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The GSX Files

BC Hydro's dependence on Vancouver Island gas-fired electricity generation plans is confirmed in the Interim Report published by the province's Energy Policy Task Force published December 17. The plan to generate 505Mw (megawatts) of power from two gas-fired plants by 2012 is dependent on approval of the Georgia Strait Crossing (GSX) Pipeline proposed by Hydro and US-owned Williams Pipeline. Public Hearings on this proposal will be held in June 2002.

The Interim Report also recommends splitting BC Hydro into three separate 'entities': a crown corporation for Power Generation, a crown corporation for Power Distribution, and a corporation of unidentified structure and ownership for Transmission. Interestingly, the report does not mention Powerex, the BC Hydro subsidiary responsible for power purchases and sales, leaving its fate open to speculation.

The report also recommends that power customers in BC, who have enjoyed relatively cheap power rates since the construction of large hydro-electric dams under the WAC Bennett government, pay 'market' price for power in the future, an increase of some 30%. It goes so far as to suggest three separate ways in which the transition could be managed.

The Vancouver Island Strategy

Figures in the Interim Report indicate that BC's generation capacity, most of which is owned by BC Hydro, barely exceeds present demand (when measured on an annual basis), and that additional capacity somewhere would be needed soon to avoid long-term dependence on power purchases from elsewhere. Currently, over 80% of the power used by BC Hydro is hydro-electric, mainly from the big dams (referred to in the report as 'endowment assets').

Some years ago, BC Hydro adopted a strategy that required weaning Vancouver Island from dependence on hydro-electric power from the mainland, and generation of power from natural gas turbines on the Island. (Nowhere in the report is there much evidence of serious pursuit of alternatives to this strategy.) The first of two plants, a co-generation installation at Elk Falls near Campbell River, is now in operation. In addition to technical difficulties that have been experienced with a new gas turbine plant design, the Elk Falls plant is limited in its capacity to 125 Mw during the five winter months due to insufficient gas availability through the Centra Gas pipeline from the mainland.

To quote a BC Hydro report: 'At this time, it does not appear that reliable operation at 240Mw (the rated capacity of the plant is 240-285Mw) is a realistic assumption until after the second gas pipeline to Vancouver Island is in service in the fall of 2002 (sic).' In other words, the plant was committed and built before an adequate supply of gas was assured.

Vancouver Island has a peak demand of 2,180Mw, with 448Mw supplied by the Island's hydro-electric plants. In addition to the 240Mw eventually anticipated from Elk Falls, a further 265Mw would have to be generated by the as yet unsited second gas-powered plant.

The same report also noted that Vancouver Island imported 80% of its power from the mainland, and that the HVDC line (which runs across Galiano and Salt Spring Islands), now 40 years old, would require substantial equipment replacement or it would have to be retired in 2007. The other line, a 500Kv (Kilovolt) line built in 1986 which runs east of the Sunshine Coast and across Texada Island, experienced heavy snow damage in the winter of 1998, ice damage a few months ago, and a double lightning strike on August 3, 1999. BC Hydro's engineers are concerned that before long, any combination of incidents could result in severe power shortages on Vancouver Island.

This report contained cost estimates for the maintenance of the existing transmission lines, but did not estimate the cost of upgrading them to current standards. Interestingly, technical problems on the HVDC lines did not appear to be primarily related to the cables themselves, but rather to old control equipment at either end; there were difficulties in replacing worn-out parts and finding individuals with the skills to do the work. It would appear that no long-term maintenance and replacement program existed for this line.

An Historic Entitlement

The terms of reference for the Task Force state: 'British Columbians enjoy relatively low-cost electricity. This is a reflection of the province's competitive advantage in electricity and wise past investments. With North America increasingly becoming one energy market subject to competition, new sources of energy will come onstream at market prices.'

The terms of reference continue: 'Current benefits should be treated as a British Columbia entitlement. It is the Task Force's job to determine appropriate means of regulating, using and

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distributing it.'

The Task Force estimated the annual value to British Columbians of the Peace and Columbia 'dividend' at about \$1 billion, this apparently being the difference between the price to customers in BC and the 'market' price. To put that another way, if BC Hydro charged its customers a 'market' price, it would receive an extra \$1 billion in annual revenue.

In examining the pricing policy of other jurisdictions (not including Ontario), it found only one other, Quebec (which also has a predominance of hydro-electric generated power), that had adopted a policy of lower than market priced electricity for its residents. The Task Force categorically rejected that approach, saying, 'Over time, it is wise to price all energy at market rates. To do otherwise results in energy inefficiency and restricts competition and the resultant growth in energy supply.' In fact, the report goes so far as to claim that BC's hydro-electric power was 'unfair competition' for other forms of energy, since its cost was about half that of gas-generated electricity.

