BEFORE THE NOVA SCOTIA UTILITY AND REVIEW BOARD

In the Matter of an Application by Efficiency Nova Scotia Corporation for Approval of its Electricity Demand Side Management Plan for 2015

Evidence of
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On Behalf of
Counsel to the Nova Scotia Utility and Review Board

On the Topic of the Efficiency Nova Scotia 2015 DSM Plan

July 14, 2014

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1. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title, and employer.

A. My name is Alice Napoleon. I am a Senior Associate at Synapse Energy Economics ("Synapse"), located at 485 Massachusetts Avenue, Cambridge, MA 02139.

Q. Please describe Synapse Energy Economics.

A. Synapse is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues including integrated resource planning; economic and technical assessments of energy resources; electricity market modeling and assessment; energy efficiency policies and programs; renewable resource technologies and policies; and climate change strategies. Synapse works for a wide range of clients including attorneys general, offices of consumer advocates, public utility commissions, environmental groups, and federal clients such as the U.S. Environmental Protection Agency and the Department of Justice. Synapse has a professional staff of 30 with extensive experience in the electricity industry.

Q. Please summarize your professional and educational experience.

A. Since joining Synapse in 2005, I have provided economic and policy analysis of electric systems and emissions regulations, with a focus on energy efficiency policies and programs, on behalf of a diverse set of clients throughout the U.S. and in Canada.

Before joining Synapse, I worked at Resource Insight, Inc., where I supported investigations of electric, gas, steam, and water resource issues, primarily in the context of reviews by state utility regulatory commissions.

I hold a Master's in Public Administration from the University of Massachusetts at Amherst and a BA in Economics from Rutgers University. My resume is attached as Appendix A.

Q. Please describe your professional experience as it relates to energy efficiency policies and programs.

A. Energy efficiency policies and programs have been a central focus of my professional career. Since joining Synapse, I have reviewed, analyzed, and critiqued energy efficiency policies and programs in over a dozen U.S. states. In Colorado, Maryland, and South

Carolina, I facilitated and provided expert analysis for demand-side resource policy working groups, where energy efficiency policies and programs were discussed and negotiated as possible state actions to reduce greenhouse gas emissions. On the national level, I provided guidance on program design, developed communications materials, and directed the development of case studies to help state and utility energy efficiency program administrators with implementing offerings to support participation in the U.S. Department of Energy's Superior Energy Performance program.

Since 2009, I have provided extensive and ongoing expert analysis and support for the State of New Jersey regarding its state- and utility-administered residential, low income, commercial, and industrial energy efficiency and combined heat and power programs. To this end, I regularly review, analyze, and comment on the state-administered programs' monthly performance, designs and budgets, cost-benefit analyses, and overall administrative structure. In over a dozen dockets regarding utility-administered efficiency programs, I conducted expert analysis, provided litigation support, and drafted testimony when appropriate on behalf of the State with respect to energy efficiency implementation, cost recovery, program budgets, performance, evaluation, cost-benefit analysis, and overlap between utility- and state-administered programs.

My work has encompassed many aspects of energy efficiency program design and implementation, including efficiency measure screening, program delivery options, program budgeting, cost-benefit analyses, avoided costs, and other relevant regulatory policies.

Q. On whose behalf are you providing evidence in this case?

A. I am providing evidence on behalf of Counsel to the Nova Scotia Utility and Review Board ("Board").

Q. What is the purpose of this evidence?

A. The purpose of this evidence is to describe and present concerns about the proposed treatment of low income energy efficiency services in the May 14, 2014 application and evidence by Efficiency Nova Scotia Corporation ("ENSC") to the Board for approval of an electricity Demand Side Management ("DSM") plan for 2015 ("2015 DSM Plan").

Q. How is this evidence organized?

A. This evidence is organized as follows:

1. Introduction and Qualifications.
2. Summary of Conclusions and Recommendations.
3. Best Practices in Low Income Energy Efficiency Program Design and Delivery.
4. Overview of the Proposed 2015 DSM Plan.
5. Availability of Services and Data Specific to Low Income Customers.
6. Exclusion of the Low Income Homeowner Service from the 2015 DSM Plan.
7. Conclusions and Recommendations.

2. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your primary conclusions.

A. I make the following findings:

- ENSC proposes that low income customers will be served in two ways in 2015: through programming structured for the entire residential sector, that is, through the Existing Residential direct installation service, and through the Low Income Homeowner ("LIH") service.
- ENSC proposes that the holder of the Efficiency Nova Scotia franchise ("ENS") continue to provide services to the low income customer group through the Existing Residential program. However, ENSC has not provided clear data on low income participation, savings, and spending since low income services were rolled up into the Existing Residential Program in 2012.
- ENSC proposes that the holder of the ENS franchise not offer the existing LIH service in 2015. Instead, Nova Scotia Power Incorporated ("NSPI") has stated its intent to fund certain efficiency upgrades for electrically heated low income homes as a charitable donation to Clean Nova Scotia Foundation ("Clean Foundation"). I make the following conclusions with respect to this proposal:
    - ENSC has not sufficiently justified this significant shift in program delivery.

