

B.C. HYDRO'S 2023/24 RESULTS REFLECT IMPORTED POWER FILLING GAP IN DOMESTIC PRODUCTION

The 2023/24 annual report is the first full year audited report of BC Hydro's finances that reflect the impacts of the prolonged drought conditions. The drought was the worst since the 1940's, when the provincial economy was far less dependent on hydroelectric power generation. In response, BC Hydro curtailed hydro generation and substituted imported electricity to meet domestic demand.

This paper reviews some of the financial and operational highlights of BC Hydro's 2023/24 annual report, which was released on 3 September 2024.¹ The prolonged drought had a negative effect on our public power utility's finances, as power imports far outstripped exports.² This was a reversal of the situation reported for 2021/22 when surplus power resulted in major export revenue.

With BC Hydro's regulatory (deferral) accounting major revenue or expenditure variances between the budget and actual results are transferred to deferral accounts. This insulates the net income from annual variation. The change in the net balance in the regulatory accounts acts as a surrogate for the change in the operating income.

1 Comparison to Prior Year

The 2023/24 post-rebate net income of \$323 million was similar to the \$360 million reported for the prior year. Excluding the transfer from regulatory accounts the 2023/24 operating loss was \$172 million, compared to an operating income (profit) of \$1.522 billion for the prior year. This is a swing of approximately \$1.7 billion.

Table 1 compares the results of 2023/24 to the prior year. The pre-rebate Domestic revenue declined by \$467 million, despite a general rate increase of 2.2. Much of the decline is the result of a drop in power exports.

BC Hydro now reports export sales revenue as part of Other Domestic revenues. Table 2 shows that revenue in this category dropped by \$552 million. BC Hydro noted that Trade revenue, derived from Powerex energy trading activities, also declined sharply

¹ <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/2023-24-annual-service-plan-report-cs-5002.pdf>

² See Appendix for more details.

due to lower volumes and a lower average price.³ BC Hydro no longer reports the average revenue per MWh, nor the average cost of electricity per MWh.

TABLE 1 – ACTUAL REVENUE AND COST COMPARISONS (\$=million)

	2022/23	2023/24	Change	Per Cent
Revenue				
Domestic	6,297	5,830	(467)	(7.4)
Rebate	(315)	(326)	(11)	
Reported	5,982	5,504	(478)	(8.0)
Trade	2,496	1,627	(869)	(34.8)
Total	8,478	7,131	(1,347)	(25.9)
Expenditures				
Cost of Energy	3,574	3,725	151	4.2
Amortiz. & Depreciation	1,052	1,071	19	1.8
Grants & Taxes	296	316	20	6.8
Finance Charges	697	684	(13)	(1.9)
Debt Hedges Fair Value	(201)	(168)	33	
Other Operating Costs	1,538	1,675	137	8.9
Total	6,956	7,303	347	5.0
Net Income Before Reg. Acc.	1,522	(172)	(1,694)	--
Regulatory Account Change	(1,162)	495	1,657	--
Net Income	360	323	(37)	(10.3)
Net Regul. Acc't Balance	1,467	1,852	385	5.2
Equity	7,354	7,677	323	4.4
Ratio	19.9%	24.1%	--	--

Source: B.C. Hydro 2023/24 Annual Report, notes and Appendix D.

The cost of energy rose by only \$151 million (up 4.1%). Despite a 20% (6,300 GWh) increase in imported power, a drop in prices resulted in flat expenditures compared to the prior year. The lower price of market power likely reflects greater supply.

Other operating costs increased by 8.9%, which is above the average level of inflation.

No dividend was paid to the government and no dividend was paid in the prior year. Equity rose to \$7.68 billion, while the net balance in the regulatory accounts rose to \$1.85 billion.

³ Ibid., p. 27.

2 Domestic Sales Increase

Table 3 shows that the post-rebate value of Domestic power sales declined by \$478 million compared to the prior year. Despite a 2.2% rate increase the loss of export revenue lowered the Domestic revenue compared to the prior year.

TABLE 3—REVENUE (POST REBATE) BY CUSTOMER CLASS (\$=million)

	2022/23	2023/24	Change	Per Cent
Residential	2,146	2,129	(17)	(0.8)
Lt. Ind. & Commercial	1,840	1,913	73	4.0
Large Industrial	848	866	18	2.1
Other Sales & Export	1,148	596	(552)	(48.1)
Total Domestic	5,982	5,504	(478)	(8.0)
Trade	2,496	1,627	(869)	(34.8)

Source: B.C. Hydro 2023/24 annual report p. 69.

Gigawatt hours sold for residential and commercial decreased slightly compared to 2022/23, while the large industrial rose by approximately 600 GWh. Excluding the Other/Export category, Domestic sales were flat year-over-year despite growth in the population and the economy. Exports declined by approximately 4,600 GWh, reflecting a drop in owned and IPP generation due to low water conditions.⁴

Table 4 – GWh SALES by CUSTOMER CLASS

	2022/23	2023/24	Change	Per Cent
Residential	19,547	19,171	(376)	(1.9)
Lt. Ind. & Commercial	19,247	19,205	(42)	(0.2)
Large Industrial	13,437	14,032	595	4.4
Sub-Total	52,231	52,408	177	0.3
Other Sales & Export	7,649	3,005	(4,644)	(60.7)
Total Domestic	59,880	55,413	(4,467)	(7.3)
Trade	27,141	20,985	(6,156)	(22.7)

Source: B.C. Hydro 2023/24 annual report p. 27.

