

Responses to Industrial Group Requests – received via letter May 9, 2014

Comment/Request:

In the Maritime Link hearing, NSPI/NSPML confirmed that energy from the link would support the integration of variable energy sources.¹ Do the simulations used to develop the Variable Generation Integration Costs assume that the Link facilitates the integration of variable renewables? If not, please explain.

Response:

Yes, the simulations used to develop Variable Generation Integration Costs assume that the Maritime Link facilitates integration of variable renewables.

Comment/Request:

Has NSPI determined that a specific amount of variable renewables can be added because of the Link? How much? If the simulations run to develop the draft Integration Costs Assumptions did not assume that the Link facilitates integration of variable renewables, please run a simulation that has this assumption and provide a report that discusses the impact of this change on variable generation integration costs.

Response:

The request contemplates a more discrete notion of wind integration than is the case. Many variables influence wind integration challenges all of which come down to the costs and risks the generation presents. The Maritime Link provides flexibility greater than the operational latitude typical of the coal-fired steam generating unit that it replaces on the system. For example, Maritime Link replaces a 154 MW steam generating unit, however: Maritime Link can be dispatched 40 MW above the set point to cater to wind generation down-swings. Maritime Link can also be dispatched 40 MW below the set point, to cater to wind generation swells, and that with no detrimental heat rate effect associated with down regulation by using a thermal unit. The response time of Maritime Link is faster than that of a steam generating unit it replaces, which also provides further variable energy integration benefit. It also does not suffer from stop points in ramping necessary to add or remove coal mills to/from operation. Additionally the Maritime Link offers the possibility of economic energy purchase, over and above the contracted energy blocks, adding further flexibility to the system which facilitates integration of variable generation resources.

The flexibility of the Maritime Link will contribute to the integration of the existing and committed wind generation on the NS Power system. It opens the possibility of negotiated wind balancing agreements

¹ NSPML Application (M-2), page 25 (M05419)

with Nalcor, a hydro-based power system much more suited to power system regulation than nuclear or fossil (steam) based systems.

The General Electric Renewable Energy Integration Study evaluated operating costs with and without the Maritime Link. From that study the operating cost advantages of the Link were confirmed.

Comment/Request:

Regarding the Point Aconi and Point Tupper outputs on pages 9 and 10, has NSPI considered the impact of non-wind variables that affect output, such as changes to load, the operation of the Port Hawkesbury Biomass, and the increased use of natural gas at Tufts Cove? Please explain.

Response:

The impact of all system variables is evident in the referenced graphs; however, the effect of system demand and increased natural gas burn are relatively smooth in comparison to the effect of variable generation. For example, system demand variations existed in similar shapes in both years and while overall system demand may be lower in 2013 as compared to 2004, this is mitigated by generating unit commitment and it has no appreciable effect on regulation. Increased use of natural gas due to economics also affects unit commitment rather than regulation. The Port Hawkesbury Biomass Plant is essentially a system demand modifier since it is dispatched as a must run unit.

Comment/Request:

Finally, we note that the Port Hawkesbury Biomass generator continues, by legislated requirement, to be designated as "must run." Given that this IRP process intends to explore all generation requirements and options, we believe that it would be appropriate to consider the impact on dispatch, generation costs and the overall cost of achieving renewables targets of changing the Biomass designation so that it is not a "must run" unit. Please run a simulation that assumes that the Biomass is not "must run" and provide a report that discusses the impact of this change on variable generation integration costs.

Response:

Port Hawksbury Biomass generating unit output is required by NS Power in order to meet Renewable Electricity Regulations (RER) obligations. The IRP process will explore plausible generation requirements and options within the legislative and regulatory frameworks.