

**EB-2016-0152**

**Ontario Power Generation Inc.  
Application for payment amounts for the period  
from January 1, 2017 and December 31, 2021**

---

**VULNERABLE ENERGY CONSUMERS COALITION**

**(“VECC”)  
CROSS-EXAMINATION COMPENDIUM  
PANEL 6 RATE SMOOTHING**

---

**APRIL 12, 2017**

## **TAB 1**

1

Step	Action	Basis in O. Reg. 53/05
1	Establish the RSDA	s. 5.5(1)
2	Approve annual nuclear revenue requirements for five year term, absent any deferral	s. 5.5(1)(a) s. 6(2)12(ii) s. 6(2)12(iii)
3	Approve required WAPA inputs for each year	
4	Determine the annual change in the WAPA, applying considerations listed in sections 4.0 and 6.0 of this evidence (including impact on customer bills) to assess options with a view to making more stable the year-over-year changes in the WAPA over each calculation period ("Smoothed WAPA Rate")	s. 0.1(1) s. 6(2)12(i)
5	Using the Smoothed WAPA Rate determined in Step 4 and the inputs approved in Step 3, determine the annual NPA	s. 0.1(1)
6	Determine annual deferred amount to be recorded in RSDA for each year of the five year term [Step 2 - (NPA x NPF)]	s. 5.5(1)(b) s. 6(2)12(i)

2

3

#### 4.0 RATE SMOOTHING CONSIDERATIONS

5

6 In section 2.3 of Ex. A1-3-3, OPG identified and defined the six considerations that informed  
7 its rate smoothing proposal:

8

##### FINANCIAL PERFORMANCE

10 1. Financial Viability

##### CUSTOMER FOCUS

12 2. Rate Stability

13 3. Long-term Perspective

14 4. Post-Recovery Transition

15 5. Intergenerational Equity

16 6. Customer Bill Impact

17

OPG has calculated the nuclear payment amount (NPA) required to arrive at a 2.5% increase in WAPA in Ex. N3-1-1 Table 3.

OPG applied the following rationales to evaluate each option for each of the assessment considerations:

**Financial Viability (Leverage and Cash Flow Impacts):** Higher values for the FFO Adjusted Interest Coverage ratio and lower values for the Debt to EBITDA credit metric reduce financial risk to OPG. OPG's assessment was based on at least one of the two metrics cited above being within threshold at all times during each of the two 5-year deferral periods (i.e., 2017 to 2021 and 2022 to 2026). All scenarios in Chart 3 meet this threshold.

**Rate Stability:** All of the scenarios in Chart 3 result in a constant year-over-year change in WAPA within the two halves of the deferral period and within the recovery period. In each scenario, the year-over-year change in WAPA varies between the two halves of the deferral period, and again at the beginning of the recovery period. Lower variances at each of these points are better.

**Long-Term Perspective:** The assessment was based on the size of the average year-over-year change in WAPA during the recovery period (closer to 0 per cent is better).

**Post-Recovery Transition:** The assessment was based on the size of the change in the nuclear payment amount at the end of the recovery period (smaller is better) to the forecast post-transition payment amount of approximately \$120/MWh.

**Intergenerational Equity:** The assessment was based on the ratio of total interest costs to total amounts deferred (total interest / total amounts deferred). A lower ratio implies a lower cost of deferring revenue under that alternative.

1 Intergenerational equity involves striking a balance between the benefits of  
2 deferring revenue and the costs of the deferral; therefore OPG's assessment  
3 placed value on a ratio that best reflects this balance (i.e., neither the highest  
4 nor the lowest ratio).

5  
6 **Customer Bill Impact:** Each scenario was assessed based on the resulting  
7 average year-over-year change in a typical residential customer's monthly bill,  
8 both in the 2017-2021 period and over the full deferral and recovery periods.

9  
10 In OPG's assessment, Scenario B results in the best overall balance based on the  
11 application of the above considerations. While Scenarios A, B, and C each perform well on  
12 several considerations, Scenario B best balances the considerations outlined above.  
13 Scenario A has the steepest rate change in the recovery period and the least stable WAPA in  
14 2022 and 2027, and although Scenario C produces a smaller change in WAPA between the  
15 two halves of the deferral period, it also produces less optimal results than Scenario B in  
16 terms of bill impact and the transition rate. Scenario B also produces the lowest peak RSDA  
17 balance. Overall, Scenario B best addresses the considerations and reflects the best overall  
18 proposal.

