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Delivered by E-mail

Nicole Godbout
Regulatory Counsel
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PO Box 910
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Dear Ms. Godbout:

Re: Feedback on IRP Analysis Plan (Technical Conference No. 2)
Integrated Resource Plan (IRP) 2014 – M05522/P-884.14

Following the second IRP Technical Conference on June 25 and review of the "Progress Update" materials circulated by NSPI in advance of the conference, on behalf of the Industrial Group, we make the following submissions regarding the IRP Analysis Plan.

Environmental and Emissions Assumptions

1. NSPI has proposed to model Scenario "B" for emissions constraints which assumes no further reduction in CO2/ GHG and SO2, NOx and Hg past 2020 (slides 5 and 8). We have heard some participants express the view that these scenarios are unlikely and that additional reductions likely will be in place. However, we believe that there are valid reasons to include Scenario "B" in the modelling. The IRP is a long term planning exercise and successive governments may have different priorities. At the very least, modelling Scenario "B" would allow for a proper analysis of the costs associated with increasing emissions controls beyond the 2020 targets. Given that the objective of the IRP includes development of an Action Plan in a "cost-effective" manner, it is important to fully understand the costs surrounding certain courses of action. The Industrial Group supports the inclusion of Scenario "B".

Supply Assumptions

2. At slide 13, it is noted that the CC option is only roughly 50% heat rate efficiency (7200 Btu/KWh). We are advised that co-generation options in Alberta typically have heat rates that are approximately 5 GJ/MWh (closer to 70% efficiency). As there are currently viable natural gas options with better heat rates, the Industrial Group suggests these should be modelled.

3. At the Technical Conference, NSPI had indicated that it would provide the detailed assumptions that were used to develop the natural gas price assumptions (slide 25). Please provide these assumptions.

4. Also, if NSPI intends to revise or update coal, natural gas or other fuel prices prior to completing the IRP modelling, please provide relevant information as to when and how NSPI will update the assumptions.

5. With respect to purchased power assumptions, the Industrial Group requests that NSPI include, in the plan modelling, (a) scenarios where the Maritime Link is delayed in its completion and (b) scenarios where supply from the Link is curtailed such that there is no "market price" power available (only the "basic block").

6. The Industrial Group would like NSPI to consider whether it is reasonable that the ratio of high case prices to low case prices in 2020 is lower for power (the one commodity that cannot be stored) (110/70), than for gas (15.2/7.0), coal (low sulphur 6.5/4.0) or HFO (25.2/11.2). One might reasonably expect that NSPI could better manage costs for fuel sources that can be hedged and/or stored, than costs for imported power which cannot be stored.

Plant Retirement

7. Based on the preliminary Strategist results provided in the Technical Conference materials, there appears to be a correlation between coal use and plant retirement. Specifically, that max coal use is based on 60 year retirements; medium coal use is based on 55 year retirements and minimum coal based on 50 year retirements. If this is correct, there appear to be some inconsistencies with the life-spans specified.

8. We have observed that:

- Slide 36 suggests Plan 1, 2 and 3 use 60 year coal plant retirements and Plan 4 uses 50 year retirements;

- Slide 52 CRP 2 is maximum coal use;

    - Slide 54 preliminary results for CRP 2 shows TUC 1 retirement in 2025 and TUC 2 retirement in 2032 (consistent with 60 year lives, from slide 23);

    - Slide 35 does not appear to reflect any retirements in 2025 and 2032 for maximum coal (although these units are small);

- Slide 81 CRP 4 is medium coal use;

    - Slide 83 Preliminary results for CRP 4 shows TUC 1 retirement in 2020 and TUC 2 retirement in 2027, 5 years earlier than CRP 2;

    - Slide 35 does not appear to reflect any retirements in 2020 and 2027 for med coal (although these units are small);

- This suggests a 5 year difference in coal plant retirements between max and med coal, i.e. 55 year lives, which is inconsistent with the 60 and 50 year life spans specified in slide 36.