    - The proposal may reduce transparency regarding services to the low income sector, even more so than today, and may obscure accountability for program performance.
    - If the funding from NSPI does not materialize or does not provide a stable funding stream over time, then lost opportunities will likely result, and services to the low income sector may experience disruptive program implementation gaps.
    - The proposal may lead to economically sub-optimal electric resource planning, if historic and projected program performance is not reported, or if reporting is not coordinated well between ENS, Clean Foundation, and NSPI.
- Together, the lack of clear historical and projected data on participation by low income customers in the Existing Residential program, and the proposal that the holder of the ENS franchise not offer LIH services in 2015, have obscured the extent to which low income customers will be served under the proposed 2015 DSM Plan and could significantly undermine the effectiveness of the DSM services to low income customers in 2015, and potentially beyond.
- Such a lack of information and data on low income customer participation makes it impossible to ascertain whether best practices in program design and low income program implementation are being employed in Nova Scotia.

Q. Please summarize your primary recommendations.

A. I offer the following recommendations:

- ENSC should develop and offer efficiency services that are specifically marketed to low income customers and that are designed to address low income customer barriers to implementing energy efficiency. These services may take the form of the LIH service, if ENSC can demonstrate that the LIH program has historically been able to effectively reach and provide benefits to this customer segment. At a minimum, these low income-focused services should follow best practices for energy efficiency program design and the specific best practices for low income programs laid out in the body of my evidence.

- The Board should require that the ENS franchise holder plan and report, at a minimum, low income program participation, expenditures, and savings separately from residential program information. Such information is important for overcoming barriers for hard-to-reach customer participation, for ensuring customer equity, and for informing marketing efforts and program design, such as setting appropriate incentive levels for customer sectors.

- The NSPI charitable funds should be directed towards low income customer services that have difficult-to-quantify benefits (e.g., outreach and education) or for niche services (e.g., home repairs that will allow weatherization to be effective and long-lasting), such that NSPI-funded services will not compete with the ENS franchise holder's services to this sector. NSPI and ENSC should develop a plan for coordinating services and file it with the Board as soon as possible in 2014.

3. BEST PRACTICES IN LOW INCOME ENERGY EFFICIENCY PROGRAM DESIGN AND DELIVERY

Q. Please describe best practices in the design of energy efficiency programs.

A. There are many best practices in the design of energy efficiency programs. I highlight a few such best practices, below. Note that many design principles that apply to all efficiency programs, including those listed below, are especially helpful when considering how to design programs for low income customers.

- Efficiency savings should be provided to all types of customers in order to promote equity and help to achieve all cost-effective energy efficiency.

- Programs should seek to address and overcome existing market barriers, both to ensure that energy savings are achieved in the short- to medium-term, and to promote the transformation of the efficiency market over the long-term. Furthermore, programs should be tailored to overcome the specific market barriers of different customer types (e.g., low income) and different activities (e.g., new construction and retrofit).

- Delivery mechanisms should be tailored to customer and product types. For example, audit and direct install are effective for low income and multifamily customers.[1]
- Programs should be comprehensive and offer a full menu of services (i.e., marketing, walk-through energy audits, financial incentives, financing, technical assistance, training, and education), for the full range of end-uses.
- Program designs should seek to minimize customer transaction costs as much as possible, for example by directly installing measures at the time of an audit.
- Programs should be designed to minimize "lost opportunities," which occur when efficiency measures are not installed when it is most cost-effective to do so (e.g., during the construction or renovation of a building).
- Programs should be designed to minimize "cream skimming," where only the most cost-effective efficiency measures are installed, even though additional, higher-cost measures are also cost-effective. Cream-skimming can lead to lost opportunities, as revisiting a customer to install the remaining measures may involve prohibitive transaction costs.

Q. Should the low income sector be given special consideration?

A. Yes. As a hard-to-reach customer group, low income customers face higher barriers to implementing energy efficiency on their own or participating in efficiency programs.[2] Low income customers are a very important customer sector to reach, as they typically contribute a very high portion of their disposable income toward their energy bills, can experience significant benefits from adopting energy efficiency measures, and can reduce the need for emergency assistance funds. Energy efficiency programs should be designed and implemented so as to ensure that low income customers' needs are met in ways that work for them, not just for the average residential customer.

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1 ACEEE 2013. "Frontiers of Energy Efficiency: Next Generation Programs Reach for High Energy Savings," York et al., Report No. U131, January 2013, available at: http://aceee.org/research-report/u131

2 "Barrier" means a factor that discourages or limits decisions or actions related to implementation of energy efficiency projects or strategies. Northeast Energy Efficiency Partnerships, "Glossary of Terms, Version 2.1," July 2011, p. 8.