19  
20 Relative to OPG's proposal under the previous version of the Regulation, the main benefit of  
21 the revised proposal is a significantly lower average annual bill impact in the 2017-2021  
22 period. Under the previous proposal, the annual average of year-over-year increases in  
23 customers' monthly bills over the period was forecast at approximately \$1.05, as opposed to  
24 a less variable \$0.65 under the revised proposal.

25  
26 Under the revised proposal, OPG expects that the rate of change in the company's WAPA  
27 will be different between the first and second halves of the deferral period. However the  
28 average annual rate of change in WAPA is expected to be consistent within each five-year  
29 period, meaning that the proposal would result in a consistent rate of increase during the  
30 deferral period (except for the transition between 2021 and 2022) and a consistent average  
31 annual decrease in WAPA during the recovery period.

**TAB 2**

OPG's proposal results in deferring the collection of approximately \$1B in revenue in the 2017 to 2021 period, as reflected in Chart 4 below. This is approximately \$0.4B less than OPG proposed to defer under the previous proposal (after adjustments to account for the reduced nuclear revenue requirement in the previous impact statements). The nuclear payment amounts have been updated based on the level of deferred recovery associated with this proposal.

**Chart 4: OPG Proposed Deferred Revenue Requirement**

	2017	2018	2019	2020	2021	Total
<b>Proposed Revenue Requirement (\$M)</b>	\$ 3,161	\$ 3,186	\$ 3,273	\$ 3,783	\$ 3,398	\$ 3,617
<b>Forecast Production (TWh)</b>	38.10	38.47	39.03	37.36	35.38	26.01
<b>Smoothed Rate (\$/MWh)</b>	\$ 76.39	\$ 78.60	\$ 84.83	\$ 88.21	\$ 92.02	N/A
<b>Smoothed Revenue (\$M)</b>	\$ 2,910	\$ 3,024	\$ 3,311	\$ 3,295	\$ 3,256	\$ 15,796
<b>Deferred Revenue Requirement (\$M)</b>	\$ 251	\$ 162	\$ (38)	\$ 488	\$ 142	\$ 1,005

## 7.0 IMPLEMENTATION

The specific revenue requirement deferral amounts proposed in section 6.0 are produced by adjusting the approved nuclear payment amounts to achieve the desired annual rate of change in the total WAPA. The OEB's findings on the proposed nuclear revenue requirements, nuclear production forecast, hydroelectric and nuclear payment riders and the hydroelectric IRM formula will necessarily impact the 2017-2021 NPA, the annual deferred nuclear revenue requirement, and the resulting WAPA.

Nuclear rate smoothing is unique in terms of the magnitude of the proposed deferred amounts, and the number of interrelated decisions required. To the extent the OEB's decision changes the rate smoothing inputs, it may be expedient for the OEB to make a decision on the nuclear revenue requirements and the inputs (steps 2 and 3 of the chart in section 3.1 above), and withhold its final decision on the "outputs" (i.e., the annual change in WAPA, the resulting nuclear payment amount, and the amount to be deferred in the RSDA) until the Payment Amount Order approval process (steps 4, 5 and 6).

Numbers may not add due to rounding

Filed: 2017-03-08  
EB-2016-0152  
Exhibit N3  
Tab 1  
Schedule 1  
Attachment 2  
Table 17

Table 17  
Updated L-11.6-20 VECC-051 Chart 4  
OPG Proposed Deferred Nuclear Revenue Requirement

	2017	2018	2019	2020	2021
<b>Proposed Revenue Requirement* (\$M)</b>	\$ 3,161	\$ 3,186	\$ 3,273	\$ 3,783	\$ 3,398
<b>Forecast Production (TWh)</b>	38.10	38.47	39.03	37.36	35.38
<b>Unsmoothed Rate (\$/MWh)</b>	\$ 82.98	\$ 82.81	\$ 83.87	\$ 101.28	\$ 96.03
<b>Smoothed Rate (\$/MWh)</b>	\$ 76.39	\$ 78.60	\$ 84.83	\$ 88.21	\$ 92.02
<b>Smoothed Revenue (\$M)</b>	\$ 2,910	\$ 3,024	\$ 3,311	\$ 3,295	\$ 3,256
<b>Deferred Revenue Requirement (\$M)</b>	\$ 251	\$ 162	\$ (38)	\$ 488	\$ 142

\* Revenue requirement for 2017-2021 based on I tables in N2 update as of Feb 2017



Numbers may not add due to rounding.

