



August 3, 2016

Doreen Friis
Regulatory Affairs Officer/Clerk of the Board
Nova Scotia Utility and Review Board
3rd Floor
1601 Lower Water Street
Halifax, Nova Scotia B3J 3S3

RE: M07544 - EfficiencyOne - Incentive Setting Methodology (E-ENS-R-16)

Dear Ms. Friis:

As expert consultant to Board Counsel of the Nova Scotia Utility and Review Board, Synapse Energy Economics respectfully submits the following comments in regards to incentive setting methodology for EfficiencyOne.

On June 30, 2016, EfficiencyOne filed the “EfficiencyOne: Incentive Setting Methodology” report by CLEAResult (“the report”), along with EfficiencyOne’s Implementation Plan. Synapse Energy Economics reviewed these materials, as well as CLEAResult’s accompanying Excel-based tool. We developed these comments based on this review and our experience reviewing energy efficiency program design in states and provinces across North America.

General Principles for Incentive Rate Setting

Generally, the five principles discussed on page 40 of the report are appropriate considerations for setting incentive levels. However, greater emphasis should be placed on the financial impact analysis, and more specifically the use of incremental cost.¹ In addition, we have a number of concerns with some of the methodologies discussed in the report and the lack of specifics or examples for certain proposed methodologies.

Incentive Setting Theory and its Application to Energy Efficiency Programs

On pages 15 through 18 of the report, CLEAResult discusses two important influences on incentive setting, namely the perceived value of the product or service and the associated return on investment. It appears that the return on investment represents the return from the program administrator and

¹ The incremental cost is the cost premium of energy efficiency equipment or practice over the cost of standard equipment or practice.

societal perspective (reflected through cost benefit test results).² CLEAResult's definition for the term "return on investment" should be made clear upfront, because return on investment is also an important consideration from the customer's perspective. The payback metric reflects the amount of time for a customer to recoup the incremental investment cost of an energy efficiency technology through energy bill savings. We suggest that CLEAResult consider changing the terms "perceived value" and "return on investment" to avoid this confusion. "Perceived value" could be more appropriately termed "benefits for participants," and "return on investment" might be more aptly described as "benefits for the electric system and society."

We find that the report should put more emphasis on "return on investment" from the customer's perspective as an important criterion for examining the perceived value. Especially in the commercial and industrial space, payback periods are widely used by the customers themselves for assessing an investment opportunity, and thus they are a critical consideration when determining program incentives. While CLEAResult discusses various methodologies to determine the customer's perceived values beyond the customer's return on investment, we think that the customer's return on investment is an easier, less expensive, yet effective approach for determining incentive levels. Thus, we recommend that the report provide more discussion on the customer's return on investment as a part of the section on incentive setting theory. (This point is further discussed in the following section.)

Further, as another approach to determine the customer's return on investment, we consider the Participant Cost (PC) test an important metric that can be weighed against the results of the Program Administrator Cost (PAC) and Total Resource Cost (TRC) tests.

Incremental Costs as Incentive Thresholds

CLEAResult provides three theoretical limits for incentives: (1) percentage of customer cost, (2) PAC benefits, and (3) budget.³ On page 44 of the report, CLEAResult discusses in detail acceptable incentive level thresholds from the customer's perspective, which corresponds to the first theoretical incentive limit (i.e., percentage of customer cost) for various program types (e.g., direct install low-income customer program, residential customer large purchase program, commercial and industrial customer direct install program). Using CLEAResult's methodology, the incentive levels for customers appear to be determined mostly on the basis of project cost. Other considerations are retail price, incremental cost, and simple payback. As mentioned above, we suggest that CLEAResult place more emphasis on examining the customer's cost or return on investment. Furthermore, based on our experience

² The report states that return on investment ensures "a minimum return for both the program administrator and society." (p. 17)

³ CLEAResult report, page 19.

reviewing energy efficiency programs in numerous jurisdictions (including many of those included in CLEAResult’s jurisdictional scan), CLEAResult’s framework is not appropriate for setting incentive levels.