Q. Are there best practices specific to the low income sector?

A. Yes. It is important that hard-to-reach customers, including those on limited incomes living in mobile homes and multifamily buildings, are offered programs specifically tailored to their needs, and that those programs adhere to the following principles:[3]

- Low income programs should provide sufficient financial incentives to cover the entire cost of the efficiency measures.
- Low income programs should offer free home energy audits that investigate all cost-effective end-uses and measures and provide direct installation of all relevant efficiency measures at the time of the audit. Follow-up contracting work should be arranged by energy efficiency vendors and should require little or no follow-up by the customer.
- Low income programs should be coordinated as closely as possible with local Community Action Program ("CAP") agencies. CAP agencies frequently have a close relationship with low income customers and can help market the program, encourage customers to participate, and develop program concepts to best serve this challenging sector.
- Low income efficiency programs should explicitly address multifamily buildings that might have different end-uses and different issues than single-family residences (e.g., common area end-uses, and shared space conditioning or water heating measures).
- Low income efficiency programs should address the split incentives created by the fact that a landlord typically owns the residence, but the tenant typically pays the energy bills. In addition, education of and close coordination with landlords can help.
- Hard-to-reach customer programs should offer free education and training to all customers to ensure that they are fully aware of the opportunities and benefits of proper operation and maintenance of efficiency measures.

[3] Some of these design principles have been adapted from the appendix on low income programs from ACEEE 2008a. American Council for an Energy Efficient Economy, "Compendium of Champions: Chronicling Exemplary Energy Efficiency Programs from Across the US," Dan York, Marty Kushler and Patti White, Report No. U081, February 2008, available at: http://www.aceee.org/sites/default/files/publications/researchreports/U081.pdf.

4. OVERVIEW OF THE PROPOSED 2015 DSM PLAN

Q. How does the 2014 Electricity Efficiency and Conservation Restructuring Act ("the Act") impact the 2015 DSM Plan?

A. The 2014 Electricity Efficiency and Conservation Restructuring Act, passed on May 1, 2014, made a number of significant changes to energy efficiency implementation in Nova Scotia, beginning in 2015. Most significantly, the Act requires the dissolution of ENSC as of January 1, 2015. In its place, an Efficiency Nova Scotia franchise will be created with exclusive right to supply NSPI with "reasonably available, cost effective electricity efficiency and conservation activities" (2015 DSM Plan, p. 3).

The Act also limits DSM spending in 2015 to $35 million plus 2013 over-recoveries, limits the period of the DSM plan to one year, requires the Board to establish performance requirements as the Board considers appropriate, and allows the Board to determine how costs will be recovered from NSPI's customers. (2015 DSM Plan, p. 3-4)

Q. Please describe the 2015 DSM Plan.

A. ENSC submitted the 2015 DSM Plan on behalf of the future holder of the franchise. In many ways, the proposed portfolio is substantially similar to the existing 2014 ENSC portfolio, with the notable exception of the proposal for funding the LIH service.

Q. Is the proposed 2015 DSM Plan cost-effective?

A. ENSC was unable to present cost-effectiveness information within the 2015 DSM Plan.[4] However, based on the expected costs and savings, the proposed 2015 portfolio seems to be highly cost-effective.

Table 1 shows the proposed 2015 programs, savings targets, and investment by sector. On the whole, the proposed 2015 program portfolio seems to be fairly well balanced, with the exception of the services for the low income sector.

[4] The Act compressed the schedule for ENSC to develop the 2015 DSM Plan. As a consequence, and because avoided costs from the currently ongoing Integrated Resource Plan were not provided to ENSC, the 2015 DSM Plan does not include some standard elements of DSM plans, such as lifetime benefits and cost-effectiveness test results. This is a departure from how the previous plan was developed, which was based on cost effectiveness using the Total Resource Cost ("TRC") test. ENSC notes that it is not proposing to abandon cost-effectiveness testing in future DSM plans. Instead, ENSC used historical program performance to evaluate the expected 2015 DSM Plan effectiveness. (2015 DSM Plan, p. 20-22)

Table 1. 2015 DSM Plan Proposed Programs, Savings, and Investments by Sector (2015 $)

Sector	Program	Savings		Investment
		Annual Energy Savings	Incremental Peak Demand Savings	
		(MWh)	(kW)	(million $)
Residential	Efficient Product Rebates	15,500	2,300	$ 5.7
Residential	Existing Residential	26,900	6,200	$ 9.5
Residential	New Residential	3,000	800	$ 1.3
Residential	Energy Savings Actions	15,400	-	$ 1.2
Residential	**Residential Total**	**60,800**	**9,300**	**$17.7**
Cross Cutting	Education & Outreach			$ 1.6
Cross Cutting	Development & Research			$ 1.6
Cross Cutting	Other Enabling			$ 0.3
Cross Cutting	**Cross Cutting Total**	**-**	**-**	**$ 3.5**
C&I	Efficient Product Rebates	27,000	7,000	$ 6.0
C&I	Custom Incentives	20,500	2,100	$ 5.8
C&I	Direct Installation	13,000	2,800	$ 6.0
C&I	**C&I Total**	**60,500**	**11,900**	**$17.8**
Grand Total	**Grand Total**	**121,300**	**21,200**	**$39.0**

Source: 2015 DSM Plan, App. A, p. 3.