Filed: 2017-03-08  
EB-2016-0152  
Exhibit N3  
Tab 1  
Schedule 1  
Attachment 2  
Table 5

Table 5  
Updated L-1.3-5 CCC-010 Chart 1  
Illustration of the Annual Deferred Revenue Requirement and the Associated Interest

Line No.	Description	2017 Amount	2018 Amount	2019 Amount	2020 Amount	2021 Amount
		(a)	(b)	(c)	(d)	(e)
1	Unsmoothed Nuclear Rate <sup>1</sup> (\$/MWh)	82.98	82.81	83.87	101.28	96.03
2	Illustrative Nuclear Smoothed Rates, Based on a Constant Rate of Change <sup>2</sup> (\$/MWh)	78.07	82.05	90.14	95.67	101.90
3	Forecast Nuclear Production <sup>3</sup> (TWh)	38.1	38.5	39.0	37.4	35.4
4	Annual Deferred Amount (\$M)	187	29	(245)	210	(208)
5	Interest Expense (\$M)	5	10	5	4	5
5	Cumulative Interest (\$M)	5	14	19	23	28

Notes:  
1 Ex. N3-1-1 Table 3 line 9  
2 Reflects WAPA increase of approximately 3.98% to provide for recovery of the deferred Revenue Requirement and interest. The Rate Smoothing Deferral Account Balance is \$0 in 2021  
3 Ex. I1-3-1 Table 1, line 8

Numbers may not add due to rounding

Filed: 2017-03-08  
EB-2016-0152  
Exhibit N3  
Tab 1  
Schedule 1  
Attachment 2  
Table 9

Table 9  
Updated L-11.6-1 Staff-265 Page 2 Chart

	2017-2021	2022-2026	2027-2031	2032-2036
<b>Net Amount Deferred and (Recovered) [including interest Recovery] (\$M)</b>	1,005	774	(1,763)	(1,407)
<b>Total Interest Added to the Balance (\$M)</b>	116	539	611	128
<b>Account Balance at End of Period (\$M)</b>	1,121	2,434	1,281	0

**TAB 3**

**Chart 3: Proposed and Alternative Rate Smoothing Scenarios**

	Original 11% Proposal <sup>1</sup>	A	B (Proposed)	C	D	E
2017-2021 Average Annual Change in WAPA	4.3%	2.0%	2.5%	3.0%	3.5%	4.0%
2022-2026 Average Annual Change in WAPA <sup>2</sup>	6.9%	8.3%	7.0%	5.7%	4.3%	3.0%
2027-2036 Average Annual Change in WAPA <sup>2</sup>	(1.9)%	(1.5)%	(1.0)%	(0.3)%	0.5%	1.2%
Peak RSDA Balance (\$B)	\$3.3	\$3.2	\$2.9	\$3.0	\$3.2	\$3.4
Total Interest (\$B)	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4	\$1.4
Interest Cost / Deferred Revenue Ratio	0.5	0.5	0.5	0.5	0.5	0.4
FFO Interest Coverage > = 3 (2017-2021) / (2022-2026)	3.6 / 5.3	4.5 / 5.0	4.6 / 5.4	4.6 / 5.8	4.7 / 6.2	4.8 / 6.7
DEBT to EBITDA < = 5.5 (2017-2021) / (2022-2026)	6.2 / 5.3	5.9 / 5.3	5.9 / 5.2	5.8 / 5.0	5.8 / 4.9	5.7 / 4.7
Nuclear Payment Amount Transition Impact (\$/MWh)	(\$4.3)	\$1.0	(\$3.7)	(\$9.3)	(\$16.8)	(\$22.7)
Average Annual Bill Impact (2017-2021) in %	0.7%	0.3%	0.4%	0.5%	0.6%	0.7%
Average Annual Bill Impact (2017-2021) in \$	\$1.05	\$0.51	\$0.65	\$0.79	\$0.93	\$1.07
Average Annual Bill Impact (2017-2036) in % <sup>2</sup>	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
Average Annual Bill Impact (2017-2036) in \$ <sup>2</sup>	\$0.43	\$0.43	\$0.47	\$0.53	\$0.60	\$0.65

