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Subject: FW: Application 100 MW Combustion Turbine Generator

From: Winston Adams
To: info@pub.nl.ca
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Date: Mon, 28 Apr 2014 13:20:12 -0200

Public Utilities Board
St John's , Nfld

Attention Cheryl Blundon

In respect of the above application,
I oppose the approval of the application for the following reasons, and suggest any approval be conditional:

1. It appears the proposed unit is not a new unit, and therefore may be without manufacturer's warranty. It may be subject to maintenance issues, depending on it's age and hours of use. It appears a used unit would be procured to meet this coming winter's load, as a new unit takes a longer delivery schedule. As we have significant issues with maintenance of aged equipment already, is another aged/used generator a wise investment? Our consumer advocate says it will add to our reliability of power, but it appears it is not to be a new unit.

2. A 100 MW unit at a projected cost to ratepayers of an additional 2.3 percent on power bills is a small cost for that amount of extra capacity.
It is indicated that the cost of this unit is 119 million dollars. At this rate, 300 MW would be 357 million, 400 MW would be 476 million, and 500 MW would be 596 million. 500 MW is about the continuous capacity of Muskrat Fall, and after allowing for transmission losses to the Avalon. 500 MW is about the maximum output of the existing Holyrood thermal plant: which is an aged asset, has issues of reliability, and costly to upgrade to meet pollution standards. Gas turbines work better with wind generation, and therefore allows better efficiency that the Holyrood plant.
A number (5 or more) of gas turbines appears to present a significant least cost option for generation . It appears the total cost would be about 600 million instead of 8 billion or more for Muskrat falls power. In terms of customer rate increases , at 2.3 percent increase per 100 Mw, then 500MW of gas turbines would represent a total increase of 11.5 percent compared to the Muskrat falls projected 40 percent increase, before cost overruns and delays added, which may result in rate cost increases to customers to well over 50 percent. And if the gas turbines are new instead of used, the cost would still appear to be a least cost for generation, which is primarily for winter peak use.

3. In terms of reliability, gas turbines on the Avalon, in the proximity of the major loads, appear to be must less to risk of loss of a unit through weather related storms. In particular from salt contamination flashovers to be expected from the Great Northern Peninsula route, which has outages at perhaps 10 times that of other areas from this cause.
Flashovers from salt contamination was the proximate cause of the 2013 island wide power outage which saw a loss of all 3 holyrood units and some 13 million damage to one unit. Therefore should this this new gas

turbine or other future ones be located at Holyrood, due to the risk for salt contamination flashovers outages? Its site by the ocean increases this risk for a repeat event.

4. Hydro has intentionally delayed a third transmission line to the Avalon from our island hydro sources. This year, during the outage, when operating on only one line, the transmission line losses on that single line increased by some 20 MW. This was a extra loss of energy to customers. The planned third line would actually decrease transmission losses as compared to two lines. Such poor planning and delay adds cost for oil for Holyrood. It allowed less available power to the Avalon in recent rotating outages. It increased problems with lower voltage conditions, and may have worsened the cascade of events. This third line should have proceed several years ago, and if in place would add reliability to our system and especially the Avalon area.

5. Both Hydro and Nfld Power and Liberty Consulting continues to ignore the high value for aggressive conservation by efficiency means, by reducing customer winter heating loads. Nor to they threat efficiency as a power source , as many progressive power companies do. Efficiency is the most cost effective way to reduce winter peak loads in Nfld, and much less costly than any new generation source. Liberty says every megawatt conserved counts, but does not recommend meaningful efficiency measures.
119 million cost for 100 MW(used) gas turbine is $1190.00 per kilowatt of energy supply from a (used) gas turbine. Add to this the fuel cost for peak load operation. For winter peak reduction, air source mini split heatpumps cost about $1350.00 per kilowatt winter peak reduction, but also reduce customer heating energy use by about 60 percent, and gives 30 percent overall yearly total reduction on power costs to the residential customer. If the gas turbines are new, which is extra cost, the advantage of demand reduction from efficiency measures is greater. And with both demand and energy reduction , efficiency it is a greener alternative than fuel for gas turbines.

6. The argument for one or more gas turbines is that that they can be procured quicker than demand reduction from efficiency measurers. The delay and poor planning to ramp up efficiency measures creates a need for more generation and transmission infrastructure. That even following the blackout of 2014, the power companies still resist aggressive efficiency measures. Such delays for efficiency measures, over the long run is counter to least lost measures for the customer. In effect , they kick the can down the road as to efficiency. This is not the sign of a progressive power company who has concern for the costs of power for their customers.

7. That independent testing of these heating technology prove that they reduce electricity demand by 50 percent of more at zero degree F or lower temperature, and some models operate down to temperatures well below that. They are well suited to our Nfld winter conditions.

8. That any permission for additional gas turbine additions should be conditional with commitments for aggressive efficiency measures, which (a) reduce peak loads and also lowers customers energy use and costs, and (b) commitments for more wind energy, to offset fuel costs for gas turbines. This results in less running hours for gas turbines. Wind is very effective to contribute to peak loads during moderate to high wind speed when air infiltration is houses rise. The valuable contribution of wind on our system is already proven as saving significant fuel.

9. That the conservation measures employed this winter: to turn down thermostats, only reduces load only about 500 watts per average house that takes such a measure, and is a discomfort. When power is cut by rotating outages, the subsequent "cold start" pick up results in double or more the average peak load DEMAND INCREASE, per household, due to all heaters and a hot water tank and other loads having to energize to make up for the off period. This delays the restoration of energy to households. On the other

hand, efficient heating reduces peak load by about 2500 watts per average house. this is about 5 times more reduction than turning down thermostats, and about 10 times better, when comparing to the problem of picking up cold loads.

10. To procure 100 Mw of gas turbine generation should not be a stand alone decision. It is a rushed procedure to counter prior poor planning and maintenance practises by Hydro. In considering the Application, the PUB should engage a reputable Energy Efficiency Consultant to review and advise how to optimize such efficiency measures to maximize least cost energy to the customer, improve reliability, and have our system use less fuel in thermal and gas turbine generation. Delays in these measures is not to benefit of the customer, and helps lock in place the effects of prior bad decisions by Nalcor and Nfld Hydro.

Thank you for any consideration to these opinions.

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