In our experience, the most important incentive threshold is the incremental cost, which means that 100 percent of the incremental cost is generally the incentive limit/ceiling. This is applicable for most project or program types, except for low-income programs. Programs targeting the low-income sector often maintain a level of incentives above incremental cost in order to encourage participation and to help alleviate the high barriers faced by this sector. It is also important to note that when a standard practice does not exist, the incremental cost becomes equal to the total cost of the measures or the projects. Examples include adding insulation, thermostats, lighting controls, and refrigeration management systems.

Incremental costs are generally easy to apply for many project types. Where incremental costs are difficult to estimate, project costs are sometimes used as a proxy, but incremental costs should remain the theoretical incentive limit in principle.

The literature includes a number of reports that describe incremental cost as a critical component for setting incentive levels. Two examples are provided below:

- An early energy efficiency best practice report, the “National Energy Efficiency Best Practices Study” conducted by Quantum Consulting, discussed the role of incremental costs for various different programs. For example, for non-residential large comprehensive incentive programs, Quantum recommended use of “incremental costs to benchmark and limit payments”.⁴
- The National Action Plan for Energy Efficiency (NAPEE) 2010 report “Customer Incentives for Energy Efficiency through Program Offerings” discussed the use of the incremental cost as an important threshold. The NAPEE report stated that the incentive level may differ based on the market barriers and other characteristics, but for residential customers (except low-income customers), “a mass-market approach may be used and only a portion of the incremental costs for buying and installing similar measures would be covered by utility incentives.”⁵

We also note that many of the jurisdictions included in CLEAResult’s jurisdictional scan base incentives for one or more of their programs on incremental cost. For example, Union Gas, BC Hydro, PG&E, Efficiency Maine, and others use incremental cost as a core principle for incentive setting.

⁴ Quantum Consulting Inc. (2004). National Energy Efficiency Best Practices Study: Volume NR5 – Non-Residential Large Comprehensive Incentive Programs Best Practices Report, prepared for California Best Practices Project Advisory Committee, available at http://www.eebestpractices.com/pdf/bp_nr5.pdf; Quantum’s best practices reports for other programs are found at <http://www.eebestpractices.com/find.asp>.

⁵ NAPEE (2010). Page 7.

Once incentive levels are determined based on the incremental cost, incentive levels could be adjusted to be just high enough to gain the desired level of program participation, while minimizing program expenditures. Factors to consider include simple payback years, benefit cost ratios under the PAC and participant cost tests, gross benefits, benchmarking programs in other jurisdictions, evaluation study results including free-ridership ratios, and customer and supply chain surveys.

Financial Analysis

Acceptable incentive threshold

On page 44 of the report, Table 13 provides absolute limits and suggested incentive boundary/ceilings based on various cost types for various programs. As discussed above, we believe that the basis for all projects should be the incremental cost (except low-income programs), and administrators can use project costs to set incentive levels for project and program types for which incremental costs are difficult to obtain (e.g., comprehensive whole-building retrofits).

Besides the issue of the cost basis for incentive levels, there are a few additional issues associated with Table 13. First, it is unclear what the role of absolute limits is in Table 13.⁶ Second, it is unclear how CLEAResult derived the suggested boundary/ceiling incentive levels. We recommend the report provide evidence to support those incentive boundary/ceilings.

More importantly, many of the suggested incentive boundaries appear to be too high or are not clear how they are applicable for specific program types. For example, if a small business direct install program includes an installation of an expensive HVAC system, 70 to 100 percent incentive levels relative to project costs would result in unnecessarily high incentives. As another example, it is difficult to assess the appropriateness of incentives that are set at 50 percent of retail prices for small residential energy efficiency products because retail prices could vary significantly by product. For example, if the premium price for one product is very small, this 50 percent threshold would result in an overly expensive incentive. As another example, CLEAResult assesses the current incentive levels offered by EfficiencyOne as a percentage of retail prices on Table 22, page 73 of the report and concludes that all of the current incentives are suitable because—as CLEAResult claims—all of the incentive levels fall within acceptable ranges of typical retail sales events (between 10-30 percent). Again it is difficult for us to assess whether these incentives are appropriate because we do not know the premium price or the incremental cost of the energy efficiency measures.

⁶ It is not clear how the “suggested boundary/ceiling” discussed on page 44 of the report relates to the theoretical limits described earlier in the report. CLEAResult mentions “[i]ncentives can exceed [the theoretical] limits (and often do), but a reference point that can be used during the design process.” (page 19).

