ECOLOGY ACTION CENTRE OPENING STATEMENT

June 11, 2015

Chairman Gurnham, Vice Chair Deveau, Members of the Board,

Thank you for your consideration of this statement of the Ecology Action Centre in the matter of establishing a Supply Agreement between Nova Scotia Power and EfficiencyOne.

ECOLOGY ACTION CENTRE

Since 1971, the Ecology Action Centre (EAC) has been working to build a healthier, more sustainable Nova Scotia and Atlantic Canada. Today the EAC has over 3,500 members, 500 volunteers, 45 staff, and seven action areas. The EAC works closely with social and natural scientists and uses detailed policy analysis to encourage a society in Nova Scotia that respects and protects nature and provides environmentally and economically sustainable solutions for its citizens. Three staff directors ensure that projects achieve first-rate financial and project management.

CONSULTANT: ELIZABETH CHANT representing VERMONT ENERGY INVESTMENT CORPORATION

I am Elizabeth Chant, a Principal Consultant at Vermont Energy Investment Corporation, a nonprofit organization established in 1986 to reduce the economic and environmental costs of energy.
SUMMARY

The Ecology Action Centre wishes to:

(1) draw attention to the low levels of efficiency investment proposed by both Nova Scotia Power and EfficiencyOne for the 2016-2018 period;

(2) express concern about how those plans deviate from anticipated activity levels established only a year ago in the Integrated Resource Plan;

(3) question Nova Scotia Power’s Alternate plan of radical cuts to efficiency programming for Nova Scotia’s residential sector;

(4) support the Performance Indicators that EfficiencyOne has proposed; and,

(5) establish the importance of and need for mid-course program adjustments.

E1 and NSP’S PLANS as compared with the INTEGRATED RESOURCE PLAN

The investment levels proposed by EfficiencyOne in its DSM Plan and those suggested by Nova Scotia Power in its Alternate are both drastically lower than the $182.6 million (mid-level) DSM investment level derived in the Navigant potential study and supported by the Board’s consultants in the 2014 Integrated Resource Planning process. The spending levels included in that mid-level DSM scenario were determined to provide the least cost scenario to Nova Scotians in the long-term.

The proposed levels of spending offered by each of the parties to the Supply Agreement are too low to maximize benefits to the Province. There will be huge deficits between what Nova Scotia could achieve cost-effectively and what will be achieved should either of these two spending scenarios—or anything between those two—be negotiated. The amount negotiated and approved for by the supply agreement should be well in excess of either plan put forward.

That being said, EfficiencyOne has put forward a plan that attempts to achieve a balance between long-term cost-effective savings and short-term affordability considerations. EAC supports EfficiencyOne’s proposal as the minimum level of investment required to avoid significant near-term rate impacts while also protecting long-term bill stability and maintaining momentum on DSM in the province. EAC emphasizes that this plan deviates substantially from the guidance provided by the IRP and represents a significant compromise.

The Alternate spending plan offered Nova Scotia Power is draconian in its cuts to residential efficiency programming, sending the vast majority of benefits to commercial and industrial customers. Programming at the minimal cost per megawatt hour suggested by Nova Scotia Power would entail little or no service to hard-to-reach sectors. Those who have been underserved would
likely become unserved, resulting in a difficult situation for low-income people, renters, and other residential ratepayers whose resources help to fund programming.

**PERFORMANCE INDICATORS and MID-COURSE ADJUSTMENTS**

On the issue of performance metrics, the Performance Indicators proposed by EfficiencyOne include key metrics that a mature and comprehensive program would be expected to track and report.

The ability to adjust to changing conditions is critical to effective energy efficiency programming. The planning cycle for a three-year agreement generally starts one to two years in advance of the three-year cycle, meaning that plans are being made as many as five years ahead of implementation of the last year of the agreement. Best-practice programming allows for mid-course correction, understanding that changes in economic conditions, changes in technology or pricing, changes in consumer attitudes, and even climate events can each change what is the most cost-effective opportunity.

Making processes for mid-course corrections unduly burdensome has two effects: It makes programming less flexible and it drives costs up. In the current cycles of programming, such a restriction could eliminate the possibility for smart action based on the results of the research currently underway on the needs of low-income renters. Should that research provide productive paths forward to effective programs to assist these underserved Nova Scotians, there should be an easy path to create and implement cost-effective programming as quickly as possible, rather than waiting until the next contract period.