Q. Please briefly summarize how ENSC proposes to serve low income customers in the 2015 DSM Plan.

A. As discussed in more detail below, in 2012, the low income efficiency services were rolled into the residential programs, of which the Existing Residential program included the LIH component (2015 DSM Plan, p. 8). Under the 2015 DSM Plan, ENS will continue to offer some services to low income households through the Existing Residential components of the Existing Residential program. However, the proposed 2015 DSM Plan no longer includes the LIH component as part of the Existing Residential program. (2015 DSM Plan, App. A, p. 6; App. B, p. 2-3).

Additionally, savings targets and budgets are only provided at the program level (i.e. Existing Residential), with no break out of services to low income households. (2015 DSM Plan, App. A, p. 3.)

5. AVAILABILITY OF SERVICES AND DATA SPECIFIC TO LOW INCOME CUSTOMERS

Q. Have energy efficiency services been provided to low income customers in the past?

A. Yes. Beginning in 2009, NSPI offered the LIH[5] program to low income, residential houses across Nova Scotia. This program helped to facilitate the implementation of cost-effective electrical energy efficient measures in residential low income houses. The DSM measures provided were installed at no cost to program participants. (2011 DSM Plan, Evidence of NSPI as Interim DSM Administrator, February 26, 2010, App. A, p. 8-11).

Q. In its DSM plans and reports, did NSPI provide data specific to low income customers, such as costs, participation rates, and savings?

A. Yes. NSPI provided information on historical expenditures, planned budget, expected participants, energy and demand savings, benefits, the cost-effectiveness benefit-cost ratio for the TRC test, costs to the low income rate class, and detailed measure-level information for the LIH program. (2011 DSM Plan, February 26, 2010, Evidence, p. 7, 10; App. A, Att. 1, p. 4, 8 of 22; App. D).

Q. In the past, did stakeholders ever raise concerns about how the LIH program was implemented?

A. Yes. During the 2011 DSM Plan proceeding, stakeholders expressed concern for the LIH program. Specifically, the key stakeholder concerns related to the historical performance of the LIH program, the need for programs designed for renters, and financial ability of households with incomes just above the eligibility criteria to participate in DSM programs. (2012 DSM Plan, Evidence of ENSC as DSM Administrator, February 28, 2011, p. 25-26).

[5] Throughout my evidence, I use the abbreviation "LIH" to refer to the programs, services, and/or program components that were specifically targeted towards serving low income customers. In the past, these services have been referred to as low income homeowner or low income households, and have been designated as either a program or service. To avoid confusion, I simply use either LIH program or LIH service regardless of the year the program or service was offered in.

Q. Has ENSC continued serving the low income population since it began implementing DSM programs?

A. Yes. When ENSC began implementing energy efficiency programs[6] it maintained energy efficiency services for low income customers. In 2012, ENSC expanded the low income program offerings in response to the concerns raised by stakeholders during NSPI's 2011 DSM Plan proceeding. To expand services to low income customers, ENSC rolled the previous LIH program into its Existing Houses program, and allowed low income households, including rental households, to participate in other residential-focused programs. More specifically, energy efficient measures were offered at no cost through the low income households component of the Existing Houses program, and energy efficient products (such as CFLs, power bars with timers, LED night lights, hot water tank and pipe wrap, low-flow faucet aerators and showerheads) were installed through the Efficient Products program component for low income renters. (2012 DSM Plan, February 28, 2011, Evidence of ENSC as DSM Administrator, p. 25-26).

ENSC explains that it transitioned the LIH program to the Existing Residential program to reflect that it serves a subset of the existing residential population (ENSC (NSUARB) RIR-9.

Q. Are the low income services offered in the past consistent with the best practices for program design and for low income customers as summarized in Section 3?

A. No, not entirely. For example, the delivery mechanism for low income programs is not tailored to customers, because both residential and low income customers experience the same program delivery mechanisms. In general, it is difficult to assess whether the best practices have been utilized due to the lack of information that has historically been provided about low income programs and customers.

Q. Has ENSC provided enough information in its DSM plans to demonstrate the extent to which it expects to serve the low income customer sector?

A. To some extent, yes, although many improvements are needed. ENSC has indicated, albeit superficially, how low income customers can participate in the residential programs in its plans. Specifically in the 2015 DSM Plan, ENSC summarily writes off LIH services

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6 ENSC took responsibility for DSM program implementation beginning in October 1, 2010. The 2011 program year was the first full year of ENSC program implementation, which were for programs that were filed by NSPI in February of 2010.

as being provided by another entity in 2015, and the ability of low income customers to participate in residential programs is given two clauses and two table footnotes.[7] The 2015 DSM Plan provided no other details on how low income customers will be served in 2015.

