



Nova Scotia Power (NS Power) 2014 Integrated Resource Plan (IRP) - MO5522

Facilitator Comments on NS Power Final Report

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This report presents the comments of the Facilitator, with input from the other consultants retained by the Nova Scotia Utility and Review Board (“Board”)¹, on the 2014 IRP Final Report NS Power filed on October 15, 2014. The report focuses on the aspects of the 2014 IRP Final Report which fail to comply with the IRP Terms of Reference. Concurrently, the Synapse Energy Economics technical team is filing a separate report (“Synapse report”) which presents a detailed discussion of specific conclusions and other elements of the 2014 IRP Final Report on which Synapse, also with input from the other Board consultants, differ with NS Power.

SUMMARY AND RECOMMENDATIONS

The Board consultants participated in a collaborative process with NS Power on the technical analyses conducted during the 2014 IRP process. Although the Board consultants generally support the results of the technical analyses, we do not agree with certain of the key conclusions NS Power has drawn from those results.

The Board consultants do not agree with the decision NS Power has made to not comply with the Board approved IRP Terms of Reference (TOR) by not providing a specific Preferred Resource Plan (PRP) and by not presenting its avoided cost of Demand Side Management (“DSM”). This Facilitator report demonstrates that, by failing to include those two key deliverables in its 2014 IRP Final Report, NS Power has not only failed to meet the objective of the 2014 IRP, it has failed to provide the Board and stakeholders a specific guide or reference point against which to assess its proposed initiatives and expenditures over the next several years. The Synapse report explains why a specific PRP with a “mid-DSM” level is appropriate. The Synapse report also notes that NS Power should modify its Action Plan to target DSM commitments for the 2016-2018 period consistent with that specific PRP, identify relevant electric utility industry best practices regarding sustaining capital investments in fossil generating units,

¹ Synapse Energy Economics (“Synapse”), Multees Consulting, Liberty Consulting Group.

and determine the capacity contribution attributable to Energy Resource Interconnected Service (ERIS) wind units. The Synapse report recommends that NS Power complete each of those initiatives during 2015.

Based upon the evidence and conclusions presented in the Facilitator and Synapse reports, the Board consultants recommend that the Board not accept the 2014 IRP Final Report. We further recommend that the Board direct NS Power to file an amended 2014 IRP Final Report that includes a specific PRP, the avoided cost of DSM, and a modified Action Plan that reflects these changes. We expect that NS Power could complete those revisions within two to three weeks of receiving the Board's directive. The Board consultants would appreciate the opportunity to submit comments on that amended Final Report, and we expect stakeholders would also appreciate that opportunity.

The Board consultants also recommend that the Board consider the lessons we learned from the 2014 IRP process regarding evaluation criteria, NS Power's detailed IRP schedule and the quality of its draft work products.

THE 2014 IRP FINAL REPORT DOES NOT SATISFY THE BOARD APPROVED IRP TOR

The 2014 IRP Final Report does not present a specific PRP or an avoided cost of DSM. As a result the Final Report does not meet the TOR requirements and is therefore incomplete.

PRP

The IRP Terms of Reference clearly require NS Power to develop and select a PRP. This is a core requirement noted throughout the TOR as indicated in the following three excerpts from the objective, scope, and purpose provisions respectively:

To develop a long-term Preferred Resource Plan that establishes the direction for NS Power to meet customer demand and energy requirements, and environmental obligations in a cost-effective, safe and reliable manner across a reasonable range of foreseeable futures;

The primary steps of the Integrated Resource Planning process will be: select the Preferred Resource Plan...

The IRP is a comprehensive and public utility planning exercise that integrates supply and demand-side options to develop a long-term Preferred Resource Plan for the utility. The resultant Preferred Resource Plan is a road-map to guide the utility's strategy for meeting its resource needs over the planning horizon.

During the IRP process NS Power modeled 14 Candidate Resource Plans (CRPs) under the Reference World. Each CRP consisted of annual quantities of capacity (MW) and energy (MWh) acquired from specific resources in each year of the planning period, as well as retirements of existing units. As indicated in the Table on page 54 of the Final Report, the resources in each CRP include DSM, Maritime Link, existing fossil fuel units, hydro, wind and new gas-fired units.

In contrast to the detailed attributes of each CRP, the 2014 IRP Final Report does not present a PRP with any specific information on quantities of capacity and energy by resource by year. Instead, the only detail the Final Report provides is on page 51, lines 4 to 14, where it indicates that its PRP consists of the resource addition profiles of CRPs 2-1 and 5-1 until its next IRP plus a DSM level to be determined in a separate regulatory proceeding.

NS Power presents several reasons for not selecting a specific PRP. Those reasons do not stand up to scrutiny.

