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Request IR-01:

Please provide the cost of engaging Vermont Energy Investment Corporation (VEIC) as EOne's consultant regarding Non-Energy Benefits (NEBs).

Response IR-01:

The total cost to engage VEIC to date is $51,586. This does not include any costs that will be incurred for the ongoing regulatory process associated with the NEBs application.

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Request IR-02:

Regarding the NEBs quantification methodology, page 4 of 15 states:

> **A minority of [DSMAG] members emphasized that a simple multiplier-based approach would suffice, while many advocated for enhanced precision of a measure-based approach, using existing data from another jurisdiction.**

On page 15 of 15, EOne states that the VEIC methodology "…captures the consensus of the DSMAG on the general methodology".

a) Please elaborate on the DSMAG consensus regarding the VEIC methodology; i.e. does this imply full agreement by all DSMAG participants?

Response IR-02:

a) EfficiencyOne engaged the DSMAG throughout the NEBs process inclusive of discussions on the quantification methodology used by VEIC. It was EfficiencyOne's interpretation of these discussions that the VEIC methodology met general consensus.

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Request IR-03:

Page 10 of 15 states:

> **The average relative increase to the portfolio TRC test result after the inclusion of NEBs was 24% across all years of the 2016-2018 DSM Resource Plan (including measures with zero NEBs values).**

a) **What additional programs or measures could have been included in the 2016-2018 programs with inclusion of NEBs in the TRC test?**
b) **How will inclusion of NEBs in the TRC test affect the level of DSM spending or the level of kW and kWh savings?**
c) **How do the NEB TRC ratios compare with PAC ratios for the same measures, programs, and portfolio in the 2016-2018 DSM Resource Plan?**

Response IR-03:

a) VEIC's work on NEBs focused only on those measures that were included in the 2016-2018 DSM Resource Plan portfolio.

b) The inclusion of NEBs in the TRC test is not expected to affect the level of DSM investment or the level of kW and kWh savings. DSM investment and savings targets are approved by the NSUARB through an established regulatory process which EfficiencyOne understands would remain unchanged with the inclusion of NEBs in the TRC.

c) For a summarized insight at the measure-level, EfficiencyOne notes that 28% of measure instances within the 2016-2018 DSM Resource Plan model possess a higher TRC with NEBs value, when compared against PAC test results. Tables 1 through 3 below provide program and portfolio level comparisons. Please note that this information reflects the removal of property-value and rental income related NEBs.

Table 1 - 2016 TRC w/ NEBs vs PAC

2016		
Program	**TRC Ratio w/ NEBs**	**PAC Ratio**
Residential Efficient Product Rebates	1.7	2.7
Existing Residential	2.0	4.3
New Residential	2.8	3.9
BNI Efficient Product Rebates	2.5	3.5
Custom Incentives	3.7	3.9
Direct Installation	1.9	1.8
Portfolio	**2.4**	**3.6**

Table 2 - 2017 TRC w/ NEBs vs PAC

2017		
Program	**TRC Ratio w/ NEBs**	**PAC Ratio**
Residential Efficient Product Rebates	1.8	2.8
Existing Residential	2.1	4.3
New Residential	2.9	4.1
BNI Efficient Product Rebates	2.7	3.9
Custom Incentives	3.8	4.1
Direct Installation	2.0	1.9
Portfolio	**2.5**	**3.8**

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Table 3 - 2018 TRC w/ NEBs vs PAC

2018		
Program	**TRC Ratio w/ NEBs**	**PAC Ratio**
Residential Efficient Product Rebates	1.9	2.9
Existing Residential	2.1	4.2
New Residential	3.1	4.3
BNI Efficient Product Rebates	2.7	4.1
Custom Incentives	4.0	4.4
Direct Installation	2.2	2.0
Portfolio	**2.6**	**3.9**

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Request IR-04:

On page 11 of 15, EOne notes that some NEB enhancements to the TRC test are possible in the future and are currently underway or being investigated. Also, "EfficiencyOne is currently working with Saint Mary's University … to develop a comprehensive primary research survey instrument to address groups of measures for which no NEBs information was adapted by VEIC, and for which NEBs could reasonably be postulated to exist…".

a) Have any electricity ratepayer funds been spent on this activity? If so, please provide the amount to-date.
b) What cost has been budgeted for this work?
c) Does EOne consider it appropriate to proceed with this work for future NEB enhancement of the TRC test, and any related expenditures, prior to receiving a Board decision on the current NEB application?

