

NOVA SCOTIA ENERGY BOARD

IN THE MATTER OF: *The Public Utilities Act*

– and –

IN THE MATTER OF an application by EFFICIENCYONE for approval of the 2026
DSM Extension for Demand-Side Management Activities
between EfficiencyOne and Nova Scotia Power Inc., and for
approval of the amendment to the 2023-2025 Demand-Side
Management Purchase Agreement between EfficiencyOne and
Nova Scotia Power Inc.

NON-CONFIDENTIAL PEACH RESPONSE TO
CONSUMER ADVOCATE IRs

To: David J. Roberts
Consumer Advocate

From: H. Gil Peach
H. Gil Peach & Associates, LLC

1 **Request IR-1:**

2
3 **Reference:** 2024 Savings Verification, Table 7, and below (p. 46-47):

4
5 "The three claims include for Green Heat (2 analyses out of 3), although the magnitude of each is
6 only 0.1% (a participation difference of one-tenth of one percent, which is far too small to be of
7 practical importance). The other claim is for Efficient Products Installation (1 analysis out of 3),
8 which is also tiny (0.4% or four-tenths of one percent). There is no claim for the Home Energy
9 Assessment program (0 out of 3)."

- 10
11 a. Given that the evaluation found for the Grean Heat program that the high user
12 treatment group had a 0.4% participation rate compared to the 0.3% participation
13 rate for the control group (the referenced 0.1% difference), this equates to a 33%
14 increase (0.1/0.3) in participation rates between the control and treatment group.
15 Do the authors believe that a 33% increase in participation rates is not of "practical
16 importance"?
- 17 b. Given that the evaluation found for the EPI program that the high user treatment
18 group had a 2.0% participation rate compared to the 1.6% participation rate for the
19 control group (the referenced 0.4% difference), this equates to a 25% increase
20 (0.4/1.6) in participation rates between the control and treatment group. Do the
21 authors believe that a 25% increase in participation rates is not of "practical
22 importance"?
- 23 c. Given that the evaluation found for the Grean Heat program that the medium user
24 treatment group had a 0.2% participation rate compared to the 0.1% participation
25 rate for the control group (the referenced 0.1% difference), this equates to a 50%
26 increase (0.1/0.2) in participation rates between the control and treatment group.
27 Do the authors believe that a 50% increase in participation rates is not of "practical
28 importance"?
- 29
30

Response IR-1-a:

The evaluation for Green Heat found that the high user group had a 0.4% participation rate compared to the 0.3% participation rate for the control group (a difference of one tenth of one percent). While the relative increase of 33% between the control and treatment group might seem large, the actual practical impact does not. As a process, for every one thousand (1,000) 'high user' treatment group customers exposed to a program (residential behaviour) with an objective to encourage customers to participate in other programs, one additional customer signed up for Green Heat. We believe this difference is not of practical importance and could be improved. When we say we do not see value in the behavioral part of the program other than the program encouragement to participate in the measure-based programs, we are looking at the numbers with a comparison to the effectiveness of the measure-based programs in mind. The energy savings, of course, are not attributed to the behaviour program but to the program that produces the energy savings, here Green Heat.

Response IR-1-b:

The evaluation found that for the EPI program, the high user treatment group had a 2% participation rate compared to 1.6% or the control group (the difference between the groups is four tenths of one percent). We do not believe this increase, which is an increase of 25% or, put another way four out of one thousand, is of practical importance.

However, getting households into the measure-based programs is important and the benefit to each household that participates in the measure-based programs is substantial. Again, we see the value of this program not in modifying household behaviors in small ways that will not have a meaningful effect on lowering energy bills, though it will go in the direction of lowering energy use in small ways, but in the encouragement to participate in the measure-based programs that provide substantial benefit to each participating household.

Response IR-1-c:

For Green Heat, the evaluation found that the medium user treatment group had a 0.2% participation rate compared to the 0.1% participation rate for the control group (a difference of one tenth of one percent), which may be expressed as a difference of 50%. We do not believe that this increase, though in the positive direction, is of practical importance.

Again, we are looking at a behavioral program with an exceedingly small average savings per household – not enough to be able to see a real reduction in energy bills. And we see the program as a marketing and promotional program. The strength of the program is in the encouragement to participate in the measure-based program that provide real bill reduction.

We think more focus on improvement in marketing and promotion rather than residential behaviour might be a better option, and that the program could be redesigned to produce stronger energy savings and bill reduction results.

1 **Request IR-2:**

2 **Reference:** 2024 Savings Verification, p. 52 re: discussion on the “Effect Size at the Household
3 Level”

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- 5 a. Do the authors have any details on the dispersion of individual household savings
6 around the mean household saving level? If so, please provide this information?
- 7 b. Do the authors believe that an average or mean value is fully representative of
8 participant outcomes for participants in the behavior program?

9

10 **Response IR-2-a:**

11 We do not have the data from which to answer the question. However, it may be available from
12 the evaluation consultant or the DSM administrator.

13

14 **Response IR-2-b:**

15 No, we do not believe that an average or mean value is fully representative of participant outcomes.
16 Instead, the combination of the two questions (dispersion and measures of central value) should
17 capture the nature of the participant outcomes, if also accompanied by a graph permitting
18 inspection to see if any clusters, subgroups, or anomalies show up in the data. For example, the
19 participants in measure-based programs should show up as definite subgroups when for each
20 individual household the value of energy savings shows up in the graph.

