

NOVA SCOTIA UTILITY AND REVIEW BOARD

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

- and -

IN THE MATTER OF: an application by EFFICIENCYONE for approval of 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 RESPONSES TO SMALL BUSINESS ADVOCATE IRs

To: Small Business Advocate

From: H. Gil Peach & Associates, LLC

Contact Person: **H. Gil Peach**
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1 **Request IR-1:**

2 Refer to M12249, Exhibit E-2, *Savings Verification Review of Program Year 2024 Evaluation*
3 *Results, Report for the Nova Scotia Energy Board* (2024 Peach Report), June 4, 2025, authored by
4 H. Gil Peach & Associates, (Peach).

5
6 Section IX. General Recommendations includes the following, at pages 16-17:

7
8 SVR24-G-1. The Savings Verification study recommends acceptance of the 2024
9 evaluation estimates for energy savings and demand reduction *except for four programs*.
10 These are the Residential Behavior program (6.270 GWh; no demand reduction), the
11 Residential Demand Response program (no energy savings, 0.057 MW demand reduction),
12 the BNI Demand Response program, (no energy savings, 8.034 MW demand reduction)
13 and the compressed air part of the BNI Custom Incentive Program (Custom). [Emphasis in
14 original]

15
16 And the second bullet, under SVR24-G-1, which references the Demand Response programs as
17 follows, at page 17:

18 For the Residential Behavior Program and the two Demand Response programs, the
19 Evaluator conducted independent evaluations and correctly followed the relevant
20 protocols. However, for these programs *the practical size of the savings and demand*
21 *reduction is not large enough to be of practical value at either the household level or*
22 *at the utility system level.* The Evaluator correctly followed the relevant protocols, but
23 a problem with the protocols is that they do not consider the very large sample size
24 problem. **For very large sample sizes statistical significance loses meaning and it is**
25 **necessary to, instead, gauge performance using practical significance.** The
26 Evaluator correctly notes that these programs look OK from the perspective of
27 statistical significance, however, the Evaluator should have flagged these programs for
28 not producing practical energy savings or demand reduction. [Emphasis in original
29 except for underline, which was added]

- 1 a) Please confirm that Peach's role is one of "verifier" as opposed to the role of Evaluator,
2 which was performed by Econoler
- 3 b) Does the role of the verifier include defining the practical value of savings and demand
4 reduction?
- 5 c) What is the definition of practical value, used by Peach in the underlined statement above
6 arguing that the Evaluator should have flagged certain programs and please identify the
7 programs that Peach concluded should have been flagged by the Evaluator?
- 8 d) Are any of the programs in question included among BNI programs?
- 9 e) If so, what percentage of the total DSM Plan cost do these BNI programs represent?

10

11 **Response IR-1-a:**

12 Yes, Peach's role is "verifier" as opposed to the role of evaluator consultant, Econoler. Peach is
13 H. Gil Peach & Associates LLC.

14

15 **Response IR-1-b:**

16 Yes, the role of the verifier is applied science. In science a commitment to the goal of truth is one
17 of the most basic of science community norms. It is a norm that often requires proactive assertion.
18 "Defining the practical value of savings and demand reduction" is not a line item in the work tasks
19 for the verification consultant, but it is an essential aspect of the goal of truth in measurement and
20 analysis.

21

22 Our understanding of the role of the verifier is to catch problems with the programs, including
23 problems we find in site visits in talking with customers, field observations and inspections of
24 work performed, problems that the evaluator might miss, problems in calculations and methods,
25 and any problems that develop in the work of the evaluator. And, in practice, this is what we do.

26

27 Field problems we encounter are reported to the Efficiency Nova Scotia Evaluation Manager as
28 we do site visits, so that the DSM administrator can investigate and resolve and contain them;
29 anything severe or with an indication of a growing problem is also reported to NSEB. Evaluation
30 problems are generally reported in the annual Savings Verification study, along with

1 recommendations for improvement. We are also required to suggest changes in the amount of
2 energy savings or demand reduction as estimated by the evaluator.

3
4 We review evaluations to identify. In checking the work of the evaluation consultant for the 2024
5 program year we noticed that energy savings or demand reduction results for three programs were
6 unusually weak (compared to other programs). However, the evaluator did not discuss this aspect
7 of the programs in the program evaluation studies.

8
9 We see this both as a problem of method (even though the evaluator carried out analysis in
10 conformance with industry protocols), and a problem that affects truthful understanding of the
11 programs. We are ethically required to surface this problem, to properly follow science norms.

