

1 **COMPARISON OF PRODUCTION FORECAST –**
2 **REGULATED HYDROELECTRIC**

3
4 **1.0 PURPOSE**

5 The purpose of this evidence is to present period-over-period comparisons of regulated
6 hydroelectric production, as well as actual versus forecast (plan) comparisons for historical
7 years.

8
9 **2.0 PERIOD-OVER-PERIOD EXPLANATIONS – TEST PERIOD**

10 2009 Plan versus 2008 Plan

11 The total regulated hydroelectric production forecast for 2009 is about six percent (1.1 TWh)
12 higher than the forecast for 2008 (see Ex. E1-T1-S2 Table 1). The reasons for this year-over-
13 year difference are provided below.

14
15 The Niagara Plant Group production plan for 2009 is seven percent (0.8 TWh) higher than
16 the plan for 2008. More than one-half of this increase is attributable to the termination of
17 OPG's obligation to return "Canadian Niagara Power replacement" energy to FortisOntario
18 (formerly Canadian Niagara Power) on April 30, 2009 (see Ex. A1-T4-S2). The balance of
19 the increase is primarily attributable to higher forecast flows resulting in increased production
20 at the Sir Adam Beck complex. The annual mean Niagara River flow forecast for 2009 is
21 about 92 percent of historic mean and about 89 percent for 2008.

22
23 Outages of Sir Adam Beck units do not have a significant effect on forecast production
24 between the two years because of water supply/diversion limitations to the Sir Adam Beck
25 complex. This limitation will be significantly reduced/improved when the Niagara Tunnel
26 comes into service in 2010.

27
28 Forecast production for DeCew Falls is slightly lower (about three percent) for 2009
29 compared to 2008 due to a reduction in the diversion flows assumed for DeCew during 2009.

30

1 The R.H. Saunders production plan for 2009 is five percent (0.3 TWh) higher than the plan
2 for 2008. The increase is attributable to increased flows which are forecast for the St.
3 Lawrence River. The annual mean St. Lawrence River flow forecast for 2009 is about 93
4 percent of historic mean, compared to about 88 percent assumed for 2008. No major
5 outages are planned for R.H. Saunders in either 2008 or 2009.

6
7 2008 Plan versus 2007 Actual

8 The total regulated hydroelectric production plan for 2008 is about four percent (0.8 TWh)
9 lower than the actual production for 2007 (see Ex. E1-T1-S2 Table 1).

10
11 The Niagara Plant Group production plan for 2008 is three percent (0.3 TWh) lower than the
12 actual production for 2007 for the reasons given in the following paragraphs.

13
14 Production is forecast to increase by about fifteen percent at DeCew Falls in 2008, compared
15 to 2007, due to increased unit availability at DeCew Falls II. In 2007, there was a major
16 rehabilitation outage that reduced production, whereas in 2008 no major outages are
17 planned for the DeCew Falls I and II stations.

18
19 The production plan for the Sir Adam Beck plants in 2008 is about four percent lower than
20 2007 actual production. This difference is primarily attributable to lower flows forecast for the
21 Niagara River (see Ex. E1-T1-S2 for a discussion of methodology). The annual mean
22 Niagara River flow forecast for 2008 is about 89 percent of historic mean, whereas the
23 annual mean flow for 2007 was about 97 percent of the historic mean.

24
25 The R.H. Saunders production plan for 2008 is seven percent (0.5 TWh) lower than actual
26 R.H. Saunders production for 2007 and is attributable to a decrease in the flow forecast for
27 the St. Lawrence River (see Ex. E1-T1-S2 for a discussion of methodology). The annual
28 mean St. Lawrence River flow forecast for 2008 is about 88 percent of the historic mean,
29 compared to the actual 2007 mean flow which was about 96 percent of the historic mean.

1 **3.0 PERIOD-OVER-PERIOD EXPLANATIONS – BRIDGE YEAR**

2 2007 Actual versus 2007 Budget

3 The total regulated hydroelectric production during 2007 was four percent (0.7 TWh) above
4 the 2007 budget. Actual Niagara Plant Group production was four percent (0.4 TWh) above
5 budget and actual R.H. Saunders production was five percent (0.3 TWh) above budget.

6
7 Production at the Sir Adam Beck plants in 2007 was almost five percent (0.5 TWh) above
8 budget primarily due to Niagara River flows being above plan. Actual annual mean Niagara
9 River flow for 2007 was about 97 percent of the historic mean compared to the budget mean
10 flow which was about 91 percent of the historic mean.

11
12 Total production at DeCew Falls during 2007 was two percent lower than budget production.
13 Water availability from the Seaway Canal was restricted at times during November and early
14 December 2007, due to volatile fluctuations in water level elevations on Lake Erie associated
15 with wind activity. Consequently, production was lower than plan for these months.

16
17 R.H. Saunders production exceeded budget by almost five percent (0.3 TWh) during 2007
18 due to higher St. Lawrence River flows. Annual mean St. Lawrence River flow for 2007 was
19 about 96 percent of the historic mean, whereas the budget mean flow was about 91 percent
20 of the historic mean.