The plans have not included detailed descriptions for how low income services will differ from residential services such that the specific needs of the low income customer sector will be adequately addressed and market barriers are considered, consistent with low income best practices. Further, the plans do not include data on the assumed participation levels, forecasted budget, expected savings, or the proposed participant incentives that are specific to low income customers.

Q. What type of descriptions has ENSC included in its DSM plans regarding the services it expects to provide to low income customers?

A. The services for which low income customers are eligible to participate are described within each relevant residential program description, either separately or in addition to the residential customer sector program offerings.

In the 2012 DSM Plan, ENSC included the LIH component as part of the Existing Houses program, and included low income homeowners and renters in the target market for the Efficient Products program (2012 DSM Plan, App. A, p. 6, 8, 10-11). In the 2013-2015 DSM Plan, all low income customers were served through the Existing Residential program, which included the LIH component and a direct installation service for single- and multifamily dwellings (2013-2015 DSM Plan, App. A, 8-11). In the proposed 2015 DSM Plan, the Existing Residential program again includes a direct installation service that low income households are eligible to participate in, as well as a multi-unit residential renters and landlords service. However, the proposed 2015 DSM Plan no longer includes the LIH component as part of the Existing Residential program. (2015 DSM Plan, App. A, p. 6; App. B, p. 2-3).

As this timeline of program development indicates, low income services have been modified in each plan. This creates confusion for low income customers trying to participate in the efficiency programs. Further, regular program modifications make it

[7] See Appendix B, p. 2, line 19, through p. 3, line 5; Appendix A, p. 6 lines 9 and 16-17; and Appendix A, p. 3.

difficult to decipher which programs low income customers are participating in, and make the residential programs difficult to compare across years given that participant eligibility changes almost on an annual basis.

Q. What type of data has ENSC included in its DSM plans regarding the services it expects to provide to low income customers?

A. ENSC has not included in its DSM plans data on the assumed participation levels, forecasted budget, expected savings, or the proposed participant incentives that are specific to low income customers. While the program descriptions indicate how low income customers will be served, the planned budget, savings, and participant data do not separately identify low income customers from residential customers. Instead, values on costs, savings, and cost-effectiveness for the Existing Residential program are provided in total, with a footnote indicating that low income participation is included in the values. (See e.g., 2015 DSM Plan, May 14, 2014, Evidence, p. 22).

In a few instances, ENSC has provided a high-level indication of the costs and savings expected for low income customers, but not at a detailed level (2012 DSM Plan, February 28, 2011, Evidence of ENSC as DSM Administrator, p. 25-26; 2013-2015 DSM Plan, February 27, 2012, App. A, p. 11). In contrast, in its DSM plans NSPI managed to provide detailed, measure-level low income-specific planning information.

Q. Has ENSC clearly provided information in its DSM annual reports to demonstrate the extent to which the low income customer sector has been served since 2012?

A. No. ENSC's annual reports and the historical information included in its DSM plans do not provide clear, detailed data on services specific to low income customers. Similar to the information included in the DSM plans, ENSC does not distinguish budgets, savings, and participation information for low income customers from that of residential customers. Instead, values for the Existing Residential program are provided in total, with a footnote indicating that low income participation is included in the values. (See e.g., 2015 DSM Plan, May 14, 2014, Evidence, p. 5; Annual Report 2012).

The actual results that ENSC does provide on low income services are buried within evaluation reports. The evaluation reports provide valuable information on low income savings and participation. However, these reports are voluminous, with detailed information on how the programs were evaluated. They can be burdensome to sift through to find relevant information, including low income specific information, especially when low income customers are eligible to participate in multiple programs and the evaluation reports are organized by program. Further, the evaluation reports do not include ENSC's planned budget or actual expenditure information for low income customers, and therefore cost-effectiveness information is excluded. (2012 DSM Evaluation Reports, March 22, 2013, p. 479; 2013 DSM Evaluation Reports, April 20, 2014, p. 513).

Q. Should ENSC provide more data and clearer information on the extent to which low income customers are served through its programs in their plans and reports?

A. Absolutely. While the low income sector is a segment of the residential sector, it is still important to understand the extent to which this important customer segment is served. ENSC or the relevant program administrator should clearly indicate in its DSM plans and reports, at a minimum, the amount budgeted for and spent on low income customers, the number of low income participants, and the amount saved by low income customers. Measure level information as provided by NSPI in its 2011 DSM may also be useful in certain situations.

Q. Why is it important to identify energy efficiency data for low income customers separately from residential customers?

A. There are a number of reasons why it is important to understand the extent to which low income customers are served by energy efficiency programs. First, low income customers tend to be a hard-to-reach population. If ENSC is aware of the low income customers it is serving, it can develop a better sense of the market barriers it needs to overcome in order to continue serving low income customers and better target those customers who are hard-to-reach.