⁴ Ibid., p. 27.

3 Comparison to Budget

The 2023/24 actual net income was \$389 million lower than the budget target of \$712 million. As the budget did not contemplate the later rebate the proper comparison would show that the actual net income was \$881 million lower than the budget. As noted earlier, BC Hydro's extensive use of regulatory accounts insulates the net income from variances in revenue and expenditure during the year. Therefore, most of the real variance can be seen in the change to the net income before transfers to regulatory accounts.

The variance is mostly explained by lower Domestic and Trade revenues (down \$1.37 billion) partially offset by lower energy costs (down \$501 million).

TABLE 2 – BUDGET TO ACTUAL (\$=million)

	B2023/24	A2023/24	Change	Per Cent
Revenue				
Domestic pre-Rebate	6,355	5,830	(525)	(8.3)
Reported	6,355	5,504	(851)	
Trade	2,155	1,627	(528)	(24.5)
Total	8,510	7,131	(1,379)	(16.2)
Expenditures				
Cost of Energy	4,226	3,725	(501)	(11.9)
Amortiz. & Depreciation	1,078	1,071	(7)	1.5
Grants & Taxes	315	316	1	0.3
Finance Charges net	633	516	(117)	(18.5)
Other Operating Costs	1,439	1,605	166	11.5
Total	7,801	7,303	(498)	(6.4)
Net Income Before Reg. Acc.	709	(172)	(881)	n/a
Regulatory Account Trans.	3	495	492	n/a
Net Income	712	323	(389)	(49.4)
Equity	8,470	7,677	(793)	(9.4)

Source: BC Hydro 2023/24 annual report, p. 30 and 2023/24 service plan, p. 28.

4 Comparison to 2024/25 Budget

Unfortunately, a comparison to the 2024/25 budget, as detailed in the February 2024 service plan, is not useful. BC Hydro changed the reporting for the revenue and costs for Trade income. This is explained in Section 5.

5 Trade Income/Loss

Trade Income powered BC Hydro's positive results in 2020/21 and 2021/22.⁵ However, recent drought conditions forced BC Hydro to import more electricity in 2022/23 and 2023/24 than it exported. Last year was particularly severe as imports exceeded exports by some 14,200 GWh (see Appendix). In 2022/23, the net imports represented 6% of BC Hydro's net Domestic requirements, but this rose to 24% last year.

Unfortunately, BC Hydro does not report the Domestic surplus or deficit as a separate table. Instead, the Domestic surplus revenue is included in the Other revenue category, while the cost of imported power is included in the Cost of Energy category.

In recent years our public power utility stopped reporting on the average storage basin water levels and the average water inflow levels. Given the importance of the drought conditions during the past two years the public should expect better reporting on the cost of importing power to meet domestic requirements. This reporting problem will become more acute as the provincial government pursues its ambitious emission reduction targets.

6 Regulatory Accounts

As of 31 March 2024, the net balance in the regulatory accounts was \$1.85 billion, an increase of \$385 million from the prior year. Most of the increase was due to a \$1.1 billion increase (cost greater than, or revenue less than, budget) in the Non-Heritage deferral account. This increase was partially offset by additions customer credits in the Trade Income (\$546 million) and the Debt Management/interest rate hedging deferral account (\$114 million).⁶

The \$1.85 billion in net regulatory assets represents about 24% of the recorded equity compared to 19% for the previous year.

7 Pension Liability

In 2022/23, the increase in interest rates improved the financial position of BC Hydro's pension plans as a higher discount rate reduced the present value of the pension obligation. The solvency ratio increased slightly from 86.4% to 89.1%.

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https://www.bcpolicyperspectives.com/media/attachments/view/doc/occasional_paper_no_90_bc_hydro_2022_to_2023_ar_september_2023/pdf/occasional_paper_no_90_bc_hydro_2022_to_2023_ar_september_2023.pdf

⁶<https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/2023-24-annual-service-plan-report-cs-5002.pdf> p. 73.

In 2023/24, little changed, and the solvency ratio increased slightly to 90.5%. BC Hydro’s pension solvency ratio is still significantly lower than other Crown corporations. Approximately \$500 million would be required to achieve 100% solvency.

