

Date : 1/12/2012 1:21:27 PM
 From : "Kennedy, Jerome"
 To : "Maclean, Heather"
 Subject : Re: James Feehan - info on paper

Who prepared this? So much unnecessary info.
 Department of Natural Resources
 Government of Newfoundland and Labrador

Sent Via BlackBerry

From: Maclean, Heather
To: Kennedy, Jerome
Cc: Shute, Tracy
Sent: Thu Jan 12 13:17:49 2012
Subject: James Feehan - info on paper

Information Note Department of Natural Resources

Title: CD Howe report argues alternative electricity pricing would make the Muskrat Falls project unnecessary.

Issue: Economist James Feehan has published a C. D. Howe think tank research paper suggesting the Muskrat Falls Project is economically inferior to the Isolated Island scenario combined with retail electricity pricing that more closely reflects seasonal variations in costs.

Background and Current Status

- Feehan argues the Muskrat Falls Project would not be necessary if electricity users had to pay more for electricity during the peak winter heating season than other times of the year when Holyrood oil-fuelled electricity is not necessary.
- The economic principle underlying Feehan's argument is that customers should pay the actual marginal cost of consuming more of a good or service. If it costs more per kWh to produce one additional kWh of electricity, then the customer should pay more. Feehan's proposal would lead to different electricity prices for each season and perhaps time of day depending on the sources of electricity generation in use at that time. In other words, prices peak when overall demand peaks.
- Presently, NL electricity prices are set by the Board of Commissioners of Public Utilities (PUB) governed by the Public Utilities Act and use a rate base approach based on forecast annual system costs, which are allocated to various customer classes. Rates are based on average costs and consider forecast demand, fixed infrastructure costs, fuel prices and other variable and O&M costs.
- Newfoundland Power (NP) already offers a seasonal rate option pilot program similar to Feehan's proposal, which the PUB authorized in April. It is too early to determine the effects of the pricing option on consumer behaviour and electricity consumption.
- Under NP's Optional Seasonal Rates, standard rates are adjusted as follows (not including HST):
 - The winter season premium adjustment from December to through April is +0.953¢ per kWh, which is a premium of approximately 10 per cent.
 - The non-winter season credit adjustment from May through November is -1.297¢ per kWh, which is a discount of approximately 13.5 per cent.
- NP estimated that the Optional Seasonal Rate could help lower winter system peak demand by approximately 4 MW, which is nowhere the reduction necessary to make the Island Isolated scenario preferable to Muskrat Falls.
- NL effectively had winter seasonal pricing up to the mid 1980s similar to Feehan's proposal, but the pricing had to change due to the hardships it caused homeowners. Up to the mid 1980's a fuel adjustment charge changed consumers' electricity bills month to month due to the fluctuating cost of fuel at Holyrood. The Rate Stabilization Plan (RSP) was implemented to smooth electricity rate changes over the year with an adjustment (up or down) each July.
- Presently in NL, other than in NP's pilot program, electricity prices are set based on forecast annual average system costs which include forecast demand, fuel prices and rainfall.
- Feehan says applying this economic principle to island electricity rates would persuade people to reduce their electricity consumption during peak periods and therefore reduce the need for Holyrood thermal electricity.
- Presently, electricity on the Island from hydro generation costs approximately 4 cents/kWh while electricity from Holyrood thermal generation costs approximately 19 cents/kWh. Holyrood thermal is only used once demand exceeds hydroelectric generation capacity, which coincides

with the winter season space heating.

- Nalcor considered demand reduction incentives in its project analysis and concluded Muskrat Falls power would still be the best option for the province even in the most optimistic conservation scenario.
- Feehan contests Nalcor's position that if consumption growth is half of what it expects, the MFP still has a \$0.75 billion cost advantage over the Isolated Island scenario. He disagrees with Nalcor's position that it would still need to increase capacity despite lower overall energy usage. Furthermore, with less consumption, Feehan says the need for pollution abatement equipment at Holyrood may be unnecessary. The resulting savings would be about an additional \$1 billion. Therefore, he claims halving consumption growth eliminates MF cost advantage.
- Feehan says the Isolated Island scenario combined with marginal pricing means the Muskrat Falls Project would not be necessary until 2030 when Holyrood reached the end of its useful life.

