

COMPARISON OF PRODUCTION FORECASTS – REGULATED HYDROELECTRIC

1.0 PURPOSE

This evidence presents period-over-period comparisons of total regulated hydroelectric production based on actuals for 2016-2024 and forecasts for the bridge period (2025-2026) and test year (2027), as detailed in Ex. E1-1-2, Table 1, and supports the approval of the regulated hydroelectric production forecast presented in Ex. E1-1-1.

Consistent with the OEB's letter dated September 17, 2024, issued in EB-2024-0136, OPG has included nine years of historical data for its regulated hydroelectric business below, for the period 2016-2024. As there is no OEB-approved regulated hydroelectric production information for 2015 onwards, OPG has provided only year-over-year variance analysis for the historical period (2016-2024), bridge period (2025-2026), and test year (2027).

2.0 PERIOD-OVER-PERIOD CHANGES – TEST YEAR

Hydroelectric production is impacted primarily by water availability, unit availability, or a combination thereof. As detailed in Ex. E1-1-1, historical median monthly flows are used for determining the monthly energy production forecast for many regulated generating stations, and a long-term average for the Sir Adam Beck and DeCew Falls facilities. Therefore, the year-over-year changes in the bridge period and test year are mainly attributed to forecast outage differences and forecast production increases expected from refurbishment and redevelopment projects. The production forecast is inclusive of outages to accommodate the ongoing refurbishment program and other life extension activities across the fleet, and also reflects anticipated energy from the completed refurbishment and redevelopment projects, as described in Ex. F1-1-1 and Ex. D1-1-2.

The forecast methodology for the 2027 test year accounts for operational strategies used to maximize the use of available water for production and minimize hydroelectric spill (i.e., unutilized water) as detailed in Ex. E1-1-1, Section 4.0.

2027 Plan versus 2026 Forecast

The total regulated hydroelectric production forecast for 2027 is 1% (0.3 TWh) lower than the forecast for 2026.

The total production forecast for Niagara Region in 2027 is 2% (0.2 TWh) lower than the forecast for 2026 primarily due to changes in unit availability. Variances in unit availability are due to differences in maintenance outage schedules and the reduced availability of Sir Adam Beck 2 GS due to the refurbishment program.

The total production forecast for Eastern Region in 2027 is 1% (0.1 TWh) higher than the forecast for 2026. Period-over-period variances in Eastern Region are due to differences in maintenance, refurbishment and redevelopment outage schedules and forecast production increases expected from refurbishment and redevelopment projects. The majority of this variance is due to the return to service of redeveloped stations, namely Coniston GS, Stinson GS, and Bingham Chute GS.

The total production forecast for Western Region in 2027 is 5% (0.2 TWh) lower than the forecast for 2026. Period-over-period variances in Western Region are due to differences in maintenance outage schedules, namely at Caribou Falls GS in 2027.

3.0 PERIOD-OVER-PERIOD CHANGES – BRIDGE YEARS

2026 Forecast versus 2025 Forecast

The total regulated hydroelectric production forecast for 2026 is 1% (0.2 TWh) lower than the forecast for 2025. Lower production at Niagara Region is partially offset by higher production from Eastern Region.

The total production forecast for Niagara Region in 2026 is 2% (0.3 TWh) lower than the forecast for 2025 primarily due to an expected reduction in flow in 2026, changes in unit availability, and impacts from Sir Adam Beck 1 GS and Sir Adam Beck 2 GS refurbishment programs. Niagara River flows are expected to return to long-term average in 2026, and

1 continue into the test year and beyond. Niagara River flows are forecasted to reduce in 2026
2 compared to 2025 given the trend towards long-term average.

3
4 The total production forecast for Eastern Region in 2026 is 0.5% (0.1 TWh) higher than the
5 forecast for 2025. Period-over-period variances in Eastern Region are attributed to differences
6 in maintenance and refurbishment outage schedules, namely the return to service of Abitibi
7 Canyon GS units from maintenance by 2026.

8
9 The total production forecast for Western Region in 2026 is 0.5% (0.02 TWh) lower than the
10 forecast for 2025. Period-over-period variances in Western Region are attributed to
11 refurbishment work at Cameron Falls GS and Manitou Falls GS, and the redevelopment of
12 Kakabeka Falls GS.