9. Rather than controlling the plant retirement as an input across the fleet, the Industrial Group suspects that certain plants may be capable of extended lives. The Industrial Group suggests that NSPI apply its knowledge to vary and extend the plant lives individually as a limiting factor and then allow Strategist to choose the most cost-effective time for retirement within individual plant life constraints.

10. Further, at the Technical Conference, NSPI indicated it had not considered whether the expense of retiring a plant would be the cost of mothballing the plant or the cost of completely dismantling the plant (or some other option.) This choice will impact the overall cost of retiring a plant and so it is important to establish what assumptions will be used. The Industrial Group requests that NSPI provide more information with respect to the treatment of costs for retired generating plants.

Candidate Resource Plan Analysis and Preliminary Results

- Relative Fuel and Power Costs (slide 49)

11. These price differentials (imports vs. gas. vs. coal) are significant drivers for the Strategist model choices.

    (a) What heat rates were used to translate natural gas and coal prices to equivalent power prices for this graph? Heat rates of NSPI's existing units (for coal) or potential new units (gas)?

    (b) The on-peak power prices appear to exhibit two peaks per year, presumably summer and winter. Gas prices are shown with a consistent winter peak. Does NSPI expect winter peak power prices to consistently reflect a heat rate lower than they can generate at (as implied by the graph)? If so, will Strategist not always (under the Base Price scenarios) select winter peak purchases prior to running or building gas units? What is the likelihood of this happening year after year, as implied in the fuel price input data?

    (c) In the early years coal is lower cost than off-peak purchases only in the winter. Has this been the case in the recent past or is this a new paradigm?

- Use of Plexos in 2014 IRP

12. It is understood that there are certain benefits to evaluating a CRP through Plexos; unlike Strategist, it can control for multiple emissions constraints at the same time, can assess a Plan at a higher level of detail and can reveal understated benefits of some options. NSPI stated that Plexos cannot be used to evaluate all CRPs, but rather will be used strategically to take a closer look at those Plans that are "close to the line" for emissions controls and to better understand wind integration costs where there are Medium and High wind penetration cases (slide 85).

13. Given that Plexos will reveal useful information about the CRPs, but that it must be used in a limited fashion, the Industrial Group requests that NSPI develop and circulate a protocol that outlines when and how Plexos will be used.

14. We suggest that this should include a “control” scenario - one where NSPI expects that modelling in Plexos would not produce significantly different results from the Strategist model – to confirm that modelling in Plexos is only useful in the situations established by the protocol.

- Defining IRP Goals

15. Apart from evaluating the Net Present Value of different CRPs, NSPI has indicated that it will be looking at other qualities, such as the “robustness” of a plan, the impact on “system stability”, “cost effectiveness” and “flexibility.” It is important that stakeholders and NSPI have a common understanding of what these criteria are, how they will be used to assess individual CRPs and how they will impact the ranking of the CRPs once they have been ranked by NPV through Strategist.

16. The Industrial Group requests that NSPI develop and circulate criteria for assessing these “other qualities” and provide further information on how these qualities will be weighted or otherwise used to rank CRPs that have been, initially, ranked by NPV of the plan.

- Use of Judgment

17. It is understood that there are many instances where NSPI and Synapse apply judgment when developing the IRP plan analysis. For example, the steps that led to the creation of the five preliminary CRPs that were chosen for optimization runs in Strategist. These steps are outlined briefly in slides 33 to 37, but there is not a clear explanation of the process that led to the development of the five CRPs or why some inputs / options were selected over others.

18. Where judgment is used, particularly in significant steps in the process such as establishing the foundational or core CRPs, the Industrial Group requests that NSPI document how judgment was applied. This could include further information such as what factors were considered, why some were selected and others were rejected and what constraints shaped NSPI’s decision-making. This information will increase transparency and will facilitate a shared understanding of the overall process that leads to the selection of a preferred plan.

Thank you for the opportunity to provide these additional comments.

Yours truly,

Nancy Rubin

Nancy G. Rubin

NGR/lmc

cc IRP Participants