Second, low income customers can experience substantially more benefits from energy efficiency programs than residential customers, especially non-energy impacts. Non-energy impacts are the costs and benefits not associated with the cost or avoided costs of implementing energy efficiency programs. Some non-energy impacts can be large for low income customers because of the condition of their dwellings, the other demands on their limited resources, and other hardships they may face. Ensuring that low income customers are adequately participating in energy efficiency programs and achieving these benefits is a matter of ensuring customer equity, an undoubtedly important policy goal for the Board.

Finally, such data on low income participation, savings, and budget is important for informing other aspects of energy efficiency planning and analysis, including program design, marketing, and bill impacts. ENSC should have an understanding of the types of customers it is reaching in order to tailor its programs to be more effective, including tailoring its incentive levels to cost-effectively serve each customer type.

Q. Can ENSC track this type of information for low income customers?

A. While it is not clear whether ENSC or the ENS franchise holder is presently capable of tracking this information, it is important that this tracking be done, as discussed above. I recommend that ENSC or the ENS franchise holder work with NSPI as needed to gather more detailed information on low income customer participation, savings, and budget. As noted above, such information can help inform the appropriate incentive levels for each customer type, in order to use funding sources as efficiently as possible.

Q. Based on the program descriptions provided by ENSC, are the program incentives and program designs tailored to the low income segment?

A. ENSC indicates that incentives are identical for low income and non-low income participants because income-testing creates a barrier to participation and adds substantial administrative overhead. For many program services, ENSC pays the full measure and installation costs for all participants regardless of income level. (ENSC (NSUARB) RIR-9).

While this approach is helpful at overcoming financial barriers for customers, it may not appropriately maximize funding sources, especially when funding sources will be statutorily capped in 2015. Many residential customers may participate in energy efficiency programs without the measure cost being fully subsidized, whereas low income customers may require further financial assistance. I recommend that ENSC or the ENS franchise holder consider re-evaluating appropriate incentive levels for each program and for each customer type.

Q. What other conclusions can you draw about low income energy efficiency services?

A. Based on the above findings and recommendations, it may make sense to develop a separate program that provides retrofit and direct install measures to low income customers.

The above findings indicate that low income customers likely require specialized incentive levels and financing opportunities, require different marketing and participation channels than residential customers, and should be analyzed and reported separately from residential customers so as to overcome market barriers and effectively design programs targeted towards low income customers.

While income screening may be a barrier to participation and increase administrative costs, many other jurisdictions have managed to overcome such challenges and provide cost-effective efficiency programs directly to low income customers.

Failure to develop a program that explicitly targets low income customers can provide a disincentive to low income customer participation and create more barriers to participation. Further, overcoming such barriers will provide greater benefits as the low income sector typically experiences greater non-energy benefits than residential customers.

In my opinion, ENSC has not adequately justified why the LIH program was rolled into the Existing Residential program. ENSC explains that it transitioned the LIH program to the Existing Residential program to reflect that it serves a subset of the existing residential population (ENSC (NSUARB) RIR-9). This reason does not adequately justify a need to have a single program, especially when weighed against the benefits of a program tailored to the needs of the low income sector.

6. EXCLUSION OF THE LOW INCOME HOMEOWNER SERVICE FROM THE 2015 DSM PLAN

Q. Please describe ENSC's proposal in the 2015 DSM Plan regarding the LIH service.

A. ENSC did not include the LIH service in the 2015 DSM Plan. Instead, NSPI is offering to fund certain energy efficiency upgrades for electrically heated low income homes as a charitable donation beginning in 2015. (2015 DSM Plan, App. B, p. 3.) Under the proposal, NSPI will provide funds to the Clean Foundation[8] to be used to deliver upgrades offered through ENSC's LIH service (ENSC (NSUARB) RIR-13a). The funds provided by NSPI would be at no cost to customers. ENSC expects that the costs for the franchise-holder's services related to electrically-heated homes will be recovered from the Clean Foundation. ENSC has stated that it is in discussions with the Clean Foundation as to the ENS franchise holder's role in the delivery of the service, and that a model for sharing responsibilities for promotion and delivery of the LIH component in 2015 and beyond is expected to be finalized by October of 2014. (ENSC (NSUARB) RIR-13a)

Q. What is the rationale for this proposed change?

A. ENSC's explains that it did not include the LIH service in the 2015 DSM Plan to avoid NSPI and the ENS franchise holder duplicating efforts (2015 DSM Plan, App B, p. 3). It is worth noting that this proposal would reduce the cost of saved energy for the franchise holder's portfolio relative to ENSC's 2014 portfolio (2015 DSM Plan, App B, p. 9). Also, the proposal would provide funding for low income services in addition to the legislated cap of $35 million plus 2013 over-recoveries (ENSC (NSUARB-Synapse) RIR-10b).