Nova Scotia has been a leader in energy efficiency, and cost-effective investment in energy efficiency should be supported. Past programming has been recognized as cost-effective, using both the Total Resource Cost and the Program Administrator Cost tests. Work leading up to the 2014 IRP suggested support for continued and deeper investment in efficiency as a strategy that will have the lowest long-term cost for the Province. Yet, the DSM Plan proposed by EfficiencyOne and the DSM Alternate suggested by Nova Scotia Power decrease rather than increase efficiency investment. Regular reporting of Performance Indicators, as proposed by EfficiencyOne, will provide regular information on progress toward goals and performance against budget. Finally, there should be the ability to make appropriate midcourse corrections without undue time and cost burdens that would decrease their effect.
CONCLUSION

Nova Scotia’s model of energy efficiency program provision has been a leader in Canada. At this time, when more efficiency, not less, is needed to reduce effects on climate, that leadership needs to be encouraged rather than hindered.

Efficiency is the cheapest energy available nearly everywhere. It is not free; we all recognize that it requires investment. Yet that investment is very inexpensive, especially when compared to other forms of energy, and especially if all benefits of efficiency were actually counted in screening tools. Think of the jobs created – for the people of Nova Scotia. Think of the health benefits – for the people of Nova Scotia. Think of the environmental benefits – for the people of Nova Scotia, and people everywhere. These are all benefits that we undervalue in our screening, but they are real and present, and they make the value of efficiency greater, much greater, than the costs. I encourage you to keep investing in those benefits.

Sincerely,

Catherine Abreu, EAC

Elizabeth Chant, VEIC
NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF THE EFFICIENCYONE APPLICATION FOR APPROVAL
OF A SUPPLY AGREEMENT FOR ELECTRICITY EFFICIENCY AND CONSERVATION ACTIVITIES
BETWEEN EFFICIENCYONE AND NOVA SCOTIA POWER, INC.
M06733

Direct Evidence of
Elizabeth Chant
Vermont Energy Investment Corporation

On Behalf of
Ecology Action Centre

June 2, 2015
Q: **Please state your name and business**

A: I am Elizabeth Chant, and I am testifying on behalf of Ecology Action Centre of Halifax. Founded in 1971, the Ecology Action Centre works to build a healthier and more sustainable world.

Q: **By whom and in what capacity are you employed?**

A: I am employed as a Principal Consultant by Vermont Energy Investment Corporation (VEIC). VEIC is a nonprofit organization founded in 1986 to reduce the economic and environmental costs of energy use. VEIC now has more than 300 employees, working in four offices in the United States.

VEIC launched the first energy efficiency utility in North America, with the creation in 2000 of Efficiency Vermont (EVT). EVT operated under contract to the Vermont Public Service Board (VT PSB) from 2000 to 2011, and since then has operated under an Order of Appointment from the VT PSB.

VEIC has subsequently launched and now operates successfully two other utility-scale efficiency programs: (1) the DC Sustainable Energy Utility (DCSEU), operated under contract to the District Department of the Environment in Washington, D.C., and providing electric and gas efficiency and renewable energy services for residential, commercial, institutional, and industrial electric and gas ratepayers in the District, and (2) Efficiency Smart, operated under contract to American Municipal Power (AMP), and providing electric energy efficiency services for residential, commercial, institutional, and industrial ratepayers of approximately 25 municipal utilities in Ohio.

VEIC has been engaged by the Ecology Action Centre to review and comment on the 2016-2018 Demand Side Management (DSM) plans put forward by each of Nova Scotia Power, Inc. (NSPI), and EfficiencyOne (E1), and to compare those plans to the efficiency goals and plans that were articulated and agreed to just a year ago with the approval by this Board of the Integrated Resource Plan.
Q: Please describe your education and work experience.

A: I graduated in 1982 from Georgetown University in Washington, D.C., with a Bachelor of Science in Business Administration, with a concentration in Finance. I completed additional graduate-level coursework at Georgetown University in Political Philosophy. Following graduation from university, I worked in academic administration for ten years, as MBA Admissions Director at Georgetown University in Washington, D.C., as Publications Director at the Lincoln Institute of Land Policy, in Cambridge, Massachusetts, and as a self-employed consultant.