On page 23, lines 13 to 16, the Final Report states “The early-year convergence of the mix of plans that are most economic over the short, medium and long terms respectively (CRP 1, 2-17 and 5) also diminishes the need to pick from among plans that are not fully optimized”. We disagree. That statement fails to acknowledge that each of those three CRPs include as a resource progressively increasing levels of DSM, i.e., “half Low”, Base and High respectively. The statement implies that NS Power could choose any level of DSM during the Action Plan period, i.e., through 2019, and still have the ability to choose any of those three CRPs from 2020 onward. That is not correct; the supply resource quantities and timing in each CRP are based upon the specific level of DSM in that CRP. If NS Power acquires a level of DSM different from that assumed in a given CRP, the quantity and timing of the supply resource it will have to acquire will also very likely be different than those assumed in that CRP. .

For example, if NS Power acquires the “Half Low” level of DSM through 2019, i.e. implicitly following CRP 1 during the Action Plan period, it is not at all clear that NS Power would be able to transition to CRP 2-17 from 2020 onward. The problem is that by 2020 NS Power would be facing a capacity requirement 102 MW higher than the capacity requirement for which CRP 2-17 is designed. As

a result, NS Power would more likely have to transition to a hybrid CRP 1 / CRP 2-17 path that would require some or all of the resource additions under CRP 1, and the higher capital costs associated with those resource additions. This potential problem is illustrated in Table 1, below, which presents a high-level comparison of capacity requirements and additions by year for CRP 1-1 and CRP 2-17 between 2019 and 2023. Figures 1 and 2 in the Synapse report illustrate the differences in annual energy and peak demand resulting from different levels of DSM.

Table 1
Capacity requirements and additions 2019 to 2023, CRP 1-1 vs CRP 2-17²

Year	CRP 1-1		CRP 2-17	
	Capacity Requirement (MW)	Capacity addition (MW)	Capacity Requirement (MW)	Capacity addition (MW)
2019	2,377	15 hydro	2,288	none
2020	2,394	none	2,292	none
2021	2,391	none	2,278	none
2022	2,397	none	2,275	none
2023	2,404	15 hydro plus 100 PPA	2,273	none

On page 23, lines 10 to 13, the Final Report states “NS Power has focused on short and medium term affordability as a means to distinguish between plans in the interest of customers.” Affordability, which NS Power defines as “...having the minimum revenue requirement increase possible over the near term³” is not one of the criteria for selection of a PRP in the TOR. However NS Power has used affordability in conjunction with “rate effects” which was a criterion in the TOR. NS Power applied its rate effects criterion by using the NPV of partial revenue requirements during the 2015 to 2020 time period as its quantitative metric. This metric has two major problems. First, it does not provide any indication of the absolute magnitude of rate impact that each CRP would have on NS Power’s actual rates. Second, the goal of the IRP is to “...develop a long-term resource plan for the utility”. As such, to the extent that “rate effects” are considered as one of the criterion for choosing a long-term resource

² Data from 2014 Final Report, Appendix L, pages 18 and 37.

³ NS Power references to near term generally mean the Action Plan period, 2015 through 2019.

plan, that criterion should be applied over the 25 year planning period rather than the first five years of the planning period. To do otherwise effectively truncates the analysis and does not fully represent the long-term implications.

It is important to note that if NS Power plans to apply this rate effects criterion in its evaluations of all future proposed capital investment, the result may be decisions to defer most if not all of those investments indefinitely. DSM is not the only capital investment that may have a rate impact in the near term, this may be a concern for other capital investments that NS Power is considering, such as the Mersey retrofit and/or upgrades and Flue Gas Desulfurization (FGD). If NS Power does not make capital investments that have long-term economic benefits, its customers will not receive those long-term economic benefits and, as a result, will end up paying higher rates in the long term. The Board consultants recognize that short term rate effects are a legitimate issue; however we do not consider the IRP process to be the appropriate forum in which to address those short-term effects. In fact, that is one of the issues the Board has routinely considered in its evaluations of DSM applications over the last several years. This is not a new concern or consideration.

On page 9, lines 4 to 16, NS Power indicates that it did not select a specific PRP because the DSM level would be one of the key specific resources in that PRP and identifying that specific DSM level would be inconsistent with the Electricity Efficiency and Conservation Restructuring (2014) Act (“Act”). If NS Power feels that in order to comply with the Act it needs to keep the specific DSM level in its PRP confidential, it could file confidential and redacted versions of its 2014 Final Report. However, from a policy perspective we do not see any aspect of the Act which prohibits NS Power from choosing a PRP as the outcome of an IRP process. On the contrary, the IRP is the correct forum in which NS Power should identify the economic level of DSM to include in a PRP from a long-term planning perspective. The TOR explicitly states that the PRP “...is directional, not prescriptive in nature. The Preferred Resource Plan does not commit the utility to certain courses of action or foreclose options determined to be in the interests of our customers subsequent to completion of the IRP process.” It is interesting to note that section 79 I (1) of the Act requires NS Power to undertake cost-effective efficiency activities “...in an effort to reduce costs for its customers.” By choosing a specific PRP with the level of DSM that has the lowest net present value over the planning period NS Power would clearly be implementing a strategy that minimizes its total costs, and hence minimizes its average cost per customer. NS Power will have the opportunity to present its justification for the quantity of DSM it considers to be “an operational

level of cost-effective, affordable DSM” for the 2016 to 2018 time period in the separate proceeding the Board will conduct to consider their DSM application for that period.