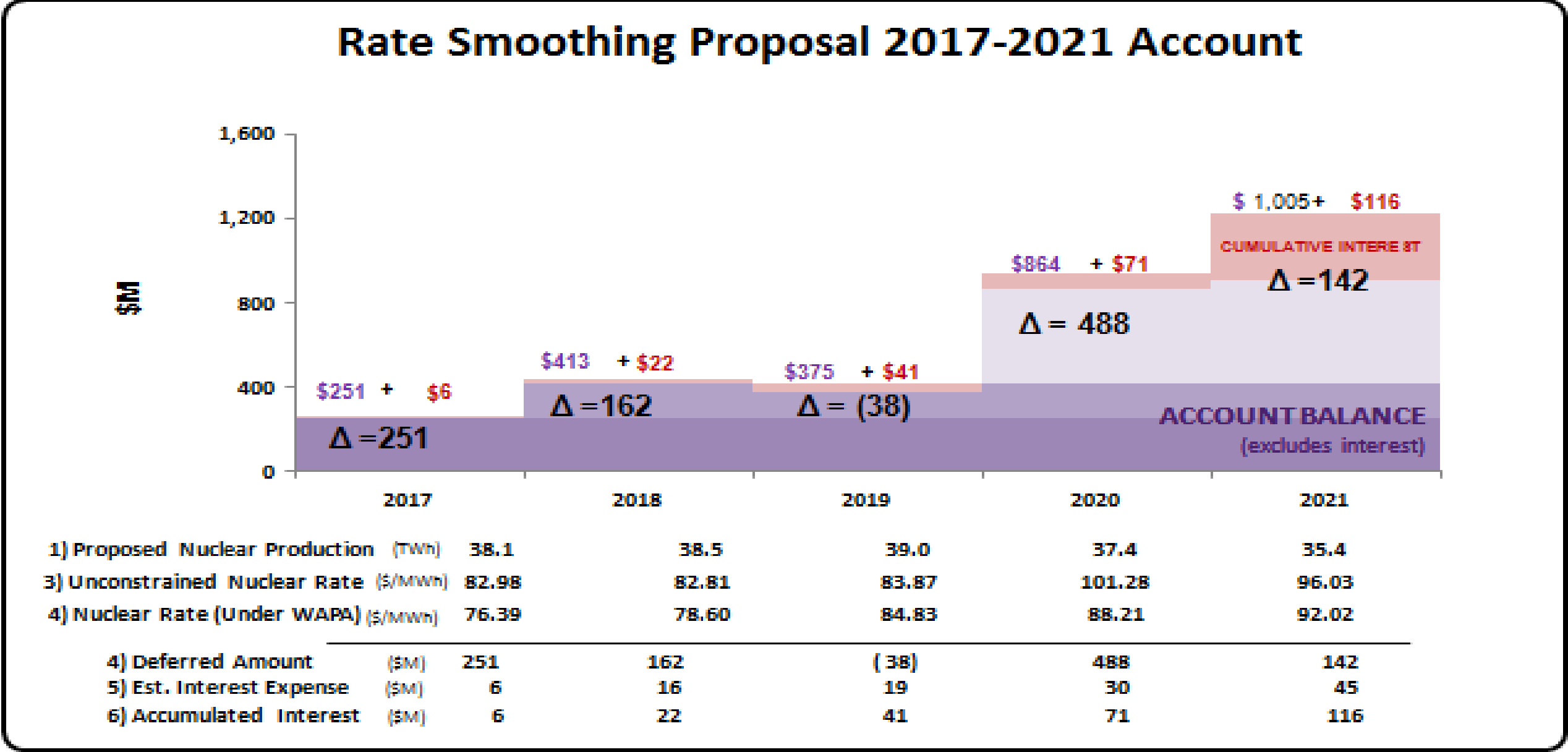
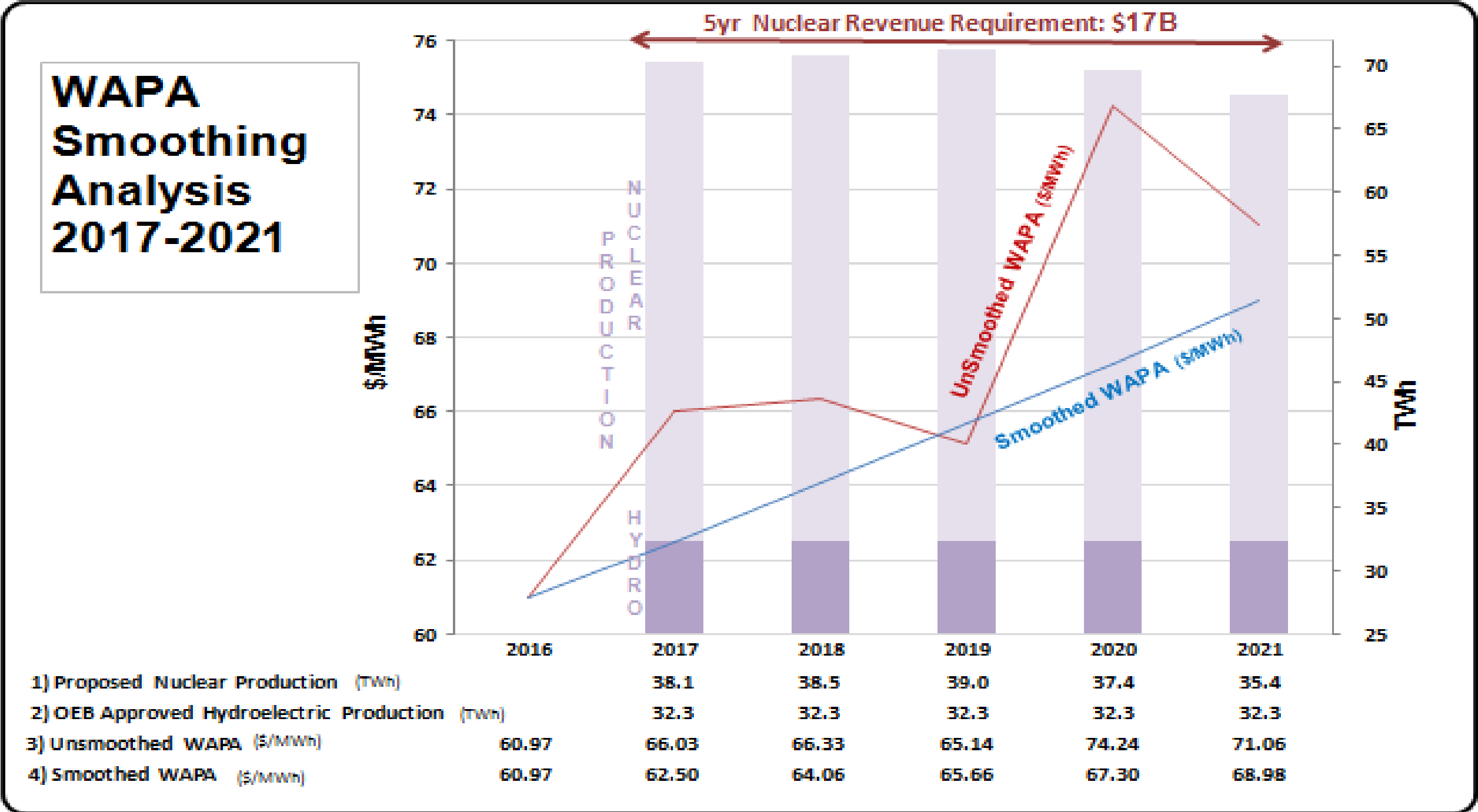
Notes