Subsequent to that, I have been in the energy efficiency industry for 20 years. I started in the industry, as Administrative Coordinator for the Weatherization Service at Champlain Valley Office of Economic Opportunity (CVOEO), the largest Vermont provider of the low-income Weatherization Assistance Program (WAP) services. WAP is a federally funded program; in Vermont, WAP is also supported by state-source revenue through a gross receipts tax on non-transportation energy. WAP provides electrical efficiency services contracted and supported by EVT.

After two years with CVOEO, where I saw the inequities of treatment of multifamily housing, I went to VEIC as Multifamily Program Manager to launch a statewide initiative to provide energy efficiency services to multifamily low-income housing more effectively. We created the Residential Energy Efficiency Program (REEP) in 1997, which was the first statewide multi-utility-funded efficiency program in Vermont. REEP’s success was documented in a paper published by the American Council for an Energy-Efficient Economy (ACEEE). REEP was folded into the offerings of EVT, upon the latter’s creation in 2000. EVT efficiency programming has routinely been recognized as exemplary by ACEEE.

I left VEIC to return to CVOEO as Weatherization Director in 2002, where I was responsible for the provision of weatherization and related services to low-income Vermonters in the largest WAP territory in Vermont. I stayed through the initial years of the

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American Reinvestment and Recovery Act (ARRA, the post-2008 economic stimulus). In my last year at CVOEO, we weatherized 625 units of housing (single- and multifamily), providing comprehensive whole-house services that included airsealing, insulation, heating systems, and electric baseload measures.

I returned to VEIC in 2010 as Proposal Development Manager for VEIC’s competitive proposal to provide services as the DCSEU. Once that contract was secured, I was part of the team that relocated from Vermont to Washington, D.C., to launch the DCSEU; my programmatic focus was low-income multifamily housing. DCSEU’s efficiency programming has already been recognized as exemplary by ACEEE.

Once the DCSEU was launched and local DC-based employees had been hired and trained, I moved into VEIC’s consulting practice as a Senior Consultant, with promotion to Principal Consultant in early 2014. My consulting work focuses on improving energy efficiency programming, with particular concern for the needs of low-income people and multifamily buildings, which are often underserved by utility programming.

I currently serve on the boards of directors for the Home Performance Coalition and the National Housing Trust; I am on the advisory board of the National Energy and Utility Affordability Coalition. I have previously served on the boards of directors of Affordable Comfort, Inc., the Energy Cooperative of Vermont, and the Vermont Low-Income Advocacy Council.


Q: Please state any additional previous testimonies in which you have been involved.

A: I have testified before the Vermont Legislature a number of times on issues related to low-income weatherization programming. Those issues included (1) levels of program funding, (2) ability of the program to grow to serve more Vermonters; (3) barriers to serving...
multifamily buildings, and (4) strategies to overcome barriers to service to multifamily buildings.

Q: Have you prepared exhibits for presentation in this proceeding?

A: None outside of what is included in this testimony.

Q: What is the purpose of your testimony?

A: My testimony has five primary purposes:

1. to draw attention to the low levels of efficiency investment proposed by both NSPI and E1 for 2016-2018, compared to historical levels and given cost-effectiveness levels attained by E1 programs;

2. to express concern about how those plans deviate from anticipated activity levels established only a year ago in NSPI’s Integrated Resource Plan (IRP), and approved by the Nova Scotia Utility and Review Board (UARB);

3. to question NSPI’s Alternate plan of radical cuts to efficiency programming for Nova Scotia’s residential sector;

4. to support the Performance Indicators that E1 has proposed; and,

5. to establish the importance of and need for mid-course program adjustments.

Q: Please provide a summary of your findings and conclusions.

A: I recommend that the Board encourage a Supply Agreement that (1) is at a level significantly above that proposed by either NSPI or E1, (2) has a mix of spending by sector that is at minimum commensurate with the sector’s spending on electricity, (3) includes Performance Indicators as proposed by E1, and (4) allows for mid-course adjustments to meet changing conditions with the best mix of cost-effective programming possible.