Response IR-04:

a) No.

b) The budget for the work to be performed by Saint Mary's University is $20,000.

c) In addition to correcting the TRC, EfficiencyOne sees value in understanding the NEBs associated with our measures to better communicate their full range of benefits to customers to encourage participation in programs.

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Request IR-05:

Page 15 of 15 states that "…not every point of discussion has full agreement amongst the DSMAG…"

a) Please list and describe the issues which EOne considers do not have full agreement amongst the DSMAG.

b) Have any DSMAG participants suggested that NEBs should not be included in the TRC testing?

Response IR-05:

a) Please refer to the list below for EfficiencyOne's interpretation of these issues:

1. Integrating low-income NEBs into market-rate programs based on the proportion of low-income customers by program.

   Certain DSM Advisory Group members suggested that it may make sense to apply low-income specific NEBs to market-rate programs, on the basis of low-income participation in those programs, which EfficiencyOne currently tracks on a quarterly basis. This work has not been performed.

2. The inclusion of specific recommended low-income NEBs for future potential cost-effectiveness testing of low-income programs.

   There was interest amongst certain DSM Advisory Group members in establishing specific NEBs for low-income programs. Certain members demonstrated varying levels of support for this concept. In addition, some members supported performing initial quantification of low-income NEBs with respect to EfficiencyOne's current Affordable Multifamily Renter Pilot Program.

3. The appropriateness of including property value-related benefits in adapted NEBs.

During the DSM Advisory Group engagement and consultation process, there was extensive debate on the appropriateness of including property value increases within NEBs. Contrary opinions originated with respect to whether property value represented double-counting against other forms of NEBs already quantified, such as comfort and home durability.

4. Avoided Costs of Water

It was noted that Halifax Water has significant fixed costs. It was suggested that this issue be explored in reference to avoided water cost estimates.

5. Impact and the use of NEBs

Certain DSM Advisory Group members expressed concern that NEBs would alter how EfficiencyOne selects measures and prioritizes certain measures for use within its portfolio. Concern was shared that energy and demand benefits role in measure selection would be diminished. Concern was also shared with respect to how NEBs will interact will EfficiencyOne's incentive setting methodology.

6. Non-Energy Costs

Concern was shared that not enough effort from VEIC, or by extension Massachusetts, was expended in evaluating non-energy costs, in addition to non-energy benefits.

7. Double-Counting of Benefits

Beyond the specific issue of property value related NEBs, there was some concern shared by the DSM Advisory Group that the categories of NEBs may not be mutually exclusive, and that in situations where multiple measures have been installed, that their impacts may not be additive and sum within a broader project.

8. Distribution of Benefits and Costs

Certain DSM Advisory Groups members expressed some concern that NEBs are "captured" by the participant, and do not flow to other ratepayers within the utility system. In addition, some divergent opinions in the group exist on the categorization of NEBs and which are appropriate to include, specifically with respect to the categorization of participant vs societal NEBs.

9. Future Research Direction

Certain DSM Advisory Group members objected to the specific points of future research recommended by VEIC, and felt it was not sufficiently justified.

10. HDD/CDD Comparison

Some DSM Advisory Group members questioned VEIC's approach for performing the adaptation of comfort benefits. VEIC's approach relied on the aggregated comparison of Heating and Cooling Degree Days (HDD and CDD) between the two jurisdictions.

11. Perceived Value vs. Avoided Costs.

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Some members of the DSM Advisory Group expressed concern that the Massachusetts NEBs studies contain both what they referred to as perceived value benefits (e.g. comfort) and avoided cost-type benefits (e.g. reduced labour in the BNI sector).

b) Yes, EfficiencyOne is aware of one DSM Advisory Group participant with this explicit view.

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Request IR-06:

In general, would more measures and programs pass the cost effectiveness test based on the PAC or on the TRC with NEBs included? Please elaborate.

Response IR-06:

In general, more measures and programs would pass a cost-effectiveness test with the PAC test than using the TRC test with NEBs included. This results from the values of NEBs being less than the values of customer costs in general.

