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March 26, 2014

Ms. Nicole Godbout
Regulatory Counsel
Nova Scotia Power, Inc.
1223 Lower Water Street
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ENE Comments related to the Draft Assumptions for Nova Scotia Power Incorporated's 2014 Integrated Resource Plan
Matter No. M05522

Dear Ms. Godbout:

ENE appreciates the opportunity to comment on Nova Scotia Power's *2014 IRP – Draft Assumptions* of March 14, 2014. ENE's submission is attached below.

Do not hesitate to contact me with questions.

Respectfully submitted,

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ENE Comments related to Nova Scotia Power's *2014 IRP – Draft Assumptions*

1. Demand Side Management Potential Study

The levels of achievable potential presented in the Navigant study fall within a reasonable range, but are considered low relative to other jurisdictions.

The total level of achievable savings potential in Navigant's *Nova Scotia 2015-2040 Demand Side Management (DSM) Potential Study* ranges from approximately 19-31%.[1] Based on Nova Scotia Power's proposed 2014 IRP load scenario energy forecasts (Base, High, and Low), ENE estimates that these levels of savings – in addition to existing DSM program savings – translate into a reduction in load ranging from 17-33% in 2040 (see Table 1).[2]

Table 1: Estimated Levels of Total Achievable Potential (% reduction in 2040) based on the NS 2015-2040 Potential Study and NSP's 2014 IRP Load Scenario Energy Forecasts

	2014 IRP Load Forecasts		
Achievable Potential	**Base**	**High**	**Low**
BASE	-25%	-22%	-26%
HIGH	-32%	-29%	-33%
MID	-31%	-27%	-31%
LOW	-20%	-17%	-20%

Recent potential studies from other jurisdictions show achievable potential levels of: 23% (Connecticut); 25.5% (Massachusetts); 16% (Maine); 13.5% (New York); 27% Rhode Island; and, 26.1% (Vermont).[3] However, it is important to note that the savings potential is assessed over a 10-year period in five out of six of the studies, whereas the Nova Scotia potential study is based on a 26-year period. ENE estimates that over a comparable 10-year period (2014-2023), the levels of achievable potential captured in Nova Scotia – in addition to existing program savings – are 11-19% of forecasted load in 2023 (see Table 2), which is low compared to the above results in the U.S. Northeast states.

Table 2: Estimated Levels of Total Achievable Potential Captured (% reduction in 2023) based on the NS 2015-2040 Potential Study and NSP's 2014 IRP Load Scenario Energy Forecasts

	2014 IRP Load Forecasts		
Achievable Potential	**Base**	**High**	**Low**
BASE	-15%	-13%	-15%
HIGH	-19%	-17%	-19%
MID	-18%	-16%	-18%
LOW	-13%	-11%	-13%

[1] Based on an estimated load of 13,800 GWh in 2040 derived from the potential study.
[2] Existing savings (2008-2013) are estimates from Efficiency Nova Scotia's Annual Reports and 2013-2015 DSM Plan. Nova Scotia Power's 10-year System Outlook (2013) was also used as a reference. An average measure life of 13 years was used to generate lifetime energy savings.
[3] See Massachusetts Energy Efficiency Advisory Council Consultant Team's *Preliminary Assessment of Potential* (http://www.ma-eeac.org/Docs/3.1_Council%20Meeting%20Minutes/2012%20Minutes/3.13.12/Potential%20Assessment%20Final.pdf), and The Cadmus Group's *Assessment of Energy Efficiency and Distributed Generation Baseline and Opportunities* (http://www.efficiencymaine.com/docs/Cadmus-Baseline-Opps.pdf)

Figure 1 compares the estimates of achievable potential under the various scenarios in Nova Scotia to the results from the 2011 study in Vermont based on average annual percent savings. The period for the Vermont study was 20 years, and therefore the average annual percent savings from 2014-2040 (Table 1) are used for Nova Scotia.