13 14 **4.0 PERIOD-OVER-PERIOD CHANGES – HISTORICAL YEARS**

15 **2025 Forecast versus 2024 Actual**

16 The total regulated hydroelectric production forecast for 2025 is 1% (0.5 TWh) higher than
17 2024 actual production. Actuals up until and including 2024 are net of Surplus Baseload
18 Generation (“SBG”) losses. The 2025 budget year is on a pre-SBG spill basis as per Ex. E1-
19 1-1, Section 3.1. Differences in production that are due to SBG conditions are captured after-
20 the-fact in the Hydroelectric Surplus Baseload Generation Variance Account (see Ex. E1-2-1
21 and Ex. H1-1-1 for further SBG breakdowns).

22
23 The total production forecast for Niagara Region in 2025 is 4% (0.5 TWh) higher than the actual
24 production in 2024. This is due to increased unit availability at DeCew Falls 1 GS and DeCew
25 Falls 2 GS in 2025, resulting in a 0.5 TWh increase in DeCew Falls facility forecasted
26 production. Sir Adam Beck 2 GS had 0.3 TWh of SBG in 2024, however this was offset by
27 forecasted lower flow conditions in 2025.

28
29 The total production forecast for Eastern Region in 2025 is 5% (0.7 TWh) lower than 2024
30 actuals. This is due to lower forecasted flow conditions along the Ottawa and Montreal Rivers
31 in 2025.

1 The total production forecast for Western Region in 2025 is 22% (0.7 TWh) higher than 2024
2 actuals due to higher forecasted flow conditions and fewer maintenance outages at Manitou
3 Falls GS and Cameron Falls GS.

4
5 **2024 Actual versus 2023 Actual**

6 The total production for 2024 was 4% (1.1 TWh) higher than production for 2023. Production
7 during 2024 was 5% (0.6 TWh) higher in Niagara Region, 1% (0.2 TWh) higher in Eastern
8 Region, and 10% (0.3 TWh) higher in Western Region. Lower SBG conditions due to higher
9 electricity demand contributed to this increased production.

10
11 Niagara River flow was comparable between 2024 and 2023; lower production losses due to
12 reduced SBG spill and increased unit availability compared to 2023 resulted in higher
13 production from Niagara Region. Higher unit availability at both Sir Adam Beck GS 1 and 2 is
14 attributed to a decrease in maintenance outages and Hydro One Switchyard Project work in
15 2024.

16
17 Although Eastern river flows were lower in 2024, lower production losses due to reduced SBG
18 spill compared to 2023 resulted in higher production from Eastern Region.

19
20 Higher flow conditions along Western river systems and lower production losses due to
21 reduced SBG spill in 2024 resulted in higher production compared to 2023.

22
23 **2023 Actual versus 2022 Actual**

24 The total regulated hydroelectric production for 2023 was 1% (0.3 TWh) higher than 2022.
25 Production during 2023 was 4% (0.5 TWh) higher in Niagara Region, 2% (0.2 TWh) higher in
26 Eastern Region, and 13% (0.4 TWh) lower in Western Region.

27
28 Niagara River flow was comparable between 2023 and 2022. However, lower production
29 losses due to reduced SBG spill compared to 2022 resulted in higher production from Niagara
30 Region.

1 Higher flows along Eastern rivers, namely the Madawaska River, and lower production losses
2 due to reduced SBG spill compared to 2022 resulted in higher production from Eastern Region
3 in 2023.

4
5 Lower flow conditions in 2023 along Western river systems resulted in lower production in
6 Western Region compared to 2022.

7
8 **2022 Actual versus 2021 Actual**

9 The total regulated hydroelectric production for 2022 was 7% (2.1 TWh) higher than 2021.
10 Production during 2022 was 1% (0.1 TWh) higher in Niagara Region, 7% (1.0 TWh) higher in
11 Eastern Region, and 40% (1.0 TWh) higher in Western Region. Higher flows across most of
12 Ontario and lower SBG conditions due to higher electricity demand contributed to this
13 increased production.

14
15 Although Niagara River flow conditions were lower in 2022, lower production losses due to
16 lower SBG spill resulted in higher 2022 production from Niagara Region compared to 2021.