Q: What level of investment does E1 propose in its 2016-2018 DSM Resource Plan?
A: E1 has proposed a three-year investment total of $121.5 million, providing lifetime benefits of $417.5 million. The Plan would save 405.9 GWh and provide 62.5 MW in incremental annual net demand savings over the three-year period. The portfolio of programs passes the Total Resource Cost (TRC) Test by providing benefits at twice the total costs borne by the Program Administrator and customers (2.0 TRC), and passes the Program Administrator Cost (PAC) Test by providing benefits that are 3.8 times the costs incurred by the Program Administrator.²

Q: What level of investment does NSPI suggest?

A: NSPI has suggested spending levels in the range of approximately $22.5 million per year, with a suggested savings goal of approximately 279 GWh.³

Q: How do these compare to the investment in efficiency suggested by the most recent potential study for Nova Scotia?

A: The proposed plans of both NSPI and E1 are significantly below even the lowest level of investment in achievable cost-effective efficiency that has been laid out in the energy efficiency potential study completed by Navigant in advance of preparation of the 2014 Integrated Resource Plan.⁴ That study defined four levels of achievable potential over the 25-year horizon: Base, Low, Mid, and High. The table below provides a summary of the investment levels for each for the 2016-2018 period:⁵

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³ NSPI, “20150519 NSPI Responses to CA IRs 1-41 REDACTED.”


Q: How were those findings received in the IRP process?

A: Synapse Energy Economics, which provides consultation to the Board, worked collaboratively with NSPI in the development of the IRP. In its October 3, 2014, memo, Synapse took exception to some of the assumptions and conclusions in the IRP. That analysis included a review of the different DSM scenarios, and concluded, among other findings, that “A CRP with a mid-DSM level exhibits the lowest planning period NPV cost, and is thus ranked #1 among ‘contender’ preferred resource plans” and “A mid-level DSM CRP, compared to CRPs with a base level DSM, exhibits low incremental revenue requirement effects in the near term. This further supports a preferred resource plan with DSM levels consistent with the mid-DSM level.”

Despite these findings, in its Alternate, NSPI has suggested levels of investment in efficiency that are drastically lower (66%) than those suggested by mid-DSM level. Instead of $182.6 million in spending over the three-year period, NSPI has suggested a spending level of $61.4 million over the same time frame. E1, also, has offered a spending plan nearly 40% less than what is indicated by the mid-DSM level, with a suggested three-year budget of $110.5 million, compared to $182.6 million, as suggested by the mid-DSM level outlined by Navigant.

While small parts of this $72 – $121 million “deficit” of program budgets to cost-effective achievable potential will be made up by some spending outside of this supply agreement,

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Program Administrator Costs for Achievable Potential (in millions)

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<tr>
<th></th>
<th>Base</th>
<th>Low</th>
<th>Mid</th>
<th>High</th>
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<tr>
<td>2016</td>
<td>$50.5</td>
<td>$44.8</td>
<td>$57.5</td>
<td>$92.0</td>
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<tr>
<td>2017</td>
<td>$50.0</td>
<td>$42.9</td>
<td>$59.0</td>
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<tr>
<td>2018</td>
<td>$52.4</td>
<td>$39.2</td>
<td>$66.1</td>
<td>$107.4</td>
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<tr>
<td>Total</td>
<td>$152.9</td>
<td>$126.9</td>
<td>$182.6</td>
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such as Provincial resources and charitable funding of low-income programs, there will still be huge deficits between what Nova Scotia could achieve cost-effectively and what will be achieved should the NSPI or the E1 spending scenario—or anything between those two—be negotiated. The amount negotiated and approved for by the supply agreement should be well in excess of either plan put forward.

Q: How does the NSPI-suggested Alternate compare to spending for last three years?

A: In the last three years reported (2012-2014, inclusive), DSM Plan spending has totalled $120.7 million, or an average of $40 million per year. The level of spending suggested by NSPI would significantly reduce investment in energy efficiency, by nearly $60 million over three years.

Q: Have the efficiency programs offered by E1 been cost-effective?

A: Annual overall TRC projected for 2012-2014 were in all cases greater than 1.5 and PAC projected at levels well over 2.0.

In its 2014 study for the Nova Scotia Department of Energy, ICF International conducted a detailed market trend analysis, and concluded that, “Energy efficiency programs have been contributing verified cost effective savings for Nova Scotia to date.”