12
13 This focus on practical significance as opposed to statistical significance reflects a decision by the
14 American Statistical Association in 2016 to emphasize practical significance over statistical
15 significance, resolving a longstanding discussion among professional statisticians and their
16 methodologist and quantitative analyst colleagues across the disciplines and areas of applied
17 research and evaluation fields of work, including evaluation of utility DSM programs.

18
19 Persons trained prior to about 2020 will be primarily oriented towards statistical significance;
20 those trained afterwards, to the extent they are trained by professional statisticians who engage
21 with the guidance of their professional associations will be primarily oriented towards practical
22 significance. This discussion of practical value of results vs. the statistical significance of results
23 began in the UK in the early 1900's and the resolution reflects the practical perspective of the
24 statistician for the Guinness brewery over the perspective of the more theoretical academic
25 statisticians. The resolution brings in more of what we could call a business or industry perspective
26 on testing program results. Statistical significance is still retained and used in research, but it is not
27 emphasized over practical significance.

Response 1-c:

The programs that Peach concluded should have been flagged by the Evaluator for low practical value are the residential behavior program, and the two demand reduction programs (the residential and BNR demand response programs).

We define “practical value” differently at the customer level and at the utility system level. A value can be set for the customer type (residential or type of BNI customer) and for the utility.

For example, the savings to the average residential behaviour program customer is 4 kWh per month. We flagged that result as below the cutoff value, because we cannot imagine any meaningful dollar value return to the customer for program participation and, since monthly residential utility bills have a high standard deviation, a difference of 4 kWh is essentially “noise” in the data, rather than signal.

At the system level, we cannot imagine that the aggregate value of the program rises to a level that is of practical value to the utility. The savings appear too small to have an effect on policy or planning. Of course, we do not know if the program has a value to the utility other than the energy savings.

Response 1-d:

One of the three programs in question is a BNI program, the BNI demand response program.

Response 1-e:

We do not know the percentage of total DSM Plan cost the BNI demand response program represents. This question should be directed to the DSM administrator.

1 **Request IR-2:**

2 Refer to M12249, Exhibit E-2, 2024 Peach Report, Section IX, General Recommendations,
3 including Recommendation SVR24-G-2, which states, at page 17:

4
5 SVR24-G-2. The Evaluator should flag programs which the evaluation demonstrates to
6 produce only tiny savings (savings that may be statistically significant and are too small to
7 have a practical significance). For these programs, the Evaluator should either recommend
8 closing the program to spend available energy efficiency dollars more effectively, or
9 provide an explanation for the program, making the business case explaining its value.

- 10
11 a) Which programs should the Evaluator have recommended for closing?
12 b) What percentage of the total DSM Plan cost do these programs represent?
13 c) How much of the EfficiencyOne plan spend would closing these programs free up to be
14 used more effectively?
15 d) What does Peach mean by the phrase in the quote above “in order to spend available energy
16 efficiency dollars more effectively”?

17
18 **Response IR-2-a:**

19 We are not recommending the evaluation consultant flag any of the programs for closing. We are
20 recommending the flagging of any exceptionally weak program that appears not to be returning
21 practical value at the customer level, the system level, or both.

22
23 Then, if, on examination, it turns out that the energy savings or demand reduction (whichever is
24 relevant to the program) is confirmed to be below a reasonable cutoff value, then the program
25 should be considered as not appropriate to continue “as is”, and, instead, the program should be
26 cancelled or the productivity of the program should be improved (iteratively) until it appears to be
27 above a reasonable cutoff level. Essentially this a business perspective to increase productivity for
28 the level of investment.

Response IR2-b:

We do not have cost numbers for the DSM Plan; however, this question could be directed to the DSM administrator.

Response IR2-c:

We do not have the cost numbers for the DSM Plan; however, this question could be directed to the DSM administrator.

Response IR2-d:

What Peach means by the phrase, “in order to expend available energy efficiency dollars more effectively” is the general business understanding that would apply to any business - to make a portfolio more efficient and effective it is a reasonable practice to prune or cull programs with an inadequate return. Efficiency Nova Scotia has some very good programs that return substantial value to customers, and, in general, it can be productive to trim investments in programs with low returns to reprogram funding to programs with high returns. There are, of course, other factors to consider, such as maintaining a program for each customer group that pays in to the utility.

This concern is incorporated in program planning and screening, but it would also make sense in the evaluations to catch problems of practical value. and we recommend that the responsibility of the evaluator be extended to flagging very weak programs for cancellation or redesign.

1 **Request IR-3:**

2 Refer to M12249, Exhibit E-2, 2024 Peach Report, Section IX, General Recommendations,
3 including Recommendation SVR24-G-4, which states at page 18:

4
5 SVR24-G-4. The Evaluator should include full worksheets or computer printout
6 information for all significance tests, specifying for each test, whether the comparison is
7 one-tailed or two-tailed, the p-value of the test, the power of the test, the number of cases
8 in each group, and the significance level criterion used in the analysis.