Figure 1: Achievable Potential Results in Vermont Compared to Estimates for Nova Scotia based on the NS 2015-2040 Potential Study and NSP's 2014 IRP Load Forecasts (average annual % savings over 20 years (VT) and 26 years (NS))

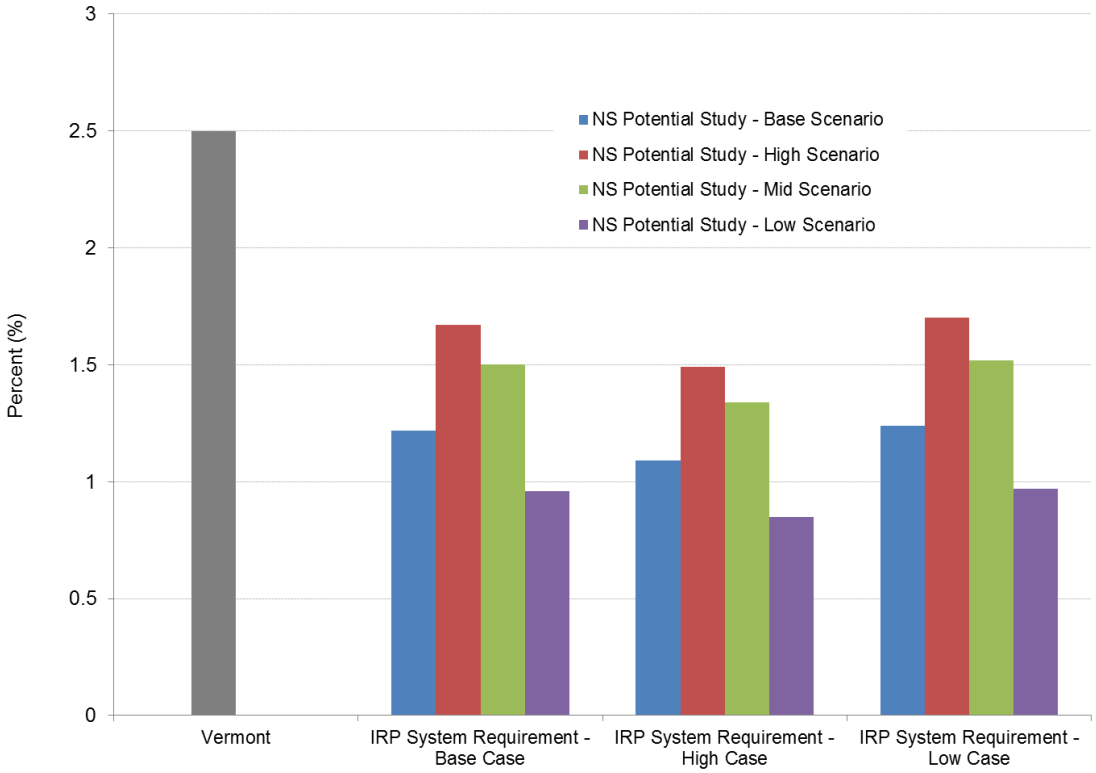
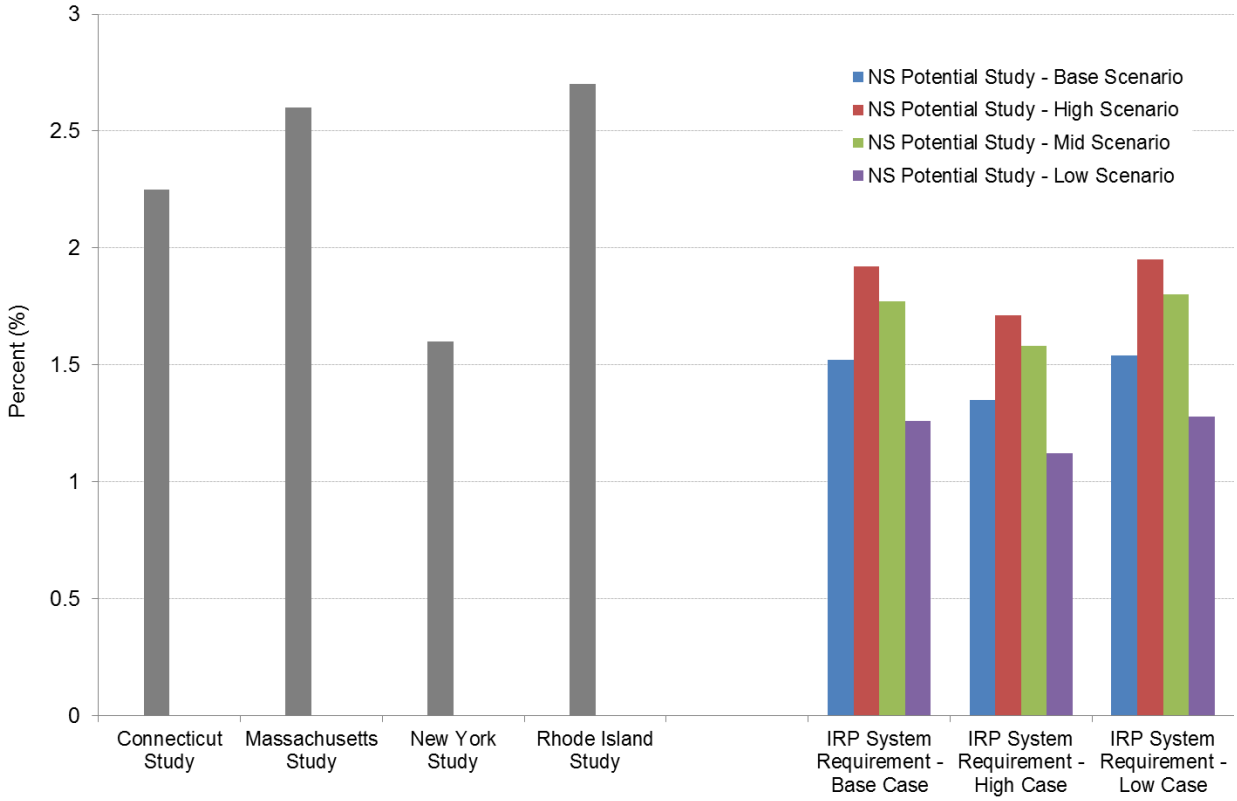