Program budget

On pages 44 and 45 of the report, CLEAResult discusses absolute incentive limits based on the program expenditure data. We agree that budget information can be and should be used to adjust the incentive levels in the manner CLEAResult discusses in Table 2 of the report on page 19. However, we do not understand the role of the incentive thresholds under the absolute limit and suggested boundary/ceiling presented in Table 14 on page 45. This table suggests the false idea that incentives should be set based on the suggested incentive level guidelines that appear to be developed based on forecasted program expenditures. A more effective approach would be to set a program or sub-program budget (for the customer incentive portion) based on appropriate levels of incentives that are set based on the incremental costs and other key factors mentioned above and then forecast program participants. If there are budget concerns, lowering incentives could be considered as an option, and if there is additional budget space and a need to increase participation, increasing the incentive may be considered as an option, as discussed on page 19 of the report.

Cost-effectiveness

On page 45 of the report, CLEAResult recommends the use of the Program Administrator Cost (PAC) test to set incentive ceilings. We agree with this approach, but we also recommend using the results of both the PAC test and the Participant Cost (PC) test to optimize the level of incentives. For example, if one finds the benefit cost ratio is disproportionately high, one could consider reducing the incentive level and increase the benefit cost ratio under the PAC test. Alternatively, if the ratio under the PAC is very high, and if there is a need to increase participation rates, one could consider increasing incentive levels. Similarly, other customer incentive thresholds such as payback years can be used to optimize incentive levels in addition to the PC test.

Analysis of customer motivations and barriers

CLEAResult highlights the Van Westendorp Price Sensitivity Meter as a tool for understanding how price factors into customer decisions to purchase a product.⁷ Although the report claims that this tool is popular for price sensitivity analysis, we are aware of only one example of its application in energy

⁷ CLEAResult report, p. 40-41.

efficiency program design.⁸ Indeed, it is not clear whether any of the program administrators highlighted in CLEAResult’s jurisdictional scan use this technique.

CLEAResult also claims that the Van Westendorp Price Sensitivity Meter is simple to understand.⁹ The questions may be easy for respondents to answer, but the foundation for the method may not be sound and thus interpretation of the results may not be straight-forward. While consumers may question the quality of some types of goods with prices below a certain level, that might not be true for other products.¹⁰

The Van Westendorp method has also received criticism for not explicitly considering competitive products or competitive responses, which means that it may not be appropriate to apply it to products or services with existing markets. Its application is also potentially not suitable for new products (or new energy efficiency offerings for which data from other jurisdictions are not available), as respondents would have limited basis for answering the van Westendorp pricing questions.¹¹

Given these concerns, we question whether Efficiency One should employ the Van Westendorp method.

Analysis of supply chain and service provider

In various places, CLEAResult’s report explores ways that supply chain research can yield helpful information for setting incentive levels. For example, the report mentions how supply chain research can yield access to contacts, insight into supplier costs, and information about incentives that are available from other entities (page 18). Further, supply chain research can provide additional insight into customer barriers and motivations, and feedback gathered through interactions with the suppliers can be used to improve program delivery (page 26). The report states that supply chain and service provider research can support customer and technology research efforts, as well as provide a point of reference for incentive setting analyses including data on sales, shipments, and installations (page 43).

While the report may touch on important topics for supply chain research and engagement, discussion of this area is scattered throughout. Furthermore, at no point is the report clear on how the results of

⁸ It is worth noting that the one case we are aware of used Van Westendorp methodology to assess respondents’ tolerance to different payback periods. (Global Energy Partners, LLC. 2010. AmerenUE Demand Side Management (DSM) Market Potential Study Volume 2: Market Research Results from the Saturation, Program Interest and Trade Ally Research. <https://www.ameren.com/-/media/missouri-site/Files/Environment/Renewables/AmerenUEVolume2MarketResearchReport2.pdf>).

⁹ CLEAResult report, p. 40.

¹⁰ Isaacson, Bruce. “Why You Should (Almost) Never Use the van Westendorp Pricing Model.” MMR Strategy Group: March 4, 2013. <http://mmrstrategy.com/why-you-should-almost-never-use-the-van-westendorp-pricing-model>.

