

## QUANTIFYING B.C. HYDRO'S DOMESTIC ELECTRICITY SURPLUS, 2013/14 to 2021/22.

In a recent *Globe and Mail* story Justine Hunter quoted an advocate of the private power producers as saying that B.C. Hydro often has to import electricity.<sup>1</sup> This assertion that the province is often short of electricity not only false, it ignores the cost of generating the power. There may be nothing wrong with being a net importer of electricity if the price of the power is cheaper than a domestically generated alternative.

### Is B.C. Hydro a net importer of electricity?

Ms. Hunter wrote that Martin Mullany of Clean Energy BC, which represents independent power producers, stated that over the past decade BC Hydro has been a net importer of electricity for as many years as it has been a net exporter. This statement did not seem to align to the information provided by B.C. Hydro in its annual reports or service plans, nor with the information in the recent report by Ken Davidson, which reviewed the B.C. Hydro's purchases from private power suppliers.<sup>2</sup>

B.C. Hydro's annual reports do not provide a simple answer to this important question. In the 2017/18 report, for example, the revenue summary showed domestic sales of 62,678 GWh, and a separate cost of energy summary showed where the power was acquired.<sup>3</sup> The public power utility provides a very useful five-year summary in Appendix C of its

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<sup>1</sup> "B.C. Hydro Shedding 'Junk Power' Contracts – Also Known as Clean Energy Investment," *Globe and Mail*, revised April 8, 2019.

<sup>2</sup> [https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bch19-158-ipp\\_report\\_february\\_11\\_2019.pdf](https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/electricity/bc-hydro-review/bch19-158-ipp_report_february_11_2019.pdf)

<sup>3</sup> See <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/BCHydro-Crown-Corporation-2017-18-Annual-Report.pdf> p. 22 and 24.

annual report, but again some manipulation and re-ordering of the GWh data is required to provide the answer as to a) whether B.C. Hydro has been a net importer or exporter of electricity, and b) the size of those imports or exports. Also, the annual reports do not provide a forecast for the mid-term.

Tables 1 and 2 do provide the answer. These tables were developed from B.C. Hydro’s current F20 to F21 rate request application to the B.C. Utilities Commission (for 2016/17 to 2020/21) and by including GWh data from the assumptions section of the corporation’s service plans for the earlier years and for 2021/22.

### Source of Domestic Electricity Supply

From 2013/14 to 2017/18, the total GWh acquired for domestic use rose by approximately 3,800 GWh, or 6.4%. Power acquired from private independent producers rose by 3,400 (31.2%), while the increase in B.C. Hydro-owned generation was approximately 1,640 GWh (or 3.5%).

**TABLE 1 -- SOURCE of DOMESTIC POWER (GWh)**

	<b>A2013/14</b>	<b>A2014/15</b>	<b>A2015/16</b>	<b>A2016/17</b>	<b>A2017/18</b>	<b>F2018/19</b>	<b>P2019/20</b>	<b>P2020/21</b>	<b>P2021/22</b>
<b>1</b> Owned Generation	46,975	42,158	48,696	48,557	48,616	42,650	44,283	44,996	46,283
<b>2</b> IPP & L. Term Commitments	11,025	13,377	14,319	13,762	14,469	14,744	15,566	16,159	16,346
<b>3</b> Market Purchases incl. Powerex	918	207	122	269	(407)	2,614	1,681	738	404
<b>4</b> Total Acquired	58,918	55,742	63,137	62,588	62,678	60,008	61,530	61,893	63,033

Source: Actuals 2013/14 to 2015/16 and projected 2021/22 from B.C. Hydro’s service plans, with thermal added to Owned Generation. Data for 2016/17 and 2017/18 actuals, the 2018/19 forecast and the 2019/20 and 2020/21 planned are from B.C. Hydro’s F20 to F21 rate request application, Appendix A, Schedule 4.0, p. 38 (pdf 1189).

For the years 2019/20 to 2021/22, B.C. Hydro forecasts no growth in owned generation, and little growth in the total power acquired.

Table 2 shows the disposition of the power acquired from owned generators, from private power suppliers and from the market (as shown in Table 1).

B.C. Hydro is forecasting a major decline (down 6,000 GWh) in owned generation for the year just ended, which coincides with an increase in market purchases. The reason for the forecast decline, as noted in the third quarter report, seems to be related to lower water inflow levels.<sup>4</sup> Yet Table 2 shows that B.C. Hydro still forecasts a surplus of 2,230 GWh for 2018/19.

For the next three years (2019/20 to 2021/22) domestic sales are forecast to be flat, and the surplus sales rise from 2,400 GWh to 4,400 GWh.

**TABLE 2 -- DISPOSITION of ACQUIRED POWER (GWh)**

		<b>A2013/14</b>	<b>A2014/15</b>	<b>A2015/16</b>	<b>A2016/17</b>	<b>A2017/18</b>	<b>F2018/19</b>	<b>P2019/20</b>	<b>P2020/21</b>	<b>P2021/22</b>
<b>1</b>	<b>Disposition</b>									
	Line Loss	5,900	4,529	5,836	4,937	5,504	5,173	5,554	5,553	5,538
<b>2</b>	Total Domestic Sales	51,957	52,283	51,724	51,895	52,102	52,604	53,561	53,253	53,093
<b>3</b>	<b>Surplus Sales</b>	<b>1,061</b>	<b>(1,070)</b>	<b>5,577</b>	<b>5,756</b>	<b>5,072</b>	<b>2,230</b>	<b>2,415</b>	<b>3,087</b>	<b>4,402</b>
<b>4</b>	Total Disposition	58,918	55,742	63,137	62,588	62,678	60,008	61,530	61,893	63,033

Source: Actuals 2013/14 to 2015/16 and projected 2021/22 from B.C. Hydro’s service plans, with thermal added to Owned Generation. Data for 2016/17 and 2017/18 actuals, the 2018/19 forecast and the 2019/20 and 2020/21 planned are from B.C. Hydro’s F20 to F21 rate request application, Appendix A, Schedule 4.0, p. 38 (pdf 1189).