Analysis

- Feehan offers no data or empirical evidence to support his analyses and conclusions that marginal pricing would provide the demand reductions necessary to make the Isolated Island scenario the most economic option.
- Feehan also offers no solutions or discussion on how such a regime would be implemented effectively. While his assumptions might have some theoretical basis, he appears to ignore that broad public support would be necessary to implement such a change.

Effects on Home Heating and Behaviour

- Setting rates as Feehan seems to suggest would signal owners of electrically-heated homes to reduce consumption, have colder homes, invest significant sums in new heating sources and insulation, pay more for energy during the winter or some combination of these alternatives. The people of the province may not accept these options and may be adverse to higher electricity rates to reduce consumption and encourage conservation.
- The practical effects of implementing Feehan's marginal pricing economic theory are by no means certain. Before making a such a change, it would be critical to consider other economic and regulatory factors such as efficient distribution of resources, utility cost recovery, efficient regulation, transparency, simplicity, non-discriminatory, public and political acceptance as well as others. These factors may make the marginal price approach more or less attractive relative to average price approach. For example, marginal pricing is designed to allow for more efficient allocation of resources than average price approach although marginal pricing approaches can be more complicated and difficult for consumers to understand as well as having potentially higher administration and compliance costs.
- Feehan's marginal pricing proposal does not consider the potentially inequitable impacts on different types of consumers, it does not analyze the possible fuel-switching in favour of oil home heating and its associated increases in carbon emissions. He also does not consider impacts on the business sector, especially in terms of the competitiveness of energy prices with neighbouring provinces. Overall, Feehan's analyses lack a comprehensive cost/benefit analysis.
- Marginal pricing might reduce future load growth by reducing electric heat installation in new construction and reducing heating system conversions from oil to electricity, but thousands of households remaining electrically heated would suddenly find it impossible to pay their electric bills in the winter. Heat is an essential energy service and without short term alternatives, efficient pricing would be blunt instrument that would cause enormous harm for consumers.
- Feehan assumes there is excessive consumption that individuals are aware of that they actively decide to consume excessive energy. This assumption does not consider the reasons for NL residents' heating energy consumption such as climate, condition of housing stock, lack of insulation, behaviour, etc.
- Many NL homes are not well insulated and the excessive consumption that Feehan references may actually be a function of their home's efficiency, not an active decision on the part of the homeowner to consume in abundance.
- Even if consumers can reduce their winter energy consumption as Feehan assumes, Feehan shows no evidence that individuals would do so or the extent to which they would do so.
- NL homeowners' move to electric heat has been a 40-year process and expecting them to suddenly switch from electric heat to another source as winter electricity prices rise is not reasonable. Holyrood was constructed, the Island grid was commissioned, and electricity became widely available without restriction in the 1960 and 70s - all of which encouraged the move to electric heat.

Other Considerations

- Feehan's scenario also does not consider any new major industrial operations in the province that might require hundreds of megawatts of capacity.
- Feehan assumes there would be no environmental reason to not proceed with numerous small hydro developments on the Island in the Isolated Island scenario. This is not a safe assumption as he assumes public support for such projects.

- Feehan's arguments also ignore the economic development benefits of MFP construction as well as the increase in system reliability by connecting to external systems.
- Feehan also assigns no value to the strategic importance of being no longer an isolated system.
- NL Hydro already charges a two-tier rate to Newfoundland Power (NP) with the higher tier based on the cost of electricity from Holyrood. This was done to give NP the price signal for marginal energy to encourage conservation. NP does not presently pass along this cost structure as it is incurred – it charges customers a blended overall rate.
- When Holyrood is offline in the summer, there are still generation costs associated with the plant. In the summer, NL Hydro uses its hydro reservoirs to generate electricity instead of storing the water to be used in the winter. If NL Hydro stored that water in the summer for later use in the following winter it would use less Holyrood generation at that time.
- Switching to Muskrat Falls hydro and away from expensive and polluting Holyrood thermal generation would also eliminate the seasonal cost structure associated with Holyrood oil consumption. This would provide price stability and increasing value with each passing year.

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