

OCCASIONAL PAPER NO. 14 – BC HYDRO

THE COST OF SURPLUS IPP POWER

Much has been written about the cost and benefit of the provincial government's policy of promoting private sector generation of electricity through the encouragement of independent power producer (IPP) contracts. The BC Energy Plan (2007), a cornerstone of the government's 'green' agenda, required BC Hydro to meet its forecast electricity requirements through a combination of conservation and the purchase of much of the future electricity requirement (including a higher self-sufficiency margin) from IPP sources. The Plan was followed by the Clean Energy Act of 2010.

The private power producers were offered long-term inflation protected contracts, and many began to come on-stream in the years following the legislation. It has also been suggested that the government believed that a growing market existed in the United States to absorb the IPP electricity, which would result in high profits for BC Hydro and greater dividends for the government.

For a variety of reasons, the utility's domestic demand forecasts proved to be far too optimistic, while the US demand never achieved the size nor the profits realized when the IPP policy was being developed.¹

BC hydro was left with the problem of buying high priced IPP power (plus the capital cost of new transmission lines) while being unable to absorb the extra capacity through domestic use. The export price of electricity has been well below the purchase price of the IPP power.

Norman Farrell, a well-informed observer of BC Hydro's operations, has recently published reports on the cost of the IPP-friendly policy. His "By The Numbers" article reviews 12 years of IPP purchases and estimates the net loss to BC Hydro of this government-mandated policy.² He estimates that if all the IPP power had been exported at the average annual export price BC Hydro would have incurred a loss of some \$4.9 billion from FY 2003/04 to FY2015/16.

This is a worst case scenario. Much of the IPP-generated power has been required to meet domestic demand, although it is likely that BC Hydro could have built the smaller generation sources using its lower cost of borrowing advantage.³ The following analysis attempts to estimate the loss suffered by BC Hydro from the electricity surplus from FY2010/11 to FY2015/16.

¹ The economic recession following the 2008 financial crisis lowered demand from industrial consumers, and more efficient lighting and heating technology contributed to the lowering of demand. The rising price of electricity also contributed to the flat domestic demand as users became more conscious of the cost. The reduced price of natural gas allowed US producers to switch to this source of power to generate electricity; a source denied to BC Hydro by the Clean Energy Act.

² <https://in-sights.ca/2016/09/30/by-the-numbers/>

³ The government borrows on behalf of BC Hydro. Had natural gas generation been permitted the cost would have been significantly lower.

F2011 to F2016 DEMAND

Domestic sales have been relatively flat from F2012 to F2016⁴ and the combined owned-sourced and IPP-sourced purchases have produced annual surpluses of electric power. Table 1 shows the domestic and other sales⁵, and the electricity sourced from BC Hydro-owned dams and the IPP purchased electricity for the six years under review.

TABLE 1 ANNUAL SURPLUS ELECTRICITY (GWh)

	F2011	F2012	F2013	F2014	F2015	F2016
Domestic Sales	48,424	49,922	49,595	50,460	49,631	49,421
Other Sales	1,809	2,275	7,417	2,558	1,582	7,879
Total Sales	50,333	52,197	57,012	53,018	51,213	57,300
From Own Source	42,115	49,784	52,143	45,225	41,318	48,376
From IPP	8,893	10,827	10,675	11,025	13,377	14,319
Net Surplus	775	8,414	5,806	3,232	3,482	5,395

Source: BC Hydro annual reports.

BC Hydro explains the owned source reduction in F2014 as partially due to lower water levels and some generation failures. For F2015 BC Hydro stated that it reduced production to accommodate higher IPP deliveries.⁶

F2011 to F2016 LOSS ON SURPLUS ELECTRICITY

In the period under review BC Hydro generated and purchased from IPP sources approximately 348,000 GWhs of electricity, of which approximately 297,400 was required for domestic customers and 21,500 was sold as 'other sales.' The net surplus GWh was approximately 29,100 GWhs.

Table 2 shows the net financial loss by year that BC Hydro would have incurred if all the surplus power was sold at the average export (or trade) electricity price received that year. This assumes that the surplus power was sourced from the IPP producers at the average purchase price for that year.

⁴ FY2010/11 to FY2015/16.

⁵ Other sales are surplus electricity sold into the market to maintain appropriate reservoir levels and vary depending on annual water flows.

⁶ See Annual Report 2014/15, p. 24.

TABLE 2 ANNUAL LOSS DUE TO SURPLUS POWER (\$=millions)

	F2011	F2012	F2013	F2014	F2015	F2016
Surplus GWh	755	8,414	5,806	3,232	3,692	5,395
Purchase Cost mil	48.5	582.1	413.3	241.9	293.7	463.1
Sale Revenue mil	36.3	216.7	171.3	155.7	166.5	235.5
Net Loss mil	12.2	365.4	242.0	86.2	127.2	227.6

Source: BC Hydro annual reports.

The total hypothetical loss for the six-year period was \$1.06 billion. Most of this loss was not recorded by BC Hydro thanks to deferral accounting. Most of the losses incurred would have been deferred to the Non-Heritage Deferral Account, and in fact the deferred losses, which are treated for accounting purposes as loans to customers, appear as additions to BC Hydro's assets.

BC Hydro is in a similar position to the Ontario government's Hydro One, which is responsible for the transmission and distribution of most of Ontario's electrical power. The Ontario government recently announced a curtailment in the planned request for more IPP power generation proposals, due mainly to the excess electrical capacity.⁷

BC Hydro has also been scaling back its expansion plans for more IPP production in an attempt to bring supply back into balance with actual demand. However, the construction of Site C could be a serious check on BC Hydro's attempts to restrain growing production capacity and costs while facing continuing flat domestic demand.

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The writer is a retired senior BC government public servant who's paper on the 40-year financial history of ICBC was published by *BC Studies* in 2013. The same academic journal will be publishing his paper describing the BC government's manipulation of the finances of BC Hydro from 2008 to 2014 in October. He has been an intervener in the BC Utilities Commission's 2014 and 2015 reviews of ICBC's rate requests, and the Commission's current reviews of ICBC and BC Hydro rate requests.

⁷ <http://news.nationalpost.com/news/canada/ontario-liberals-cancel-plans-to-sign-more-green-energy-contracts-to-save-province-up-to-3-8-billion>
 And <http://business.financialpost.com/fp-comment/terence-corcoran-ontarios-huge-green-energy-about-face-shows-renewables-arent-so-doable-after-all>