using the most accurate and up-to-date impact calculations at the time of implementing the BCA as part of Demand Side Management (DSM) Plan Applications, while adhering to the over-arching BCA framework. As an example, reviewing the carbon pricing and social cost of carbon and updating based on the most recent values.