¹¹ Ibid.

the supply chain research should be factored into the level of incentives. Introducing factors for the incentive rate review protocol, CLEAResult states that “In some cases, certain factors will be clear regarding analysis and recommendations, and in other cases, there will be additional work required. It is important to establish and understand the tolerance for these factors.” (page 21). Yet the report provides little guidance on how to interpret the results of the supply chain research or how they might impact incentive levels. Acknowledging that some lack of specificity may be acceptable to prevent suppliers from gaming the programs (e.g., keeping prices and margins high so that EfficiencyOne will continue to provide high incentives), we maintain that more high-level guidance could be provided. For example, if tracked data on sales, stocking, and shipments show a sustained increase in local sales over a certain period of time—considered in conjunction with data on market saturation, program participation, free ridership, and other factors—it may be appropriate to consider decreasing the incentive level.

Other Important Issues

Role of financing

Low-cost, attractive financing options such as on-bill financing or the Property Assessed Clean Energy (PACE) bond reduce the barriers to adopting energy efficiency measures. They are likely to increase the measure adoption rates and to influence the level of incentives offered by utilities. However, the report does not discuss the role of financing, particularly how financing influences the level of incentives or how it should be incorporated in the incentive setting process. Currently, participants are offered financing through the Green Heat, Business Energy Rebates, Small Business Energy Solutions, and Custom programs (pages 36-37). The CLEAResult report should discuss financing and incorporate it as a key factor to influence incentive levels, including the diagrams for incentive development processes provided on pages 52 and 53 of the report.

Direct incentive design

The scope of CLEAResult’s report solely addresses how to set “incentive levels.” However, as noted in the appendix on NYSEERDA, “[o]ne of the key considerations for incentive level setting is to match the incentive to program design. If the program design has certain objectives or uses a specific delivery structure, the incentives should match these considerations.” (Page 149) We think it would be helpful to expand the scope slightly beyond incentive-setting methodology and discuss other key incentive design subjects such as direct incentive targets and performance-based incentives. For incentive targets, it would be useful to have guidance on how to determine which set of market actors to target in order to increase adoption rates. For example, for new construction projects, best practices are to provide incentives to both builders and property owners. In addition, guidance on where in the supply chain to focus incentives would be helpful. For lighting measures, upstream or midstream approaches to provide incentives directly to manufacturers or wholesale companies have been successfully applied. Such

approaches have been also used to promote HVAC equipment for residential and commercial customers.

In addition, some commercial programs have adopted performance-based incentive designs that are used to set different incentive levels depending on the level of energy savings in order to encourage participants achieve deeper energy savings. Thus, it would be equally beneficial to include guidance on what types of programs, projects, or situations are likely to yield increased program participation rates after implementing such performance-based incentive structures.

Minor Comments on Theoretical Limits for Incentives Section

First, we recommend CLEAResult offer a detailed definition of the theoretical limits. CLEAResult mentions “[i]ncentives can exceed these limits (and often do), but a reference point that can be used during the design process.” (page 19) It would be valuable to know why these are called “theoretical”, but also how these theoretical limits are related to the “absolute limit” and the “suggested boundary/ceiling” discussed on page 44 of the report.

Second, we suggest CLEAResult remove the dollar sign on the y-axis in Figure 4 because both the percentage of customer cost and the PAC ratio are not expressed in dollars.

Third, the percentage of customer cost actually includes the project payback (as mentioned on the same page of the report), in which case a number of years should be used instead of the percentage of customer costs. Thus, we recommend it be simply called “customer cost.”

Lastly, the PAC benefits should represent the PAC benefit cost ratio.

Minor Comments on the Summary of Influences on Incentive Rates Section

Table 2 (“Summary of Influences on Incentive Rates”) on pages 19-20 of the report discusses factors that put upward or downward pressure on incentive rates by incentive setting component category. We recommend CLEAResult also include examples for customer costs and PAC benefits (or benefit cost ratio).

These comments represent our expert opinion on this matter and were developed based on discussion with staff of the Utility and Review Board.

Sincerely,

A handwritten signature in black ink, appearing to read "Alice Napoleon", with a long horizontal flourish extending to the right.

Alice Napoleon, Senior Associate

A handwritten signature in black ink, appearing to read "Kenji Takahashi", with a long horizontal flourish extending to the right.

Kenji Takahashi, Senior Associate