This can be illustrated through example. If a measure provides $200 of Avoided Cost benefits (on an NPV basis), has a combined incentive and administrative cost of $100, and requires a customer contribution of $100, then its PAC and TRC ratios can generally be constructed as follows

$$TRC = \frac{\text{Avoided Costs}}{\text{Incentive and Admin. Cost} + \text{Customer Contribution}} = \frac{\$200}{\$100 + \$100} = 1$$

$$PAC = \frac{\text{Avoided Costs}}{\text{Incentive and Admin. Cost}} = \frac{\$200}{\$100} = 2$$

For the TRC to equal the PAC in the above case, the value of NEBs must equal the value of Avoided Costs to render a TRC value equal to the PAC.

$$TRC\ w/NEBs = \frac{\text{Avoided Costs} + \text{NEBs}}{\text{Incentive and Admin. Cost} + \text{Customer Contribution}}$$

$$= \frac{\$200 + \$200}{\$100 + \$100} = 2$$

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- In many cases (34% of measures), a NEBs value of zero has been recommended by VEIC, or a suitable value has not been found (e.g. a similar measure is not offered in Massachusetts). In these cases, the original TRC value is held, which is typically lower than the PAC.
- The magnitude of TRC changes due to NEBs (adjusted for the removal of property value-related NEBs) is less than 50 per cent for most measures where the TRC result did change. This is not enough to render the TRC result greater than the PAC result, given typical DSM relative incentive levels, in the majority of cases.
- Cases where the TRC result with NEBs is higher than the PAC include direct installation-type program offerings and measures with very large changes to TRC as a result of NEBs.

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Request IR-07:

If a NEB benefit has no potential to reduce electric load or shift electric load, what benefit does it provide to other electricity ratepayers?

Response IR-07:

EfficiencyOne's motivation for pursuing the inclusion of NEBs in the TRC was to achieve a balanced approach when using this cost-effectiveness test, which is consistent with the recommendations of the National Standard Practice Manual.[1] EfficiencyOne considers the current TRC to be unbalanced because it includes a value for customer costs and no value for customer benefits. EfficiencyOne does not expect the inclusion of NEBs to increase the energy cost for customers. A likely result of including NEBs is that more measures may pass the TRC test. The result of this may or may not mean that more measures will be included in existing DSM programs delivered by EfficiencyOne, because the TRC test is only one consideration in measure selection. Other considerations include:

- The level of energy and demand savings provided by the measure, and its lifetime;
- The unit cost ($/kWh, $/kW) of the measure, both on a first-year and lifetime basis;
- The ease of performing measurement and verification processes to evaluate energy savings;
- The current and possible future states of the market for the efficient measure and its baseline;
- The cost of measure, the range of possible incentive levels, and any potential effects with respect to the risk of free-ridership;
- Other jurisdictions experiences with incenting similar measures;

[1] NESP, National Standard Practice Manual for Assessing Cost-Effectiveness of Energy Efficiency Resources, May 2017, at Page viii, section "Symmetry"

- The safety of the product and participant experience considerations; and
- The TRC, PAC and PCT test results.

The inclusion of NEBs only affects the results of the TRC test, which EfficiencyOne uses as a screening test (at the program level). All other metrics shown above, remain unchanged.

To the extent that the inclusion of NEBs in the TRC allows for additional measures to be added to a program, this may also provide increased energy and demand savings, where these measures reduce lost opportunities for energy savings, and/or increase the penetration of energy efficient measures in hard-to-reach market segments.

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Request IR-08:

If a NEB benefit has no potential to reduce electric load or shift electric load, why should the Board consider it at all?

Response IR-08:

Please refer to EfficiencyOne's response to UARB IR-07.

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Request IR-09:

If a NEB benefit has no potential to reduce electric load or shift electric load, what provision of the *Public Utilities Act* permits the Board to take it into account?

Response IR-09:

Inclusion of NEB's in the consideration of a DSM Plan may well have the effect of reducing or shifting overall utility load through the potential adoption and delivery of a broader suite of measures. Adoption of this approach will allow for a balanced consideration and evaluation of factors driving electricity ratepayer participation in DSM programs and ultimately drive greater customer equity.

The Public Utilities Act requires, *inter alia*, a consideration of (1) whether a DSM plan is in the best interests of Nova Scotia Power Incorporated's customers[1]; (2) its affordability[2], and (3) any other matters considered appropriate by the Board[3]. Accordingly, the Board has full authority under Public Utilities Act to consider and evaluate the reasonableness of any DSM plan filed by a franchise holder together with the manner in which such plan was developed, screened and evaluated.

[1] S 79L(8) Public Utilities Act
[2] S 79L(9) Public Utilities Act
[3] Supra 2