Q. How do the projected savings, spending, and participation for LIH in 2015 under the proposal compare with historical savings, spending, and participation for LIH?

A. The historical and proposed savings, spending, and participation for low income customers are summarized in Table 2 below.

Table 2. LIH Historical and Proposed Savings, Spending, and Participation

	2013 [a]	**2014** [b]	**2015** [b]
Savings (GWh)	1.7	1.9	Not provided
Spending ($M)	$2.0	$2.6	$3.4
Participation (homes)	739	n/a	600

a: actual
b: projected

Sources: ENSC (NSUARB-Synapse) RIR-10d and ENSC (NSUARB-Synapse) RIR-10a.

[8] Nova Scotia Power. "Nova Scotia Power and Emera to fund energy savings retrofits at no cost to customers." April 11, 2014, available at http://www.nspower.ca/en/home/newsroom/news-releases/retrofits.aspx.

As indicated above, costs are increasing while participation is decreasing. This suggests that either more services or more expensive services will be provided to each participant, or other costs (for example, program administration, marketing, monitoring and verification, or other costs) are projected to increase per participant in 2015. Without savings information, however, it is difficult to determine how effective the program will be.

Q. Has ENSC or NSPI provided details on how the LIH services will be administered?

A. ENSC has indicated that Clean Foundation's LIH program is under development. As a result, fundamental details regarding the delivery of this service, how NSPI's spending will be confirmed, and how the results of NSPI's spending will be evaluated, verified and reported to the UARB are not available. (ENSC (NSUARB-Multeese) RIR-6d). These are critical details that should be made available to the Board before it makes a determination about ENSC's proposal to leave the LIH out of its 2015 DSM Plan.

Further, without a better understanding of how the LIH services will be designed and administered, I cannot determine whether best practices in program design are expected to be used for the LIH services.

Q. Do you have any concerns with the proposed change?

A. Yes. They include the following:

- The proposal will likely reduce transparency regarding services to the low income sector, even more so than today, and is likely to obscure accountability for program performance.
- If the funding from NSPI does not materialize or does not provide a stable funding stream over time, then lost opportunities are likely to result, and services to the low income sector may experience disruptive program implementation gaps.
- The proposal may lead to economically sub-optimal electric resource planning, if historic and projected program performance is not reported, or if reporting is not coordinated well between ENS, Clean Foundation, and NSPI.

Q. Please explain your first concern regarding reduced transparency of services to low income customers and program administrator accountability.

A. The proposed shift in administration of LIH services to a third party organization could reduce transparency and the ability of the Board to effectively oversee the implementation and administration of these services. Although ENSC anticipates some role in the provision of these services going forward, ENSC has not included the LIH services in its 2015 DSM Plan targets. Significantly, ENSC has stated that it "will not include energy savings in the results achieved from its ratepayer-funded programs for 2015." (ENSC (NSUARB) RIR-13a&b). As discussed in detail in Section 5, data should be clearly provided on low income customer participation, savings, and spending to ensure customer equity, inform program design and marketing, and to ensure cost-effectiveness.

Regarding accountability, ENSC has stated that the administration of the LIH service in 2015 will be outside of its responsibility. (ENSC (NSUARB) RIR-13d). It is not clear whether that responsibility will fall to the Clean Foundation, which is not subject to the Board's review and regulation, or to NSPI.

Q. Is NSPI subject to the same review and approval requirements as the holder of the ENS franchise?

A. The precise nature of the Board's role in reviewing and approving an NSPI charitable donation of this magnitude is unclear. NSPI has not filed a DSM plan for the 2015 LIH service concurrently with the ENSC 2015 DSM Plan, which would be required in order to undertake a thorough review of the proposed change. Further, to my knowledge NSPI has not indicated intent to make such a filing.

The Board should be cautious in allowing delegation of critical energy efficiency services for a vulnerable sector to a third party. As a means of providing funding for a large portion of services to an entire sector, what NSPI and ENSC are proposing is an unusual model in my experience. While utilities and program administrators frequently provide charitable donations to benefit the low income sector, this is generally done on a smaller scale, and is not done in place of services provided by the existing program administrator. The Board should fully explore and consider the potential consequences before allowing such a move. Furthermore, the Board should not rely on NSPI to voluntarily report on the program.

Q. Please explain your second concern regarding the funding availability and consistency from NSPI.

A. Efficiency programs work best with a steady, predictable flow of funds, because programs take time to ramp up, and because interrupting services due to lack of funding can set back the market for efficiency services. However, per Section 79I(3) of the 2014 Act, NSPI's proposal to provide funding for LIH services is purely voluntary. Even if the Board has the authority to review and approve an NSPI proposal to fund these services (assuming that NSPI provides one), to my knowledge there is no guarantee that these funds will be provided in the amount previously suggested by NSPI ($3.4 million), or as a stable flow over time. A lapse or change in the anticipated funding stream could cause a number of problems, including disruption to the market, potential for lost opportunities, and difficulties to the agency that delivers the services regarding planning and budgeting.