21
22 Niagara River and St. Lawrence River flows were below normal when the 2007 budget
23 forecast was prepared in early fall of 2006, and below normal flows were expected to
24 continue through 2007. However, local basin supplies to Lake Erie abruptly increased (due to
25 rainfall) and were significantly higher than normal from October 2006 to January 2007,
26 resulting in flows increasing to above normal levels later in the fall and continuing to early
27 2007. Flows typically remained near or above normal levels during the first half of 2007, but
28 decreased to below normal during the second half of the year.

29
30 2007 Actual versus 2006 Actual

1 The total regulated hydroelectric production for 2007 was one percent (0.2 TWh) lower than
2 the actual production for 2006 (see Ex. E1-T1-S2 Table 1).

3
4 Actual production for the Niagara Plant Group for 2007 was very similar to that in 2006.

5
6 Production increased by fifteen percent at DeCew Falls in 2007 compared to 2006, due to
7 improved unit availability in 2007. Two major rehabilitation outages occurred at DeCew Falls
8 II during 2006. One unit was out-of-service for the first half of the year, returning to service in
9 late June, while a second unit was removed from service in late October. This second unit
10 returned to service in May 2007, ahead of schedule.

11
12 Production at the Sir Adam Beck complex for 2007 was slightly lower (one percent) than
13 2006 production due to a slight decrease in flows. Annual mean Niagara River flow for 2007
14 was about 97 percent of historic mean compared to the 2006 annual mean which was about
15 98 percent of the historic mean.

16
17 Production at R.H. Saunders for 2007 was about three percent (0.2 TWh) lower than actual
18 production during 2006. The annual mean St. Lawrence River flow for 2007 was 96 percent
19 of the historic mean as compared to the actual 2006 annual mean flow of about 98 percent of
20 the historic mean.

21 22 **4.0 PERIOD-OVER-PERIOD EXPLANATIONS – HISTORICAL YEARS**

23 2006 Actual versus 2006 Budget

24 The total regulated hydroelectric production during 2006 was four percent (0.7 TWh) above
25 the budget that was developed at the end of 2005 (see Ex. E1-T1-S2 Table 1). Actual
26 Niagara Plant Group production was three percent (0.3 TWh) above budget and actual R.H.
27 Saunders production was six percent (0.4 TWh) above budget.

28
29 Production at the Sir Adam Beck plants in 2006 was five percent above budget primarily due
30 to Niagara River flows being above plan. Actual annual mean Niagara River flow for 2006
31 was about 98 percent of the historic mean compared to the historic mean flow of 91 percent

1 corresponding to the budget that was forecast the last quarter of 2005. Dry conditions existed
2 when the budget was developed in October 2005. Based on the best water flow data
3 available when the budget was developed, it was assumed that these conditions would
4 persist in the short-term. However, there was an unexpectedly quick turnaround in water
5 flows (due to heavy precipitation) after the budget forecast was developed, which led to
6 higher actual production than was originally forecast.

7
8 Total production at DeCew Falls was approximately 16 percent below forecast due to the
9 extension of the planned major outage at DeCew Falls II by almost three months during
10 2006. The outage was extended because of discovery work after the unit was taken out of
11 service and dismantled. This discovery work could not have been anticipated in advance
12 without the unit being dismantled. Thus major modifications to the mechanical components
13 had to be performed during the overhaul which were not in the original scope.

14
15 R.H. Saunders production exceeded budgeted production by six percent (0.4 TWh) during
16 2006 due to higher St. Lawrence River flows. Annual mean St. Lawrence River flow for 2006
17 was about 98 percent of the historic mean compared to a value of 93 percent of the historic
18 mean flow corresponding to the budget forecast.

19
20 2006 Actual versus 2005 Actual

21 The total regulated hydroelectric production for 2006 was about two percent (0.3 TWh) below
22 2005 production (see Ex. E1-T1-S2 Table 1). Most of the difference was attributable to the
23 reduced production at DeCew Falls, as a result of additional outage time associated with the
24 major overhaul work at DeCew Falls II during 2006 relative to 2005. There were no major
25 outages at DeCew Falls II in 2005.

26
27 Total production from the Sir Adam Beck plants was similar for the two years, with 2006
28 production slightly below 2005. Production at R.H. Saunders was essentially the same for
29 both years. Annual mean flows were very similar for 2005 and 2006 for the Niagara and St.
30 Lawrence Rivers (within one percent for both).

1

2 2005 Actual versus 2005 Budget

3 The total regulated hydroelectric production for 2005 was similar to the budget developed in
4 early 2005 (see Ex. E1-T1-S2 Table 1). Actual production exceeded the budget by about one
5 percent (0.3 TWh). The annual mean flows for both the Niagara and St. Lawrence Rivers in
6 2005 were very similar to the annual mean flows corresponding to the 2005 budget forecast.