Table 2 shows that after accounting for transmission line loss and domestic sales, there was significant surplus power generated in each year (except 2014/15) for the years 2013/14 to 2017/18.

For the four years from 2018/19 to 2022/23 B.C. Hydro forecasts continuing surplus electricity. This surplus will increase starting in 2024/25 as the Site C generation of some 5,000 GWh is added to the owned supply.

<sup>4</sup> <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/quarterly-reports/f19-q3-report.pdf> p. 9.

B.C. Hydro has not produced a new long-term domestic electricity demand forecast. The government has told the B.C. Utilities Commission that this forecast will not be developed until after a major review of longer-term issues facing B.C. Hydro, including the new LNG develops and the potential impact of the CleanBC initiatives.<sup>5</sup>

### **What is the Cost of the Surplus Power?**

Again, this is difficult to quantify. B.C. Hydro's annual reports show the average cost of the power purchased from the independent producers, and the average price of the power sold in trade through Powerex. In 2017/18 the average price for independent power was \$91.40/MWh, and the average trade revenue was \$20.52.<sup>6</sup> If the 5,072 GWh of surplus power for that year was purchased at the average price for private IPP power and sold at the average market price the loss for the year would be \$70.88/MWh. This is almost \$360 million.<sup>7</sup>

### **Competing Objectives**

Judith Sayers was quoted by Justine Hunter as saying that the government's actions in building the Site C dam and suspending purchases of privately-owned power was killing an industry and killing opportunities for economic development by first nations.<sup>8</sup> Yet it was previous government's policy of requiring B.C. Hydro to over-contract for the privately owned power that resulted in much higher prices for domestic power.

The high prices paid by B.C. Hydro may have had a social benefit in creating jobs in remote communities, but they were not justified on an economic basis. This highlights the difficulty of expecting the B.C. Utilities Commission to regulate B.C. Hydro for the public good based on the economic benefit to both the customers and the shareholder, when the

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<sup>5</sup>

<http://www.bcpolicy Perspectives.com/media/attachments/view/doc/occasional paper no 67 bc hydro finances 6 march 2019/pdf/occasional paper no 67 bc hydro finances 6 march 2019.pdf>

<sup>6</sup> <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/BCHydro-Crown-Corporation-2017-18-Annual-Report.pdf> p. 22 and p. 24.

<sup>7</sup> The Davidson report provides a comprehensive discussion about the pricing of the privately generated power compared to firm power generated from power dams and reservoirs.

<sup>8</sup> <https://www.theglobeandmail.com/canada/british-columbia/article-bc-hydro-shedding-junk-power-contracts-also-known-as-clean-energy/>

shareholder is being pressured to direct B.C. Hydro to achieve other potentially desirable social goals that will increase the cost to its customers. The NDP government is attempting to find a balance between the two objectives.

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The writer is a retired senior BC government public servant whose paper describing the BC government’s manipulation of the finances of BC Hydro from 2008 to 2014 was published by *BC Studies* in November 2016. *BC Studies* published his paper on the 40-year financial history of ICBC in 2013. He is an intervener in the BC Utilities Commission’s current reviews of both ICBC’s and BC Hydro’s rate requests.

## APPENDIX

### Summary of Sales by Main Customer Sectors

This summary shows the actual (A), the forecast (F) and the planned (P) sales by customer sector.

		A2013/14	A2014/15	A2015/16	A2016/17	A2017/18	F2018/19	P2019/20	P2020/21	P2021/22
	<b>GWh Sales</b>									
<b>1</b>	Residential	17,928	17,973	18,109	17,952	17,997	18,184	18,253	18,324	18,411
<b>2</b>	Comm.&Lt. Indust.	18,507	18,687	18,405	18,568	18,877	19,061	18,971	19,036	18,931
<b>3</b>	Large Industrial	13,972	14,055	13,698	13,106	13,513	13,810	14,702	14,243	14,066
<b>4</b>	Other	1,550	1,567	1,601	1,683	1,637	1,588	1,635	1,651	1,684
<b>5</b>	<b>Total Sales</b>	<b>51,957</b>	<b>52,283</b>	<b>51,724</b>	<b>51,597</b>	<b>52,024</b>	<b>52,643</b>	<b>53,561</b>	<b>53,253</b>	<b>53,090</b>

Source: B.C. Hydro F20-F21 Rate Request Appendix O, p. 3/170 (pdf 1796).

[https://www.bcuc.com/Documents/Proceedings/2019/DOC\\_53488\\_B-1-BCH-F20-F21-RR-Application.pdf](https://www.bcuc.com/Documents/Proceedings/2019/DOC_53488_B-1-BCH-F20-F21-RR-Application.pdf)