Q. Can you elaborate on the types of problems that could be caused by interruptions in energy efficiency program delivery?

A. Certainly. Interruptions in efficiency program delivery can hinder the development of energy efficiency in several ways, including:

- Trade allies.[9] The many trade allies may not be able to maintain stable business levels with abrupt cessations in demand for their services. Even the perception of fluctuating demand or expected interruptions in demand for their services may limit trade ally interest and commitment, thereby hindering the development of the energy efficiency infrastructure in Nova Scotia.

- Program Administrator. The Clean Foundation will have a difficult time committing to a sustained level of activity if it anticipates fluctuations or interruptions in energy efficiency programs. At a minimum, fluctuations and interruptions in programs will likely lead to operational inefficiencies within the

[9] The term "trade allies" is used to refer to the many people and companies that are required to implement energy efficiency programs, such as efficiency equipment manufacturers, efficiency equipment distributors, efficiency equipment retailers, home energy auditors, commercial and industrial technical assessment providers, efficiency vendors and contractors, architects, builders and tradespeople that build and maintain buildings and install efficiency measures.

program administrator, which will eventually lead to higher costs or lower benefits to customers, or both.

- Customers. Customers might become frustrated or disillusioned about the efficiency programs if they are denied access to programs due to program interruptions or delay. The importance of avoiding this outcome cannot be overstated, as satisfied customers are an essential aspect of expanding energy efficiency programs. In addition, marketing campaigns become inefficient, and possibly misleading or confusing, if programs are significantly delayed or interrupted as customers that learn about a program offering are later informed that the offering is no longer available.

Q. Please explain your third concern regarding sub-optimal electric resource planning.

A. Successful resource planning should reflect energy savings opportunities, which in turn should be grounded in programs' previous and projected energy savings and costs. If historic and projected program performance is not reported or reporting is not coordinated well between ENS, the Clean Foundation, and NSPI, efficiency resources may not be properly accounted for in electric resource planning, and the result may be economically sub-optimal.

7. CONCLUSIONS AND RECOMMENDATIONS

Q. Please summarize your primary conclusions.

A. I make the following findings:

- ENSC proposed that ENS continue to provide services to the low income customer group through the Existing Residential program. However, ENSC has not provided clear data on low income participation, savings, and spending since these low income services were rolled up into the Existing Residential Program in 2012.
- With respect to the proposal by NSPI to fund certain efficiency upgrades for electrically heated low income homes as a charitable donation, I make the following conclusions:
    - ENSC has not sufficiently justified this significant shift in program delivery.

- The proposal may reduce transparency regarding services to the low income sector, even more so than today, and may obscure accountability for program performance.
- If the funding from NSPI does not materialize or does not provide a stable funding stream over time, then lost opportunities will likely result, and services to the low income sector may experience disruptive program implementation gaps.
- The proposal may lead to economically sub-optimal electric resource planning, if historic and projected program performance is not reported, or reporting is not coordinated well between ENS, Clean Foundation, and NSPI.

- Together, the lack of clear historical and projected data on participation by low income customers in the Existing Residential program, and the proposal that the holder of the ENS franchise not offer LIH services in 2015, have obscured the extent to which low income customers will be served under the proposed 2015 DSM Plan and could significantly undermine the effectiveness of the DSM services to low income customers in 2015, and potentially beyond.
- Such a lack of information and data on low income customer participation makes it impossible to ascertain whether best practices in program design and low income program implementation are being employed in Nova Scotia. Section 3 details the best practices that should be exercised when designing any energy efficiency program, as well as the best practices that should be utilized specifically for low income customers.

Q. Please summarize your primary recommendations.

A. I offer the following recommendations:

- ENSC should develop and offer efficiency services that are specifically marketed to low income customers, and that are designed to address low income customer barriers to implementing energy efficiency. These services may take the form of the LIH service, if ENSC can demonstrate that the LIH program has historically been able to effectively reach and provide benefits to this customer segment. At a minimum, these low income-focused services should follow best practices for program design and the specific best practices for low income programs, as summarized in Section 3.

- The Board should require that the ENS franchise holder plan and report, at a minimum, low income program participation, expenditures, and savings separately from residential program information. Such information is important for overcoming barriers for hard-to-reach customer participation, for ensuring customer equity, and for information program design and marketing including setting appropriate incentive levels for customer sectors.

- The NSPI charitable funds should be directed towards low income customer services that have difficult-to-quantify benefits (e.g., outreach and education) or for niche services (e.g., home repairs that will allow weatherization to be effective and long-lasting), such that NSPI-funded services will not compete with the ENS franchise holder's services to this sector. NSPI and ENSC should develop a plan for coordinating services and file it with the Board as soon as possible in 2014.

Q. Does this conclude your pre-filed evidence?

A. Yes, it does.