9
10 a) Did Peach confirm with the Evaluator and EfficiencyOne that the requested worksheets
11 and information on significance tests were not provided?

12 i. If not provided, did Peach request such information during its review or
13 request that it be provided at a later date?

14
15 b) Please provide an example of what the requested worksheet and significance test
16 information should look like, taken from another report that Peach has reviewed.

17
18 **Response IR-3-a:**

19 We did an extended series of requests to the evaluation consultant through the Efficiency Nova
20 Scotia Evaluation Manager. The evaluation consultant did not answer all our questions, but they
21 did answer in good faith and answered enough questions that we could proceed in our analysis.

22
23 Although we did not get all the answers we requested, when we got the information that the power
24 of the tests was 100% that confirmed the analysis was within the problem area in which
25 *significance tests should not be relied upon* (the area in which statistical significance is almost
26 entirely an artifact of sample size), and instead the focus of testing should shift from statistical
27 significance to practical significance (magnitude of results).

28
29 The list requested in SVR24-G-4 is a recommendation to ask the evaluator in the future, to not
30 simply to say there were some significance tests and certain of the tests had statistically significant

1 results, (which is how reporting is done program year 2024 evaluations), but to provide all of the
2 information necessary for a reader to independently assess and discuss the test results each time
3 the evaluator carries out a test of statistical significance. If this recommendation is accepted, it will
4 ensure the necessary information to review evaluator significance testing for Program Year 2025
5 and beyond. The evaluator could include this information in the evaluation reports or in a report
6 appendix.

7
8 **Response IR-3-b:**

9 This example shows a format for a computer printout. It is a t-test of household income data from
10 another project, using SPSS version 30. The example is a paired samples t-test comparing two
11 types of income data for the same households. The computer package provides the significance
12 levels for both a one-sided and a two-sided test in the same run. It also provides Cohen's d, a
13 measure of effect size appropriate for this test. It does not provide the power of the test, which can
14 be calculated separately using the tables in Cohen, Jacob, *Statistical Power Analysis for the*
15 *Behavioral Sciences*, Second Edition. Hillsdale NJ, Hove & London: Lawrence Earlbaum
16 Associates, 1988.

T-Test

[DataSet1]

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	V1	44952.9043	30758	108.56204	.61901
	V2	11923.6974	30758	13877.49449	79.12833

Paired Samples Correlations

		N	Correlation	Significance	
				One-Sided p	Two-Sided p
Pair 1	V1 & V2	30758	.005	.197	.394

Paired Samples Test

		Paired Differences							Significance	
					95% Confidence Interval of the Difference					
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	One-Sided p	Two-Sided p
Pair 1	V1 - V2	33029.20684	13877.39164	79.12775	32874.11325	33184.30043	417.416	30757	<.001	<.001

Paired Samples Effect Sizes

		Standardizer ^a		95% Confidence Interval	
		Point Estimate		Lower	Upper
Pair 1	V1 - V2	Cohen's d	13877.39164	2.380	2.358
		Hedges' correction	13877.73005	2.380	2.358

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation of the mean difference.
Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.

1
2

1 **Request IR-4:**

2 Refer to M12249, Exhibit E-2, 2024 Peach Report, Section X, Individual Program Component
3 Review, subsection B. Instant Savings (IS), pages 21-22, under Evaluator Findings which includes
4 the following 5 bullets, at page 22:

5
6 **Evaluator Findings.** The Evaluator reported the following key Instant Savings findings:

- 7 • Instant Savings exceeded both 2024 planned net electrical energy and peak demand
8 savings of 12.544 GWh and 1.680 MW, respectively.
- 9 • 2024 net electrical energy savings was 22.252 GWh and net peak demand savings was
10 2.428 MW savings at the generator resulting in 77% and 45% respectively above
11 planned targets. ENERGY STAR certified LED fixtures and lamp products generated
12 69% of the savings.
- 13 • achieved a 17% increase in savings from non-lighting products in 2024 compared to
14 2023.
- 15 • Achieved a decrease in free ridership for LED lamps and fixtures in 2024 from 59% in
16 2023 to 39% in 2024.
- 17 • Evaluated net energy and peak demand savings were 16% and 10% respectively higher
18 than values tracked by Efficiency Nova Scotia.

19
20 a) The second bullet above references “savings at the generator” which does not appear to
21 have been defined in the Report (nor in M11249, Exhibit E-1, the EfficiencyOne DSM
22 Application).