Q: Have you seen any reason that explains the reduced levels of efficiency investment proposed by E1 and suggested by NSPI, compared to the mid-level suggested by the Board’s consultant?

A: Not one that, in my assessment, makes the case successfully. Both NSPI and E1 are appropriately concerned about effects on rates, but should be encouraged to plan for the lowest cost long-term planning and budgeting, rather than focus on short-term rate impacts.

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Compared to other provinces, Nova Scotia has generally higher power costs, attributed to the low-cost hydro resources available in many other areas and not available to Nova Scotia. However, the higher cost of power should not diminish the case for investment in efficiency; on the contrary, it improves the case for efficiency because it is that higher cost that is avoided for ratepayers.

This can also be seen through the frame of the cost of efficiency as compared to the cost of generation. In its 2014 study for the Nova Scotia Department of Energy, ICF International presented the following comparison of the costs of efficiency compared to new generation:

In that same study, ICF International also concluded, that “The comparison of historical and planned EE program energy savings with those of other jurisdictions illustrates that the scope of provincial EE savings places Nova Scotia among the leading North American

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jurisdictions. Similarly, Nova Scotia’s historical and planned expenditures to acquire those EE savings are also consistent with those in other jurisdictions.\textsuperscript{10}

In the U.S., it is the areas with higher cost power that generally have higher investments in efficiency. ACEEE annually compiles and releases state-by-state data on efficiency program spending. The most recent report, issued in 2014, reports on 2013 program budgets, and the range of spending on electric efficiency as a percent of statewide utility revenues range up to 8.55% in Rhode Island. Six of the top ten states are in the Northeast: Rhode Island, Massachusetts, Vermont, New Jersey, Connecticut, and Maryland, where power costs tend to be higher than in other areas of the U.S. The graph below contains data on electricity spending as a percent of statewide utility revenue (blue) and average retail

electricity rates (red) for the 48 contiguous states and Washington, DC.
The state-by-state data are arranged by declining value of efficiency spending as a percent of revenue to highlight the number of states with high electric costs that are clustered at the upper end of the electric efficiency spending spectrum.

Higher cost of services is also related to the level and comprehensiveness of services provided. NSPI has provided in Ex. 18(ii) a good overview of which efficiency programs are provided by different utility programs across Canada (with Efficiency Maine included as a U.S. comparison point).\(^{11}\)

The bifurcation of level of program offerings is quite clear. Three programs, BC Hydro, Ontario, and Efficiency Nova Scotia, have the most expansive range of programming, with program element counts on average twice those utilities providing less comprehensive

\(^{11}\) EfficiencyOne, “2016-2018 Supply Agreement for EECA M06733 (E-ENS-R-15),” E1 Responses to Small Business Advocate Information Requests, SBA IR-14 Att,1, Programs tab.
program services. Not surprisingly, those more comprehensive programs also have higher costs, when measured as DSM spending as a percent of electricity revenue.\textsuperscript{12}

The programs offered by Efficiency Nova Scotia should be compared not to the Canadian average, which includes programs doing significantly less (including monitoring, tracking, and reporting), but to those programs of a similar reach and maturity.

**Q:** What is the mix of residential and commercial programming laid out in NSPI’s DSM Alternate for 2016-2018?

**A:** This is most concerning. The NSPI Alternate suggests spending in the residential sector of only $15.5 million for the three-year period, compared to $53.5 million in E1’s Plan, and $92.5 million for the mid-level Navigant achievable potential estimate.\textsuperscript{13} The NSPI plan would reduce residential spending to just 25% of total proposed spending, and provide 75% of spending to the commercial and industrial sectors.

\textsuperscript{12} EfficiencyOne, "2016-2018 Supply Agreement for EECA M06733 (E-ENS-R-15)," E1 Responses to Small Business Advocate Information Requests, SBA IR-14 Att 1ELECTRONIC, Summary tab.

\textsuperscript{13} Navigant, “Nova Scotia 2015–2040 Demand Side Management (DSM) Potential Study," p. 36 (Table 14).
Q: What are the effects of this mix of programming?

A: A program that has such minimal resources accruing to residential ratepayers could lose support over time, no matter how cost effective it is. If the perception is that the vast majority of benefits are going to commerce, rather than residents, Nova Scotians may question how this is helping them, especially since some portion of those commercial benefits accrue to enterprises from outside Nova Scotia, in the form of incentives received, reduced operating costs, and increased profits.

