

Response to Jaccard's Review of *Lost in Transmission**

It is disappointing that former BCUC Chair Mark Jaccard has come to the spirited defence of the Province's Energy Plan in his review of *Lost in Transmission*, a series of policy papers that critique the electricity self-sufficiency and other major provisions in the Plan. It is disappointing because the Energy Plan is fundamentally flawed from an economic, environmental and public policy perspective. The scenarios and arguments Jaccard presents in his review provide no justification for what the Plan is forcing BC Hydro to do, and his defence of the Plan may give it a credibility it does not deserve.

Lost in Transmission raised concerns about three key provisions in the Plan:

- Self-sufficiency:- the requirement that BC Hydro acquire sufficient new sources of supply that it can meet its annual electricity requirements from domestic resources in all years, including critical low water years – years which mirror the worst series of drought years on record;
- Pricing policy:- the extension in perpetuity of a policy of basing electricity rates on historic average costs of supply as opposed to the much higher costs of new supply;
- Promotion of run-of-river and wind:- the direction to BC Hydro to recognize greater firm energy value from intermittent resources like run-of-river and wind, and clear encouragement to acquire more of those resources.

Self-sufficiency

What is most important to understand about the self-sufficiency provision in the Energy Plan, now enforced by legislation, is that it is not needed to ensure the reliability of BC Hydro's electricity supply. BC Hydro does not need to acquire, under firm contract, supplies of energy sufficient to meet its load under all water conditions, including critically low water years. It can manage the risk of low water in other ways.

BC Hydro has the ability to import and store energy in its large reservoirs, all the more so in dry water years when run-offs and reservoir levels are low. It can buy low cost seasonally surplus or off-peak power in wholesale spot markets if and when required because of low water or other reasons. And in the very unlikely and unprecedented event that seasonally surplus and off-peak market supplies were not available, BC Hydro could use the large amount of energy the U.S. returns to B.C. each year under the Columbia River Treaty, a potential source of supply that the Energy Plan precludes BC Hydro from taking into account.

While cast in terms of security of supply, self-sufficiency is in fact a market call – the judgment that it is economically or otherwise preferable to be 'long on energy' – to enter

* This response was written by Dr. Marvin Shaffer, Adjunct Professor in the Public Policy Masters Program at Simon Fraser University and principal author of *Lost in Transmission*. *Lost in Transmission* can be found at http://www.publicpowerbc.ca/sites/default/files/Lost_in_Transmission_October2007.pdf . Jaccard's review can be downloaded from the IPPBC website: <http://www.ippbc.com>.

into long term contracts for additional domestic supply at set prices. With these contracts BC Hydro will not have to pay whatever market prices prevail when and if it would otherwise need to import electricity, and it will have electricity for sale at market prices when, as they will be in most years (all but the driest years), the contracted supplies are surplus to BC Hydro's requirements.

The question is: will this market call be advantageous for ratepayers and British Columbians generally. In particular, will the contractually set prices that BC Hydro has to pay for the domestic supplies be less than the market prices it would have to pay for imports or receive from incremental exports?

While there is much uncertainty about what the future will hold, there is no evidence to suggest that this market call will be advantageous.

In the near term it is clear that the prices BC Hydro is paying for new domestic supply are well above market prices. In its 2009 and 2010 Revenue Requirements Application, BC Hydro reported that the average price it will be paying for its most recently contracted domestic supply will be some 50% higher than the market prices it expects in those years.

BC Hydro's price forecasts for the medium to long term show that in most scenarios it will continue to pay a premium over market prices for the domestic supply it acquires. As a result, BC Hydro has consistently found that the acquisition of domestic supplies as required for self-sufficiency will add hundreds of millions of dollars to its total long term system cost. It also concluded that the acquisition of domestic supply as required for self-sufficiency will result in more disturbance of land and aquatic habitat because of the increased amount of generation and transmission development that will take place in the province.