Figure 2 compares the estimates of achievable potential under the various scenarios in Nova Scotia to the results from studies in Connecticut, Massachusetts, Maine, and Rhode Island based on the average annual percent savings. The period for the U.S. studies is 10 years, and therefore the average annual percent savings from 2014-2023 (Table 2) are used for the Nova Scotia estimates.

To note, the Massachusetts Energy Efficiency Advisory Committee Consulting Team report – which summarizes most of the above studies – states that the potential estimates for Vermont in the first 10 years are actually higher than the 20 year study average; however, a figure was not provided.[4]

[4] Massachusetts Energy Efficiency Advisory Council Consultant Team (2012, April 13). *Preliminary Assessment of Potential.* Prepared for Mass EEAC. Available on-line at: http://www.ma-eeac.org/Docs/3.1_Council%20Meeting%20Minutes/2012%20Minutes/3.13.12/Potential%20Assessment%20Final.pdf

Figure 2: Level of Energy Efficiency/DSM Captured per year in Four U.S. Studies Compared to Estimates for Nova Scotia based on the NS 2015-2040 Potential Study and NSP's 2014 IRP Load Forecasts (average annual % savings over 10 years)



A number of factors will have contributed to the relatively low levels of cost-effective achievable potential presented for Nova Scotia. One key factor is that the discount rate used was NSP's Weighted Avoided Cost of Capital (WACC) of approximately 6.81%. An emerging best practice for energy efficiency is to use a discount rate that is equal to a recent average of the historic yields from a ten-year government bond.[5] Another key factor is the conservative application of the cost-effectiveness screening test. The TRC was the only test used to determine economic potential, and no utility system, participant, or societal non-energy benefits were included. As such, these levels of achievable potential should be the minimum considered for the IRP.

2. Potential Study Sensitivity Analysis

All assumptions used in the sensitivity analysis should be presented to stakeholders along with the modeling results before soliciting comments on proposed DSM scenarios. The assumptions used should reflect best practices in energy efficiency assessment.

If NSP runs a sensitivity analysis on the results of Navigant's DSM potential study, then it is necessary for stakeholders to have access to the methodology and assumptions prior to commenting on proposed DSM scenarios.

[5] Synapse Energy Economics, Inc. (2013, October 2). *Energy Efficiency Cost-Effectiveness Screening in the Northeast and Mid-Atlantic States*. Available on-line at: http://www.neep.org/Assets/uploads/files/emv/emv-rfp/emv-products/EMV_Forum_C-E-Testing_Report_Synapse_2013%2010%2002%20Final.pdf

The screening tests used should fully account for the long-run benefits and costs of energy efficiency programs, and allow for achievement of all cost-effective energy efficiency. The underlying methodology and assumptions should be transparent. The screening test should include appropriate non-energy benefits and avoided environmental compliance cost (i.e. CO_2 emissions and other).

ENE recommends using a discount rate that is equal to a recent average of the historic yields from a ten-year government bond. The utility weighted avoided cost of capital is too high relative to the low risk of efficiency programs. As stated above, an alternate discount rate that reflects the lower risk associated with energy efficiency programs is considered a best practice.