Raising the Price

In supporting market pricing for all electricity, the Task Force observed that the current North American market price was tied to an assumed US\$3/MMBTU (Million British Thermal Units) price of natural gas. Instead of pricing each form of electricity generated in relation to its cost, the report recommends selling the lowest cost electricity (80% of the volume, costing \$20-25/Mwh (megawatt-hour)) at the price set by the highest cost electricity (20% of the volume, costing \$48-52/MWh).

The report went on to examine how the price to BC Hydro's domestic customers could be raised. It is not clear how the first two options, which appear to be forms of blended pricing, would be implemented, but the third option, to move to market pricing immediately, with a rebate provided by the government for a 'period of time,' is clear enough.

So what happens to the extra income to Hydro? 'The Task Force concluded that any portion of the dividend not returned directly to customers should be reinvested by government, on consumers' behalf, in the energy sector, e.g., upgrading the transmission system or investing in alternative energy development, or used for other public policy purposes.'

This would appear to mean that eliminating the 'unfair competition' of hydro-electric power would be accomplished by raising its price through additional taxation. This seems to be a really bizarre perversion of 'market economics.'

Restructuring BC Hydro

The report starts this section with a short lecture on business: 'Over the past decade, business has increasingly accepted that it needs to understand, develop and focus around its core competencies.... When distinctly different businesses are managed together, the priorities of each become blurred. Cross-subsidies and other internal inconsistencies take the place of clear objective-setting and performance.' The report then goes on to recommend the

separation of the generation, transmission, and distribution functions of BC Hydro.

In particular, the transmission function was singled out for attention because of an expected need for large capital investment in the near future, and 'a perception that access to BC Hydro's transmission system is difficult and inequitable.' This was claimed to be discouraging possible independent power producers from setting up in BC.

While the report clearly recommends that the generation and distribution 'entities' should be Crown corporations 'operating on commercial principles,' it is coy on the ownership and structure of the transmission company.

Says the Interim Report: 'The Task Force welcomes views on the financing, structure and ownership of a transmission utility.' One view might be that of Hydro CEO Larry Bell, who was reported in the Times-Colonist last October to have suggested a not-for-profit corporation. Another might be that of Premier Gordon Campbell, who is widely thought to have promised that Hydro would not be privatized. A third might be that of the BC Utilities Commission, who have asked BC Hydro to explain their apparent intention to privatize some smaller units of the company.

But the Task Force also says: 'The required investment is large, as is the potential benefit. Project risk should be borne by private investors, not consumers, as private investors are in a much better position to assess and absorb the risk of doing business.' This might be a hint about the direction they have in mind.

There are two possible models for a transmission company. The first is that of a 'common carrier' where the company charges only for the transport of electricity. The second is that of a trader (like Enron, who recently went massively bankrupt), which means the company buys power at one end of the system and sells it at the other. The second model is probably not under consideration, since in BC the trading aspect is handled by a wholly-owned BC Hydro subsidiary called Powerex.

Storing and Trading Electricity

Most people will remember the California power crisis a couple of years ago, when Powerex sold a large amount of power at market prices to California utilities, that promptly went bankrupt (\$200 million may never be collected). Avoiding an analysis of the errors made by California in its privatization, let's concentrate on why Powerex was able to supply that power.

Commercial electricity cannot be stored; it must be generated and used simultaneously. Supply and demand must be balanced at all times; there are no gigantic storage batteries in the system. The only way of storing power is in the form of water behind a dam.

BC has some of the biggest dams in North America. This gives BC a unique advantage in the power trading game; effectively Powerex can buy low and sell high, either before or after.

In the 2000/01 fiscal year, BC Hydro generated 52000Gwh (Gigawatt-hours); its consumers in BC used about the same amount of power. But Powerex also sold 23,900Gwh, 42% of it to

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California. It also, of course, bought about the same quantity, but at different times. BC's power demand may be about the same as its generation capacity, but the seasonality of demand and the immense reserves of water behind the dams can allow for a great deal of trading, and that trading can be highly profitable.


That year, Powerex's electricity trade revenue was \$5.5 billion, up from \$1.1 billion the previous year (much of this money ended up in provincial government coffers). The following year, it was down, mostly because market prices had fallen, but also because it was a low water year, and there wasn't as much water behind the dams.

Obviously, another benefit of the 'endowment assets' is this trading/storage flexibility. If Vancouver Island can generate its

own electricity and it doesn't have to be provided for behind the dams, there is that much more to trade with.

It is therefore significant that the Task Force not only failed to make clear recommendations on the form and ownership of the proposed transmission utility, but also is completely silent on the fate of Powerex. CEO Larry Bell told the Times-Colonist it would not be privatized, though.

More...

The Interim Report contains a great deal of material, and only a few aspects have been covered here. It also deals with oil, natural gas, and coal. It can be viewed at the following website www.gov.bc.ca/EnergyPolicytaskforce/InterimReport.pdf 

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