In his review, Jaccard developed a scenario that leads to a different conclusion – where the acquisition of domestic supply as required for self-sufficiency would significantly lower costs for BC Hydro over the long term. His scenario assumes carbon taxes or their equivalent will average \$125/tonne in real terms over the next 25 years. He assumes that half of BC Hydro's imports will be from coal-fired thermal generation, which despite the high price of carbon have no carbon capture in place. He effectively assumes that British Columbia will be in drought conditions every year, importing 3000 GWh of coal-fired power every year. He does not address the possibility that the proliferation of wind and other intermittent resources in western North America or the development of nuclear base load plants that may occur with such high carbon prices will increase the amount of emission free energy that can be purchased off-peak. Nor does he not address or allow for BC Hydro responding to the rapidly rising carbon price and market prices in his scenario, for example with accelerated acquisitions or project developments when, unlike today, they are clearly economic.

Jaccard's scenario is obviously much different from what currently prevails and from what BC Hydro is forecasting for the future. Not surprisingly it leads to much different

results. The question is: does Jaccard's scenario justify the market call of 'going long on energy' as dictated by the Energy Plan.

The answer is no. Jaccard's scenario is just that – a scenario – and in many respects an implausible one at that. There certainly is no consensus or reason to believe he must be right and BC Hydro all wrong. To go long on the basis of that scenario is taking on risk that no one in the private sector is currently taking and, most importantly, does not need to be taken now. The far more prudent course for BC Hydro is to limit current acquisitions to new sources of supply that are economic under a wide range of scenarios and otherwise wait until carbon policy in western North America is better defined and its impact on electricity market prices better understood. BC Hydro can always acquire more firm domestic supply at a later date. The opportunities to develop more generation in the province are not going away. It cannot, however, undo long term contracts once signed no matter how uneconomic they may prove to be.

Aside from everything else, policy and legislation should not impose a particular market call, especially a call not widely shared or accepted. There are no economic parameters qualifying the self-sufficiency required by the Energy Plan. Regardless how much more expensive new domestic supplies are relative to forecast or forward market sources, BC Hydro must acquire them. And there is no BCUC oversight. Under Special Direction, BCUC is prevented from considering the prudence of BC Hydro's acquisitions if they are needed to meet the self-sufficiency provision in the Plan.

The legislated self-sufficiency constraint is in itself bad economics. It can only impede BC Hydro's performance. The presumption on which it is based – that government can correctly predict future market prices and dictate actions accordingly is simply bad public policy. Jaccard should have recognized that.

Pricing policy

The provision in the Energy Plan to extend in perpetuity historic average cost pricing will inflate the demand for electricity in the province, exacerbating the inefficient development of new domestic sources of electricity supply caused by the requirement for self-sufficiency. Because of the low cost hydro resources developed in the past, BC Hydro rates under this pricing policy will remain artificially low – far below the cost of new supply. The resulting low rates will attract new electric intensive loads.

The basic problem with this is a simple one. In the industrial sector, the average rate is less than \$40 per megawatt hour. The cost of new supply in BC Hydro's last round of purchases was close to \$90 per megawatt hour. Every additional megawatt hour of new industrial load is effectively subsidized by \$50. For a new mine with a load of up to one million megawatt hours per year, the effective subsidy is some \$50 million per year.

Some would argue that the economic development attracted by low electricity rates is good for the province. But that economic development will be electric-intensive, attracted to B.C. on the false premise that we have low cost electricity available for sale. We don't.

The low cost power developed in the past is fully committed. New loads require new sources of supply, and they are expensive.

We don't attract economic development with artificially low natural gas prices based on their historic cost of supply and there is no good reason to do so with electricity. The low prices are an effective subsidy, and like most subsidies they do not promote economically efficient and sustainable economic growth.

In his review Jaccard argues that the inefficient incentives caused by historic average cost pricing can be overcome with tiered rate structures, where the last block of electricity consumed is charged a rate much closer to the cost of new supply. There is no doubt that these rate structures do promote more efficient use of electricity by existing customers, but they do nothing about the problem of inefficiently attracting new electric-intensive loads.