In terms of avoided costs, NSP should provide stakeholders with justification for using a value other than $135/MWh. The 2014 IRP process will establish an updated avoided cost value, and therefore NSP's rationale for using a value other than what is public and approved in a regulatory proceeding is required.

3. Preliminary DSM Scenario Recommendations

ENE recommends assessing three DSM scenarios: the Mid and High achievable potential levels from the 2015-2040 potential study, and a third that achieves deeper savings (e.g. 25%) within a shorter timeframe. NSP's proposed DSM scenarios should be presented to stakeholders for comment prior to inclusion in the model.

ENE may revise its recommendations when information regarding the proposed DSM scenarios is available for comment; however, based on the assessment presented in the first section of this submission, at this time it is recommended that NSP assess three DSM scenarios:

i) Low DSM
    a. Based on the Mid scenario in the potential study
ii) High DSM
    a. Based on the High scenario in the potential study
iii) Accelerated DSM
    a. Based on the High scenario but with an accelerated ramp-up to achieve a deeper level of savings earlier (annual savings levels would taper off to capture any remaining achievable savings once the near-term target (e.g. 25% reduction by 2025) is reached).

DSM should be evaluated as a resource option alongside supply-side resources (i.e. not removed from the load forecast prior to assessing the candidate resource plans) as it will be important to understand system costs with and without DSM resources.

DSM and supply-side resources should be assessed on an "even playing field." Only those costs and benefits incurred by the utility should be included in the IRP. DSM should not be assessed from a total resource cost perspective, but rather from a utility cost perspective. The purpose of the IRP is to minimize the utility's revenue requirement. It is not appropriate to include participant costs (or benefits) when assessing DSM in the context of an IRP as they are not utility costs that are recovered in rates.

Further, as stated above, ENE recommends using a discount rate that is equal to a recent average of the historic yields from a ten-year government bond. The utility weighted avoided cost of capital is too high relative to the low risk of energy efficiency programs.

4. Greenhouse Gas Emissions Reduction Scenarios

ENE recommends assessing a greenhouse gas (GHG) emissions reduction scenario with a trajectory that achieves science-based targets in 2050.

ENE recommends using Scenario A as the low environmental constrain as the 2040 emissions level is in-line with the New England Governors and Eastern Canadian Premiers commitment of to reduce GHG emissions by 75-85% below 2001 levels by 2050.[6]

ENE also recommends modeling a science-based scenario as the high environmental constraint. The federal Climate Change Accountability Act, which requires a reduction of 25% below 1990 levels by 2020 and 80% below 1990 levels by 2050, could be used as a reference. This would translate into an emissions level of approximately 5.14 Mt in 2020 and 2.60 Mt in 2040.

5. Carbon Costs

Carbon costs should be counted and not only for U.S. imports so as to quantify the potential carbon price risk associated with the candidate resource plans.

It is important to understand the impact and risk associated with a potential future wherein a price on carbon is established in Canada and/or jurisdictions with which Nova Scotia engages in energy trade and/or has other economic ties. A range of carbon prices should be considered. The Low, Mid, and High cases in Synapse's *2013 Carbon Dioxide Price Forecast* may be used as a reference to develop an appropriate range, or NSP may peg it to, for example, the current carbon tax rate in British Columbia.[7]

6. Avoided Costs

The IRP offers an opportunity for NSP to engage stakeholders in the development of the avoided cost. The process should be transparent, and generate a breakdown of the avoided cost value by its components.

NSP's "all in" or "fully loaded" avoided cost value is not sufficient as it only provides avoided energy and capacity costs, and does not break out avoided transmission and distribution costs. The IRP process offers an opportunity for an open process that incorporates stakeholder input. An outcome of this process should be a detailed and transparent summary of NSP's methodology, along with a final avoided cost value that can be broken out by avoided energy, capacity, and transmission and distribution costs.

7. Rate and Bill Impacts

If NSP will be assessing and potentially reporting rate impacts, then the company should also assess and report bill impacts.

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[6] A linear line from NSP's emissions in 2030 (approximately 4.5 Mt) to the NEG-ECP 2050 commitment results in approximately the following levels for 2040: 3.36 Mt (75% reduction); 3.14 Mt (80% reduction); and 2.91 Mt (85% reduction).

[7] Synapse Energy Economics, Inc. (2013, November 1). 2013 Carbon Dioxide Price Forecast. Available on-line at: http://www.synapse-energy.com/Downloads/SynapseReport.2013-11.0.2013-Carbon-Forecast.13-098.pdf