21

22 Also, the graph should be presented with and without the households that participated in the
23 measure-based programs so that the behavioral program effect can be estimated separately.
24 Additionally, a graph of this kind would show how households that experience negative energy
25 savings for the year are treated by the evaluator (it is not unusual for an evaluator to disregard
26 households with negative savings, so we would want to see if that was happening).

27

28 We suspect, given the weakness of behavioral approaches for reducing energy use and controlling
29 bills, that the very small average energy savings per household estimated for the behavioural
30 program by the evaluator (4 kWh per month) is actually caused by some installation of physical
31 energy saving measures in a small proportion of the homes. That savings, which would be

1 meaningful, is then automatically averaged out to an essentially meaningless average savings per
2 household over the full treatment group. This is only a hypothesis, but getting the value of savings
3 for each household and then sorting by size of kWh savings and printing the distribution would
4 show if the savings are only coming from certain homes, or if the savings are more or less uniform
5 over the treatment homes. If savings are concentrated only in certain homes, a sample should be
6 visited to document the sources of the savings.

1 **Request IR-3:**

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3 **Reference:** 2024 Savings Verification, p. 53:

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5 "... we have only the metered (AMI) based result, which is a black box ..."

- 6
7 a. What do the authors mean that AMI data is a "black box"?
8 b. Do the author's consider engineering assumptions to be better than meter data?
9 c. Do the authors believe that AMI data is not useful for system planning?

10
11 **Response IR-3-a:**

12 When we say there is a "black box" we do not mean the AMI data. As a type of energy saving
13 program, residential behavior programs are black boxes. Many randomized control designs are
14 black boxes, since they rely on statistics from billing systems to document energy savings, but
15 they do not document and analyze the physical causes of the energy savings. Randomized
16 controlled trials (RCTs) mostly have that defect. In contrast, for the measure-based programs we
17 know what causes the energy savings and we have a parallel calculation based on actual physical
18 measures (and a mix of actual measurements and engineering assumptions) which lines up pretty
19 closely to the metered results.

20
21 **Response IR-3-b:**

22 We consider that engineering calculations (which involve both measurements and assumptions)
23 combined with meter data provide a much better understanding of energy savings results, than
24 either one by itself. We do not question the AMI data and are happy to have technology better
25 than the old technology we had to work with in the past. But we trust engineers and engineering
26 calculations, and the ability to match with meter data.

27 With a black box situation, we never know for sure that the savings are genuine energy
28 efficiency savings. So, we want the engineering check, or a good process evaluation that

1 discovers why the meters read less, and to do the calculations that show those numbers
2 correspond pretty well to the meter numbers.

3

4 **Response IR-3-c:**

5 We believe that AMI data is very useful for system planning. So was data from the old metering
6 system.

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8

1 **Request IR-4:**

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3 **Reference:** 2024 Savings Verification, p. 54:

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5 “Currently, behavioural RCTs, of which the current program is an example, are black boxes. There
6 is no coherent specification of the mechanism or warrant, either of specific behaviors that would
7 save energy or of how much energy would be saved through these (unknown) behaviours.”

8
9 a. Is it the author's understanding that the Home Energy Reports provided in the
10 Behaviour Program provide no actionable energy saving recommendations?

11 Please explain your response.

12 b. Is it the author's contention that there are no measured savings at a system level?

13 Please explain your response.

14
15 **Response IR-4-a:**

16
17 Home Energy Reports (HERSs) in the various residential behavioral programs that have been
18 introduced by different vendors have the standard ideas for saving energy in the home, and they
19 may also recommend physical measures capable of providing a meaningful return in reduction of
20 energy use and in equivalent utility bill reduction.

21
22 They are the current version of the “How you can reduce your energy use” handouts that utilities
23 used to provide prior to running DSM programs. Sometimes the vendors of residential behaviour
24 programs have different versions of HERs targeted to households of different income levels, or
25 other characteristics; sometimes they are all the same.

26
27 Consider that for high energy users the evaluator reports the effect size per household at 0.132 kWh
28 per day, (0.34% of average daily consumption); for medium users at 0.135 kWh/day (0.62% of average
29 daily consumption); and for low energy users at 0.062 kWh/day (0.57% of average daily consumption),
30 all less than one-percent per day. If we were interested in the effect per home, these effect sizes are far
31 too small to be meaningful, and *it would be appropriate to avoid crediting energy savings to the*

1 *Efficiency Insights program at the household level.* However, encouragement of households to
2 participate in measure-based programs is useful.

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5 **Response IR-4-b:**

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7 The evaluator calculated annual net energy savings from the aggregate of treatment homes in the
8 residential behavior program as 6.270 GWh. We believe that the numerical calculations conducted
9 by the evaluation consultant are correct, and there is no question as to the integrity of the evaluation
10 organization.

11
12 This number, at first look, seems like a large number. However, all numbers at the system level
13 are in GWh, and we must leave behind our customer level thinking about numbers when we jump
14 up to the system level. Unless NSP demonstrates otherwise, this is not a meaningful effect size at the
15 system level. For comparison, the NSP system requirement was 11, 326.3 GWh for 2024, so this is
16 about 0.06% (six one-hundredths of one percent). It is hard to imagine that extremely small size of a
17 program effect making any difference to utility planning or operations.