17
18 Higher total production from Eastern Region in 2022, compared to the 2021 production, is
19 attributable to higher annual mean flow conditions across the Ottawa, Abitibi, and Montreal
20 Rivers.

21
22 Higher annual mean flow conditions were observed along all Western Rivers, most notably
23 along the English and Winnipeg rivers. Higher flow conditions in 2022 along Western Rivers
24 and fewer refurbishments and maintenance outages, namely at Cameron Falls GS and
25 Aguasabon GS, resulted in higher production from Western Region compared to 2021.

26
27 **2021 Actual versus 2020 Actual**

28 The total regulated hydroelectric production for 2021 was approximately 4% (1.3 TWh) lower
29 than the actual production achieved in 2020. Production during 2021 was 3% (0.4 TWh) higher
30 in Niagara Region, 8% (1.3 TWh) lower in Eastern Region, and 13% (0.4 TWh) lower in
31 Western Region.

1 Although Niagara River flow was lower in 2021, lower production losses due to lower SBG spill
2 compared to 2020 resulted in higher 2021 production from Niagara Operations.

3
4 Lower flow conditions in 2021 along the Eastern river systems and an increase in planned
5 maintenance and project activities that had previously been deferred from 2020 due to the
6 COVID-19 pandemic resulted in lower production for Eastern Region compared to 2020. Lower
7 annual mean flow conditions were most notable along the Ottawa, St. Lawrence, and Montreal
8 rivers.

9
10 Lower flow conditions in 2021 along the English and Winnipeg rivers and an increase in
11 refurbishment and maintenance outages at Aguasabon GS resulted in lower production from
12 Western Region compared to 2020.

13 14 **5.0 PERIOD-OVER-PERIOD CHANGES – EXTENDED HISTORICAL YEARS**

15 Pursuant to the OEB's letter dated September 17, 2024, issued in EB-2024-0136, OPG has
16 included four additional years of historical data.

17 18 **2020 Actual versus 2019 Actual**

19 The total regulated hydroelectric production for 2020 was approximately 1% (0.3 TWh) lower
20 than 2019 actual production. Lower production in 2020 reflected greater production losses due
21 to higher SBG spill as a result of the impact of the COVID-19 pandemic on Ontario electricity
22 demand. Production during 2020 was 2% (0.2 TWh) lower in Niagara Region, 4% (0.5 TWh)
23 higher in Eastern Region, and 17% (0.6 TWh) lower in Western Region.

24
25 Although higher mean annual flows were observed along the Niagara River, total annual
26 production in Niagara Region was lower in 2020 as a result of higher production losses due to
27 higher SBG spill in 2020.

1 Higher mean flow conditions were observed in 2020 along the St. Lawrence River for the year.
2 The second half of 2020 in particular saw increased flow conditions on the Ottawa,
3 Madawaska, Abitibi and Montreal Rivers. Higher flow conditions year-over-year coupled with
4 deferral of project and planned maintenance work due to the COVID-19 pandemic resulted in
5 increased production from Eastern Region in 2020. This was partially offset by higher
6 production losses due to higher SBG spill.

7
8 Lower total annual production from Western Region was observed in 2020 due to lower flow
9 conditions along Western River systems and increased production losses due to higher SBG
10 spill.

11
12 **2019 Actual versus 2018 Actual**

13 The total regulated hydroelectric production for 2019 was approximately 3% (0.8 TWh) higher
14 than the actual production achieved in 2018. Production during 2019 was 3% (0.4 TWh) higher
15 in Niagara Region and 13% (0.4 TWh) higher in Western Region. There were negligible year-
16 over-year differences in actual production in Eastern Region.

17
18 Total annual production in Niagara Region was greater in 2019 due to higher flow conditions
19 along the Niagara River compared to 2018. Lower production in 2018 also reflected greater
20 production losses due to higher SBG spill.

21
22 Higher mean annual flow conditions were observed along all Eastern rivers in 2019. Higher
23 mean annual flow conditions were offset by higher production losses due to SBG spill in 2019,
24 resulting in negligible year-over-year differences in total production from Eastern Region.

25
26 Higher total annual production from Western Region was observed in 2019 primarily due to
27 higher flow conditions along the Kaministiquia, English, and Winnipeg rivers. This was partially
28 offset by production losses due to higher SBG spill.