It is not only the level of investment in sectors that is at issue here; it is also the level of benefits derived. The NSPI Alternate projects savings of 74,042 MWh from residential programming; that put forward by E1 projects savings of 174,954 MWh. These are 31.7% and 74.8%, respectively, of the mid-level achievable potential of 233,800 MWh projected in this sector for that three-year period.

NSPI has projected a cost per megawatt hour for residential savings that is lower than that for commercial programming over the three-year period: $209 per MWh for residential versus $232 per MWh for commercial programs. The projected cost per MWh for residential programming is the same as that for industrial programs in the NSPI Alternate. The E1 Plan projects $352 per MWh for residential programming, significantly lower than the $396 per MWh projected in the mid-level scenario. Programming at the minimal cost per MWh suggested by NSPI would require little or no service to hard-to-reach sectors. Those who have been underserved would likely become unserved, resulting in a difficult situation for low-income people, renters, and other residential ratepayers whose resources help to fund programming.

Q: Can you provide a comparison that would help interpret those numbers?

A: I want to ensure that the numbers that I provide are ones that are borne out by performance, so I reviewed the last annual report for Efficiency Vermont that has gone through the full cycle of third-party monitoring and verification of savings required by Vermont’s Public Service Board. The 2013 Annual Report for Efficiency Vermont shows that in that year, the cost of all Efficiency Vermont Electric Resource Acquisition was $356 per MWh;
the cost for business programs (commercial, industrial, and institutional) was $332 per MWh; and, the cost for residential programming was $390 per MWh. Serving residential customers is generally more expensive than serving commercial customers, and it is worth questioning the reasonableness of the proposed budget split between the two sectors offered in the NSPI Alternate. At Efficiency Vermont, over the last two fully verified and reported years (2012 and 2013), the cost per megawatt hour for residential program spending has been 17%-22% higher than the cost per megawatt hour for business program spending. In those two years, the percent of spending on the residential sector has been in the 43%-44% range, with business program spending in the 56%-57% range.

Q: Can you comment on the Performance Indicators proposed by EfficiencyOne?

A: The Performance Indicators proposed by E1 include key metrics that a mature and comprehensive program would be expected to track and report:

- Annual Incremental Energy Savings
- Cumulative Annual Energy Savings
- Lifetime Energy Savings
- Annual Incremental Peak Demand Savings
- Cumulative Annual Peak Demand Savings
- Total Ratepayer Benefits
- Total Spending
- Customer Satisfaction

Annual tracking and reporting of these metrics should not impose any undue burden, and together they provide a reasonable picture of progress made toward goals and agreement expenditures.

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14 Efficiency Vermont, “2013 Annual Report,” p. 49 (Table 3.7).
Q: As comparisons, what Performance Indicators are tracked and reported at Efficiency Vermont and the DC Sustainable Energy Utility?

A: In 2013, EVT tracked and reported on the following Electric Performance Indicators:\(^{15}\)

- Annual incremental net MWh savings
- Total resource benefits
- Summer peak demand savings statewide
- Summer peak demand savings in specific geographically targeted areas
- Business comprehensiveness (percent of projects with multiple end uses)
- Residential market transformation (percent of 1-4 unit new construction that participate in programming)
- Business market transformation (instances where supply chain partners are attached to completed business project)

In 2013, the DCSEU tracked and reported the following Performance Benchmarks:\(^{16}\)

- Electricity savings
- Natural gas savings
- Cost per MMBTU of renewable energy generating capacity
- Peak demand savings
- Percent of spending in low-income housing
- Number of green job hours worked by DC residents earning at least a Living Wage

Q: Do you agree with the Performance Thresholds that are proposed by EfficiencyOne?

A: It is harder to comment on the Performance Thresholds without specification of repercussions. As discussed in the E1 Evidence, Efficiency Vermont has established Performance Indicators, with known incentives. The reasonableness of the Performance Threshold can only be assessed with an understanding of the actions that would be taken if the Performance Threshold is not met, just met, or exceeded.

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\(^{15}\) Efficiency Vermont, “2013 Annual Report,” p. 45 (Table 3.3).