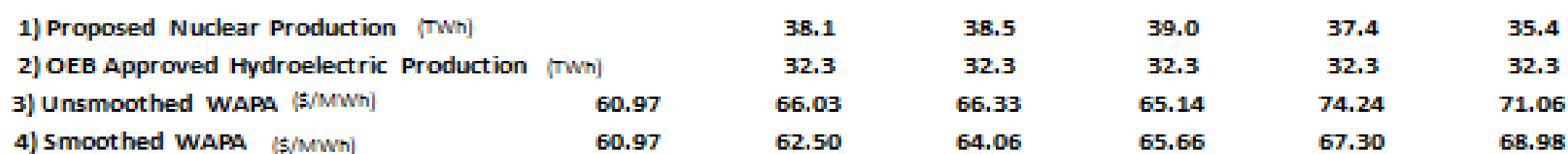
<sup>1</sup> Updated to reflect changes to Nuclear revenue requirement in Ex. N1-1-1 and Ex. N2-1-1. Nuclear Payment Amount smoothing is inherently more volatile than smoothing based on WAPA. This is primarily due to the impact that year-over-year production differences have on the annual WAPA, as well as the expiry of higher payment riders in effect during 2016. The average year-over-year change in the WAPA shown for the Original 11% Proposal is therefore not directly comparable with the more consistent year-over-year change in the period in the smoothing scenarios under the amended Regulation.