2018 Actual versus 2017 Actual

The total regulated hydroelectric production for 2018 was approximately 3% (0.9 TWh) lower than the actual production achieved in 2017. Production during 2018 was 7% (0.7 TWh) higher in Niagara Region, 8% (1.3 TWh) lower in Eastern Region, and 12% (0.4 TWh) lower in Western Region.

Although Niagara River flow conditions between the two years were comparable, higher production losses due to higher SBG spill in 2017 resulted in higher production from Niagara Region in 2018.

Lower flow conditions in 2018 along the Madawaska and Ottawa Rivers resulted in lower production compared to 2017 in Eastern Region. This lower production was slightly offset by production along the St. Lawrence River which was comparable in flows and production to 2017.

Lower flow conditions in 2018 along Western river systems resulted in lower production in Western Region compared to 2017.

2017 Actual versus 2016 Actual

The total regulated hydroelectric production for 2017 was 4% (1.2 TWh) higher than the actual production achieved in 2016. Production during 2017 was 6% (0.8 TWh) lower in Niagara Region, 13% (1.9 TWh) higher in Eastern Region, and 3% (0.1 TWh) higher in Western Region.

Annual mean flow in 2017 for the Niagara River was higher than the 2016 flow conditions. However, production from Niagara Region was lower than in 2016 due to increased SBG spill at the Sir Adam Beck Complex as well as lower unit availability at DeCew Falls 2 GS due to a one-unit refurbishment.

Significantly higher total production from Eastern Region in 2017, compared to the 2016 production, is attributable to higher annual mean flow conditions across the Madawaska, Ottawa, and St. Lawrence Rivers.

- 1 Marginally higher total production for Western Region in 2017 compared to 2016 is attributable
- 2 to higher unit availability and lower production losses due to lower SBG spill in 2017.

Numbers may not add due to rounding.

Filed: 2025-12-12
EB-2025-0297
Exhibit E1
Tab 1
Schedule 2
Table 1

Table 1
Comparison of Production Forecast - Regulated Hydroelectric (TWh)

Line No.	Operating Region ¹	2016 Actual	(c)-(a) Change	2017 Actual	(e)-(c) Change	2018 Actual	(g)-(e) Change	2019 Actual	(i)-(g) Change	2020 Actual	(k)-(i) Change	2021 Actual	(m)-(k) Change	2022 Actual
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)
1	Niagara Region	12.0	(0.8)	11.3	0.7	12.0	0.4	12.4	(0.2)	12.2	0.4	12.5	0.1	12.7
2	Eastern Region ²	14.2	1.9	16.1	(1.3)	14.8	(0.0)	14.8	0.5	15.3	(1.3)	14.0	1.0	15.1
3	Western Region	3.3	0.1	3.4	(0.4)	3.0	0.4	3.3	(0.6)	2.8	(0.4)	2.4	1.0	3.4
4	Total	29.5	1.2	30.7	(0.9)	29.8	0.8	30.5	(0.3)	30.3	(1.3)	29.0	2.1	31.1

Line No.	Operating Region ¹	2022 Actual	(c)-(a) Change	2023 Actual	(g)-(e) Change	2024 Actual	(i)-(g) Change	2025 Budget ³	(k)-(i) Change	2026 Budget	(k)-(i) Change	2027 Plan
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
5	Niagara Region	12.7	0.5	13.2	0.6	13.7	0.5	14.3	(0.3)	14.0	(0.2)	13.8
6	Eastern Region	15.1	0.2	15.3	0.2	15.5	(0.7)	14.8	0.1	14.8	0.1	15.0
7	Western Region	3.4	(0.4)	2.9	0.3	3.2	0.7	3.9	(0.0)	3.9	(0.2)	3.7
8	Total	31.1	0.3	31.4	1.1	32.5	0.5	33.0	(0.2)	32.8	(0.3)	32.5

Notes:

- Operating Region descriptions effective 2021 (see Ex. A1-4-2).
- Eastern Region totals reflect energy delivered to Hydro-Québec via R.H. Saunders GS and Chats Falls GS.
- 2016-2024 production values are net of SBG spill. 2025-2027 production values are on a pre-spill basis, i.e., there are no deductions made for SBG as per Ex. E1-1-1, Section 3.1.