- 23 i. If “savings at the generator” has been defined, please provide the page
24 reference where it appears.
- 25 ii. If it has not been defined, please provide a definition and explain how
26 “savings at the generator” is different from savings on a customer’s bill.

27
28 b) Referring to the fifth bullet, please explain:

- 29 i. How did the difference in net energy and peak demand savings arise?

- 1 ii. What are Peach’s recommendations to adjust the plan to take advantage of
2 these results to improve the cost benefit of the DSM Plan?
3

4 **Response IR-4-a:**

5 We did a search and did not find “at the generator” to be defined in the report, however all
6 program savings in the study are in terms of value at the generator. This is a utility perspective
7 rather than a customer perspective and is normal for this kind of evaluation study. Putting
8 savings numbers in the form of savings “at the generator” is a utility preference. Studies of
9 electrical energy usually define kWh values as "at the generator" because this measurement
10 reflects the total amount of energy produced by the generator before any losses occur during
11 transmission and distribution. This approach provides a more accurate representation of the
12 energy generated and allows for a better understanding of the efficiency and effectiveness of
13 energy production systems. The value "at the customer site," on the other hand, represents the
14 amount of energy that actually reaches the end user after accounting for losses that occur during
15 transmission and distribution. These losses can be significant, depending on the distance and
16 infrastructure involved, and can result in a lower kWh value at the customer site compared to at
17 the generator.

18
19 We suggest that the evaluation consultant be directed to add a definition of “at the generator” to
20 the glossary for each program evaluation study.

21
22 **Response IR-4-b:**

23 For the specifics on the 16% net energy increase and 10% demand reduction savings difference
24 between the evaluation consultant's analysis and the DSM administrator's tracking values, the
25 question should be directed to either the DSM administrator or the evaluation consultant. The
26 evaluation consultant conducts studies for each program, with the percentages reflecting the
27 differences between their analysis and the administrator's projections. The evaluator will have an
28 exact understanding of the differences.

Request IR-5:

Refer to M12249, Exhibit E-2, 2024 Peach Report, Section X, Individual Program Component Review, subsection J. BNI Efficient Products Rebates (BER), pages 58-60, which states, at pages 58-59:

Point-of-sale rebate evaluated savings declined 7.7% in 2024 compared to 2023 levels with 177,358 individual measures sold compared to 240,886 in 2023. The largest decline in measure incentives was for LED Linear Lamps, which experienced a 41% decline. However, since these measures have below average savings per measure, the average savings per measure declined only moderately. In addition, the 2024 comprehensive evaluation of this program component slightly raised the total Net to Gross Ratio (NTGR) for instant rebates from 81% in 2023 to 84% in 2024 which also helped to reduce the level of year-on-year declines in evaluated savings.

Despite observing a decline in BER evaluated savings from 2023 to 2024 and earlier observations that the cost for some programs could be redeployed more effectively elsewhere within the plan, Peach includes only one recommendation related to the BER rebates program component, at page 59, and concludes that no further study is necessary:

SVR2024-BNI Efficient Products – 8. Change baselines for BER and IR rebates to reflect current market practices that have indoor DesignLights Consortium-Standard products as the new baseline with incentives offered for comparable DesignLights Consortium-Premium products, where available as a suitable option. No further study is necessary.

- a) Are the BER program results observed more statistically significant compared to the two BNI Demand Response results discussed earlier in the 2024 Peach Report?
 - i. If so, please explain why.

1 b) If the increase in the NTGR for the BNI instant rebates was not sufficient to fully offset
2 the decline in year-on-year decline in evaluated savings, how will the recommendation to
3 change the BER and IR rebate baselines address this decline?
4

5 **Response IR-5-a:**

6 We looked for the statistical significance level for the BNR program, the residential DR program
7 and the BNR DR program in the evaluations and the appendix for each of the evaluations and did
8 not find a reported statistical significance level. The DSM administrator or the evaluation
9 consultant will have this information.
10

11 **Response IR-5-b:**

12 The BNI Efficient Products Rebates (BER) evaluation slightly increases the Net to Gross Ratio
13 (NTGR) from 81% in 2023 to 84% in 2024, but this does not fully offset the decline in savings.
14 However, this is not related to the recommendation to change BER and IR rebate baselines.
15

16 The change in BER and IR rebate baselines does not aim to affect the NTGR; instead, it reflects
17 market changes as indoor lighting has become much more energy efficient. If the recommendation
18 is accepted, the qualifying indoor upgrades will be limited to a small number of more expensive,
19 but only slightly more energy efficient products because the indoor market is substantially
20 transformed. This is an instance in which the evaluator could use the market transformation
21 paradigm to better convey what is happening with the program.
22
23