<sup>2</sup> Calculated assuming that hydroelectric payment amounts continue to escalate at 1.5% per year throughout the 2017-2036 period pursuant to the price-cap as proposed in Ex. I1-2-1 Table 1 and no payment riders beyond those proposed in this application.

Based on its assessment of the alternatives above, using the considerations described in section 4.0 above, OPG proposes an average annual WAPA increase of 2.5% per year during the 2017-2021 period. This rate of increase would result in an average year-over-year increase of approximately \$0.65 on the typical residential customer's monthly bill during the 2017-2021 period. The methodology by which OPG calculated customer bill impacts in Chart 3 is provided in Section 5.2 above.

**TAB 4**





**ACCOUNT BALANCE (excludes interest)**

Year	Start Balance (\$M)	Change (\$M)	End Balance (\$M)
2017	0	Δ = 251	251
2018	251	Δ = 162	413
2019	413	Δ = (38)	375
2020	375	Δ = 488	864
2021	864	Δ = 142	1,005

**CUMULATIVE INTEREST**

Year	Start Interest (\$M)	Change (\$M)	End Interest (\$M)
2017	0	+\$6	6
2018	6	+\$22	28
2019	28	+\$41	69
2020	69	+\$71	140
2021	140	+\$116	256

**PAGE 15**

Filed: 2017-03-08

EB-2016-0152

Exhibit N3

Tab 1

Schedule 1

Attachment 2

Table 14

Table 14

Updated L-11.6-7 ED-024 Chart 1  
Smoothed Nuclear Base Rates 2016-  
2036

Year	Nuclear Base Rates (\$/MWh)
2016	59.29
2017	76.39
2018	78.60
2019	84.83
2020	88.21
2021	92.02
2022	104.20
2023	126.39
2024	124.75
2025	165.43
2026	161.28
2027	160.77
2028	149.88
2029	145.34
2030	142.29
2031	141.18
2032	136.50
2033	133.82
2034	132.74
2035	128.19
2036	125.44



## **TAB 5**



# **Ontario Energy Board**

## **Commission de l'énergie de l'Ontario**

---

# **Handbook for Utility Rate Applications**

---

**October 13, 2016**

costs through conservation, and better understand the value of distribution services. It is also a fairer way to recover the costs of providing electricity distribution service.<sup>26</sup>

### Rate Mitigation

The OEB expects utilities to mitigate bill impacts through the pacing and prioritizing of investments and activities. For electricity distributors, the OEB has a policy requiring the filing of a mitigation plan when the total bill impact is 10% or more for any customer class. The OEB expects all other utilities to propose mitigation plans, or explain why a plan is not required, when their proposals result in material impacts to customers<sup>27</sup>.

### Rate-setting Policies for Consolidations

On March 26, 2015 the OEB issued its *Report of the Board: Rate-Making Associated with Distributor Consolidation*. To encourage consolidations, the OEB established a policy that consolidating entities could defer rebasing for up to 10 years. For electricity distributors deferring rebasing beyond five years, an earnings sharing mechanism (ESM) is required above  $\pm 300$  basis points. The ESM is designed to protect customers and ensure that they share in any increased benefits from consolidation during the deferred rebasing period.

Under the ESM, excess earnings are shared with consumers on a 50:50 basis for all earnings that are more than 300 basis points above the consolidated entity's annual ROE. Earnings will be assessed each year once audited financial results are available and excess earnings beyond 300 basis points will be shared with customers annually. No evidence is required in support of an ESM that follows the form set out in the OEB's reports.

To encourage consolidation, the OEB also extended the availability of the ICM for consolidating distributors that are on Annual IR Index, thereby providing consolidating distributors with the ability to finance capital investments during the deferral period without being required to rebase earlier than planned.

On January 19, 2016 the OEB issued the *Handbook to Electricity Distributor and Transmitter Consolidations* (the MAADs Handbook). The MAADs Handbook provides

<sup>26</sup> *Board Policy: A New Distribution Rate Design for Residential Electricity Customers*, April 2, 2015.

<sup>27</sup> The OEB's August 14, 2014 *Decision* on the quarterly rate adjustment mechanism process for natural gas distributors (EB-2014-0199), determined that advance notification to customers would be required going forward and a mitigation plan must be filed if a 25% or greater change is anticipated on the commodity portion of a typical residential system supply customer's bill.