8 Capital Expenditures and Net Long-Term Debt

Table 5 shows that BC Hydro spent \$4.26 billion on capital projects during 2023/24, of which approximately \$2.2 billion was for the Site C dam project. Excluding Site C, during the past four years the value of capital expenditures has been increasing from approximately \$1.5 billion to \$2.0 billion last year. The government has announced an average capital expenditure of \$3.6 billion over the next ten years.⁷

Table 5 – CAPITAL EXPENDITURES (\$=million)

	2019/20	2020/21	2021/22	2022/23	2023/24
Sustaining	955	971	1,119	1,211	1,477
Growth	508	511	432	521	612
Site C	1,619	1,725	1,924	2,187	2,174
Total	3,082	3,207	3,475	3,919	4,263

Source: B.C. Hydro 2023/24 annual report, p. 30 and Appendix D, p. 96

During the last four years Table 6 shows that net long-term debt has increased by \$5.9 billion, or 25.4%. Much of the increase relates to the Site C project. In recent years the low cost of borrowing has benefited ratepayers. The weighted cost of debt was 3.6%, compared to 3.3% for 2022/23, and increase of 9.1%. The increase in borrowing costs for 2023/24 may affect future electricity rates.

Table 6 – NET LONG-TERM DEBT (\$=billions)

	2019/20	2020/21	2021/22	2022/23	2023/24
LT Debt	23.35	24.74	25.64	26.63	29.29
% Change	5.7%	6.0%	3.6%	3.9%	10.0%

Source: BC Hydro 2023/24 annual report, Appendix D, p. 96.

Most of the increase in the long-term debt appears to be related to the Site C project.

⁷ <https://news.gov.bc.ca/releases/2024EMLI0002-000049>

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 reviews of ICBC’s and BC Hydro’s rate requests.

APPENDIX

Calculation of Net Power Exports and Imports

The persistent and severe drought conditions forced BC Hydro to conserve the water levels in its major reservoir basins in the Peace and Columbia River systems.⁸ Table 3 shows owned hydro generation peaking at 48,000 GWh in 2021/22, then dropping by 31% to only 33,000 GWh for 2023/24.

Contracted Independent Power output declined by approximately 3,100 GWh or 18.8% during these three years.

Table A – DOMESTIC POWER SURPLUS/DEFICIT (GWh)

	2019/20	2020/21	2021/22	2022/23	2023/24
BC Hydro Owned hydro	40,382	49,796	48,065	46,317	32,973
IPP Purchases	14,474	14,630	16,824	15,409	13,667
Other	(299)	(96)	(749)	(534)	(1,138)
Domestic Supply	54,557	64,330	64,140	61,012	45,502
Domestic Sales	51,931	51,114	53,452	59,880	55,413

⁸ The output from the Gordon Shrum and Revelstoke dams was down by almost 35%, while the production from Mica was down 39.5%.

Line Loss	4,651	5,104	4,709	5,119	4,259
Surplus (Deficit)	(2,025)	8,112	5,979	(3,978)	(14,170)
Water Inflow % of Aver.	f93	f110	f99	f97	f78
System Storage %	83	106	f92	TBD	TBD

Source: BC Hydro annual reports, Appendix D. Water from Table c3 in https://www.bcpolicyperspectives.com/media/attachments/view/doc/commentary_bc_hydro_and_climate_change_24_october_2023/pdf/commentary_bc_hydro_and_climate_change_24_october_2023.pdf Inflow forecasts for 2022/23 and 2023/24 from service plan assumptions.

The writer is awaiting the actual average system storage for 2022/23 and 2023/24 from BC Hydro.

Total Domestic demand, including line loss, increased by approximately 1,400 GWh (2.4%) during these three years. The resulting 2023/24 shortfall between domestic demand and supply of approximately 14,200 GWh was met by importing electricity. BC Hydro stated that the net imports for 2023/24 were 13,603, but did not provide the basis for this calculation.⁹

System Storage

BC Hydro notes that it has been keeping its reservoirs (system storage) filled above the ten-year average storage levels in anticipation of lower water inflows for 2024/25. This has been accomplished by continuing to import electricity.

Water inflows and reservoir storage¹⁰

Water inflows (energy equivalent) to the system for the year ended March 31, 2024 were significantly below average and lower than the prior fiscal year. Almost every month of fiscal year 2024 saw below average inflows in both the Columbia and Peace. Cumulative precipitation at Williston and Kinbasket reservoirs from October 2022 through September 2023 was the lowest out of 63 years of records. This is not the first time BC Hydro has experienced conditions like these. The worst drought on record for BC Hydro's system was a four-year period in the 1940s. [less dependent on hydro power]

At March 31, 2024, system energy storage is tracking above the ten-year historical average as a result of significant electricity imports that occurred during the year to support domestic load requirements and in anticipation of lower than normal water

⁹ <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/2023-24-annual-service-plan-report-cs-5002.pdf> p. 32.

¹⁰ Ibid., p. 28.

inflows in fiscal 2025 as a result of a below average 2023/24 snowpack . System energy storage at March 31, 2024 was higher than at March 31, 2023.

Lower Market Price Moderates Cost of Imports

BC Hydro did not provide the average revenue per MWh of sales or of its market purchases. However, from the information on page 27 of its annual report it is possible to develop the following summary.

Cost of Market Purchases 2022/23 = \$50.22/MWh 2023/24 = \$42.08/MWh

This is a decrease of 16%.

Cost of IPP Purchases 2022/23 = \$92.21/MWh 2023/24 = \$101.04/MWh

A 9.6% increase.

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