BC Hydro's tiered rate structure in the industrial sector sets a high price on the last 10% of a customer's energy use, but a very low rate on the first 90%. The new mines and other electric intensive loads that are deciding whether to locate in B.C. are not going to be deterred by the high rate on the last 10% of their electricity consumption – they are going to be attracted by the very low rate of the first 90%. It is the overall average rate that will govern the economics of opening new mines or other operations in the province.

This is a major problem that Jaccard apparently does not understand nor does the government. The government is planning to extend the BC Hydro grid into northwestern B.C. to serve new mines and other customers. It is widely recognized that the extension itself will be subsidized. But what doesn't seem to be recognized is that the new loads the extension will serve will be subsidized even more. All of the new loads will require BC Hydro to acquire new supply at a cost more than double what it receives from the new customers. It is a buy high - sell low strategy that will make all existing BC Hydro customers worse off.

Promotion of Run-of-River and Wind

Finally, on the supply side, the Energy Plan clearly expects BC Hydro to acquire run-of-river and wind energy. Those sources do have a superficial appeal. The point is, however, while they can be very beneficial in isolated areas where they displace diesel generation, as a general proposition within BC Hydro's integrated system they are problematic. Run-of-river projects provide proportionally more of their energy in the spring, when BC Hydro least needs it. Wind energy needs constant back-up which is costly. Neither provides power that BC Hydro can control – optimally timed for the system as a whole. And neither, especially wind, provides much dependable peak generating capacity that can be relied upon to meet peak loads.

Jaccard states that the Energy Plan wants BC Hydro to consider all sources fairly. Perhaps, though the Plan did single out the need to recognize the firm value that these intermittent resources could provide and it does restrict BC Hydro from developing its

own projects. Good energy policy should set the environmental standards and then let BC Hydro, with appropriate oversight by the BCUC, determine what resources it should develop or acquire. It is not at all clear that in fact is what the Energy Plan is intended to do.

Response to IPPBC's Press Release

In its press release accompanying the Jaccard report that it commissioned, the Independent Power Producers Association of BC made a number of statements about *Lost in Transmission* and Jaccard's findings. Their statements and Jaccard's findings are not correct.

On self-sufficiency, IPPBC states: "*Shaffer claims the BC Energy Plan requirement for energy self-sufficiency and the acquisition of additional 'insurance' power will lead to higher than necessary costs...Shaffer claims it would cost BC Hydro \$280 million more...*"

In fact it was BC Hydro that estimated its system costs would be \$280 million more with self-sufficiency and \$580 million more with additional insurance. *Lost in Transmission* pointed out that there is considerable uncertainty about what the exact incremental cost of these policies will be. It noted, however, that there is no evidence supporting the policy and every reason not to impose it on BC Hydro in the manner done by the Energy Plan and apparently supported by Jaccard because of the one scenario he created in which it might make sense.

Regarding pricing policy, IPPBC states: "*Shaffer claims the failure to charge BC customers the high price of new power leads to higher consumption and therefore higher than necessary demand for new IPP facilities*" but that Jaccard finds "*Shaffer fails to assess the likely effect of the Energy Plan's thrust toward non-linear pricing...*"

In fact the impact of 'non-linear' rate structures was explicitly addressed in *Lost in Transmission*. It was clearly explained why that has no bearing on the problem of low average rates attracting new electric-intensive loads to the province on the false premise that we have inexpensive power for sale.

Regarding run-of-river and wind, IPPBC states: "*Shaffer claims that the BC Energy Plan requires BC Hydro to acquire run-of-river and wind power electricity from IPPs*" whereas Jaccard states this conclusion is based on a partial quote from the Energy Plan taken out of context.

In fact, *Lost in Transmission* did not claim that the Energy Plan requires BC Hydro to acquire these resources. It simply repeated what was in the Plan and obviously implied by the Plan: that BC Hydro should find ways to recognize more firm value from these intermittent resources which, one can only presume, is intended to encourage BC Hydro to buy more of them despite the low value attributes they have.