Avoided Cost

The 2014 IRP Final Report does not present the avoided cost of DSM or the methodology NS Power used to calculate that avoided cost. Instead the Final Report states, at page 20 line 7, that NS Power will produce its avoided costs of DSM as part of its Action Plan. However, the Action Plan does not list development of avoided cost of DSM as one of its initiatives.

The IRP TOR requires NS Power to present the methodology it used to calculate its avoided cost of DSM as well as the resulting avoided costs. The TOR specifies this requirement in item 10 of section 4 of the IRP deliverables. By failing to provide this methodology and the resulting avoided cost of DSM NS Power has failed to comply with the TOR. In addition, since the avoided cost of DSM is a key input to the identification of which efficiency measures are “cost-effective” and which are not, the absence of that key input could delay NS Power’s negotiations with ENSC for the acquisition of DSM during the 2016 to 2018 time period.

It is also worth noting that the absence of a specific PRP is likely to impede NS Power’s calculation of its avoided cost of DSM. In prior years NS Power has calculated its avoided cost of DSM using a “Difference in Revenue Requirement” method. Under that method the avoided cost of DSM is the present value of the difference in revenue requirements under a resource plan with DSM and under a resource plan without DSM. Ideally the resource plan with DSM would be the specific PRP. In the absence of a specific PRP it is not clear what NS Power will use for its resource plan with DSM.

THE BOARD AND STAKEHOLDERS WILL BE AT A DISADVANTAGE WITHOUT A PRP AND AN AVOIDED COST OF DSM

By failing to include a PRP and its avoided costs of DSM in the 2014 Final Report, NS Power has failed to provide the Board and stakeholders a specific guide or reference point against which to assess its proposed initiatives and expenditures over the next several years. Following are several examples of how the absence of this information will place the Board and stakeholders at a disadvantage.

Efficiency Nova Scotia (ENSC) will be at a disadvantage if it does not have NS Power’s avoided cost of DSM to design and evaluate efficiency measures and programs, as noted above. In fact, section

79K of the Act appears to require NS Power to provide that information to ENSC. The Board and other stakeholders will be at a disadvantage without NS Power's PRP and avoided cost of DSM when reviewing the efficiency measures and programs that NS Power and ENSC propose in their application for the 2016 to 2018 time period.

The Board and other stakeholders will be at a disadvantage without NS Power's PRP when reviewing NS Power proposed discretionary capital investments in its Annual Capital Expenditure ("ACE") filings. For example, NS Power may make a filing to increase the capacity of the Mersey hydro system in conjunction with its proposal to invest in repairs to maintain the existing capacity of that facility. Also, the absence of a PRP may place the Board at a disadvantage when reviewing NS Power future requests for sustaining capital investments in its generating units.

The Board and other stakeholders will be at a disadvantage without NS Power's PRP when reviewing NS Power progress on its various Action Plan items.

LESSONS FOR FUTURE IRPS FROM THE 2014 IRP PROCESS

The Board consultants learned three major lessons from the 2014 IRP process that could improve the process for future IRPs. First, the Board should assess the evaluation criteria to be used in the next IRP. The 2014 TOR specified cumulative present worth of annual revenue requirements of the resource plan over the planning horizon as the primary criterion for selection of the preferred resource plan. However the TOR also identified several additional criteria to be considered, i.e., System reliability requirements, Plan robustness, Flexibility, Future regulatory emissions outlook, Timing and rates effects, and end effects beyond the planning horizon. The introduction of those additional criteria raised two questions - what metric to use to measure each criterion and what weight to assign each criterion. During the 2014 IRP process these two questions were of particular interest in terms of applying the "rates effects" criterion.

Second, once the IRP Process Timeline has been established, the Board should require NS Power to develop and comply with a detailed internal schedule that provides Board consultants adequate time to review initial draft materials in advance of their distribution to stakeholders. By adequate time we mean three full working days. The problem with the 2014 IRP was not the high-level timeline established in the TOR but instead NS Power's internal detailed schedule. That detailed schedule often did not allow Board consultants adequate time to review their internal draft materials prior to

distribution. In addition, it did not allow stakeholders adequate time to review materials prior to each technical conference.

Third, NS Power should place greater emphasis on providing Board consultants with better quality initial draft materials. Many of the draft materials NSPI distributed to Board consultants during the 2014 IRP process were not clear and well organized. This resulted in significant effort being required to improve the quality of those draft materials before NS Power distributed them to stakeholders. In addition, the IRP process would be improved if NS Power provided more materials to Board consultants and stakeholders as written text and data tables rather than presenting mostly bullets in power point slides.