Q: NSPI has proposed that once a final agreement is reached, the ability to make mid-course adjustments be seriously constrained. Do you agree with that?

A: No. The ability to adjust to changing conditions is critical to effective energy efficiency programming. The planning cycle for a three-year agreement generally starts one to two years in advance of the three-year cycle, meaning that plans are being made as many as five years ahead of implementation of the last year of the agreement. Best-practice programming allows for mid-course correction, understanding that changes in economic conditions, changes in technology or pricing, changes in consumer attitudes, and even climate events can each change what is the most cost-effective opportunity.

Utilities planning for efficiency spending during the boom years leading up to the Great Recession, for example, would not have predicted the sharp decline in commercial and residential construction that happened toward the end of the last decade. Those declines affected levels of participation in efficiency programs, especially in new construction. Such dramatic changes in market conditions require changes in programming.

Additionally, changes in technologies and pricing can rapidly and radically call for changes in programming. An example of that is the rapid and steep decline in prices for LED lighting, which is shown as a percent of 2008 prices in this chart by the Lawrence Berkeley National Laboratory, with some prices falling more than 50% in two years.17

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17 Pacific Northwest National Laboratory, "SSL Pricing and Efficacy Trend Analysis for Utility Program Planning," 2013, p. 34.
Efficiency programming should be able to respond to these types of changes, moving unused resources from commercial new construction to maximize savings in commercial lighting, for example.

Sadly, a climate or other catastrophic event may cause opportunities for energy efficiency that were not anticipated. When Tropical Storm Irene hit Vermont in August 2011, it caused significant or complete damage to nearly 3,000 homes. In the rebuilding that was required following that event, Efficiency Vermont was able to re-deploy resources to best effect for Vermonters, to ensure, for example, that as ruined heating systems were replaced that they were replaced with the most efficient models. In fact, because mobile homes were compromised at higher rates than site-built homes, from that effort Efficiency Vermont partnered with affordable housing providers to design a net-zero-ready modular home that could replace mobile homes with such total low energy use that it can be powered by a solar array on the roof. These cost-effective and customer-focused initiatives would not have been possible without the ability to modify plans during the middle of a program cycle.

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18 [http://www.anr.state.vt.us/anr/climatechange/irenebythenumbers.html](http://www.anr.state.vt.us/anr/climatechange/irenebythenumbers.html)
Making the processes for such mid-course corrections unduly burdensome has two effects: It makes programming less flexible and it drives costs up.

In the current cycles of programming, such a restriction could eliminate the possibility for smart action based on the results of the research currently underway on the needs of low-income renters. Should that research provide productive paths forward to effective programs to assist these underserved Nova Scotians, there should be an easy path to create and implement cost-effective programming as quickly as possible, rather than waiting until the next contract period.

Q: How would you summarize your findings?

A: Nova Scotia has been a leader in energy efficiency, and cost-effective investment in energy efficiency should be supported. Past programming has been recognized as cost-effective, using both the Total Resource Cost and the Program Administrator Cost tests. Work leading up to the 2014 IRP suggested support for continued and deeper investment in efficiency as a strategy that will have the lowest long-term cost for the Province. Yet, the DSM Plan proposed by E1 and the DSM Alternate suggested by NSPI decrease rather than increase efficiency investment. Regular reporting of Performance Indicators, as proposed by E1, will provide regular information on progress toward goals and performance against budget. Finally, there should be the ability to make appropriate midcourse corrections without undue time and cost burdens that would decrease their effect.

Q: Are there any other comments you wish to make?

A: Nova Scotia’s model of energy efficiency program provision has been a leader in Canada. At this time, when more efficiency, not less, is needed to reduce effects on climate, that leadership needs to be encouraged rather than hindered.

Efficiency is still the cheapest energy available nearly everywhere. It is not free; we all recognize that it requires investment. But, that investment is still very inexpensive, especially when compared to other forms of energy, and especially if all benefits of efficiency were actually counted in screening tools. Think of the jobs created – for the people of Nova
Scotia. Think of the health benefits – for the people of Nova Scotia. Think of the environmental benefits – for the people of Nova Scotia, and people everywhere. These are all benefits that we undervalue in our screening, but they are real and present, and they make the value of efficiency greater, much greater, than the costs. I encourage you to keep investing in those benefits.

Thank you.