EXHIBIT LIST					
Exhibits	**Tab**	**Schedule**	**Attachment**	**Contents**	**Filed (F) Updated (U)**
A				**ADMINISTRATIVE DOCUMENTS**	
A1	1	1		Exhibit List	2023-12-13
A1	1	2		List of Tables	2023-12-13
A1	2	1		Application	2023-12-13
A1	2	2		Approvals	2023-12-13
A1	2	3		Draft Issues List	2023-12-13
A2	1	1		Stakeholder Consultation	2023-12-13
H				**DEFERRAL AND VARIANCE ACCOUNTS**	
H1	1	1		Deferral and Variance Accounts	2023-12-13
H1	2	1		Clearance of Deferral and Variance Accounts	2023-12-13
I				**DETERMINATION OF PAYMENT AMOUNTS**	
I1	1	1		Regulated Hydroelectric and Nuclear Rate Riders	2023-12-13
I1	1	2		Consumer Impact	2023-12-13
M				**MARKET RENEWAL PROGRAM**	
M1	1	1		Market Renewal Program	2023-12-13

LIST OF TABLES

H	DEFERRAL AND VARIANCE ACCOUNTS
H1	H1-1-1 • Table 1 – Deferral and Variance Accounts, Closing Balances, 2019, 2020, 2021 and 2022 • Table 1a – Deferral and Variance Accounts, Continuity of Account Balances, Year Ended December 31, 2020 • Table 1b – Deferral and Variance Accounts, Continuity of Account Balances, Year Ended December 31, 2021 • Table 1c – Deferral and Variance Accounts, Continuity of Account Balances, Year Ended December 31, 2022 • Table 2 – Hydroelectric Water Conditions Variance Account, Summary of Account Transactions – 2020, 2021 and 2022 • Table 3 – Ancillary Services Net Revenue Variance Account - Summary of Account Transactions – 2020, 2021 and 2022 • Table 4 – Hydroelectric Incentive Mechanism Variance Account, Summary of Account Transactions – 2020, 2021 and 2022 • Table 5 – Hydroelectric Surplus Baseload Generation Variance Account, Summary of Account Transactions – 2020, 2021 and 2022 • Table 6 – Income and Other Taxes Variance Account, Summary of Account Transactions – 2020, 2021 and 2022 • Table 7 – Capacity Refurbishment Variance Account – Hydroelectric – Capital Projects In-service Prior to June 1, 2017 and Non-Capital Portion – Summary of Account Transactions – 2016, 2017, 2018, 2019, 2020 and 2021 • Table 7a – Notes to Table 7 – Capacity Refurbishment Variance Account – Hydroelectric – Capital Projects In-service Prior to June 1, 2017 and Non-Capital Portion • Table 7b – Capacity Refurbishment Variance Account – Hydroelectric – Projects In-service from June 1, 2017 to December 31, 2021 – Summary of Account Additions Before Application of Recoverability Threshold – 2016, 2017, 2018, 2019, 2020 and 2021 • Table 7c – Capacity Refurbishment Variance Account – Hydroelectric – Projects In-service from June 1, 2017 to December 31, 2021 – Revenue Requirement Impact of Differences Between Total In-Service Additions and Capital Funding Implicit in Payment Amounts • Table 7d – Capacity Refurbishment Variance Account – Hydroelectric – Projects In-Service from June 1, 2017 to December 31, 2017 – Summary of Account Transactions – 2017, 2018, 2019, 2020 and 2021 • Table 8 – Pension & OPEB Cash Payment Variance Account and Pension & OPEB Cash Versus Accrual Differential Deferral Account – Summary of Account Transactions – 2020, 2021 and 2022

	• Table 8a – Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account – Primary, Contra and Carrying Charges Sub-Accounts – Summary of Account Transactions – 2020, 2021 and 2022 • Table 8b – Pension and OPEB Cost Variance Account – Nuclear – Summary of Account Transactions – 2022 • Table 9 – Hydroelectric Deferral and Variance Over/Under Recovery Variance Account, Summary of Account Transactions – 2020, 2021 and 2022 • Table 10 – Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account – Summary of Account Transactions – 2020, 2021 and 2022 • Table 11 – Bruce Lease Net Revenues Variance Account – Summary of Account Transactions – 2020, 2021 and 2022 • Table 11a – Bruce Lease Net Revenues Variance Account – Comparison of Bruce Lease Net Revenues – 2020, 2021 and 2022 • Table 11b – Bruce Lease Net Revenues Variance Account – Calculation of Bruce Income Taxes – 2020, 2021 and 2022 • Table 12 – Nuclear Deferral and Variance Over/Under Recovery Variance Account – Summary of Account Transactions – 2020, 2021 and 2022 • Table 13 – Impact Resulting from Changes in Pickering End-of-Life Dates (December 31, 2017) Deferral Account – Summary of Account Transactions – 2020 and 2021 • Table 14 – Scientific Research and Experimental Development (“SR&ED”) Investment Tax Credits (“ITCs”) Variance Account – Summary of Account Transactions – 2020, 2021 and 2022 • Table 15 – Capacity Refurbishment Variance Account – Nuclear – Non-Capital Portion – Non-DRP – Summary of Account Transactions – 2020, 2021 and 2022 • Table 16 – Capacity Refurbishment Variance Account – Nuclear – Capital Portion – Non-DRP – Summary of Account Transactions – 2020, 2021 and 2022 • Table 16a – Notes to Table 16 – Capacity Refurbishment Variance Account – Nuclear – Capital Portion – Non-DRP • Table 17 – Capacity Refurbishment Variance Account – Nuclear – D2O Project – Summary of Account Transactions – 2020 and 2021 • Table 18 – Nuclear Liability Deferral Account – Summary of Account Transactions – 2022 • Table 18a – Impact of Year End Actual 2020 Adjustment - Assignment of ARO Adjustment and Allocation of ARC to Nuclear Stations • Table 19 – Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account – Summary of Account Transactions – 2021 and 2022 • Table 19a – Notes to Table 19 – Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account • Table 19b – Notes to Table 19 Continued – Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account • Table 20 – Nuclear Development Variance Account – Summary of Account Transactions – 2020, 2021 and 2022

	H1-2-1 • Table 1 – Calculation of Deferral and Variance Account Recovery Payment Rider – Regulated Hydroelectric • Table 2 – Calculation of Deferral and Variance Account Recovery Payment Rider – Nuclear
I	DETERMINATION OF PAYMENT AMOUNTS
I1	I1-1-1 • Table 1 – Annualized Residential Consumer Impact, EB-2020-0290 to EB-2023-0336 • Table 1a – Annualized Bill Impact for Typical Alectra (PowerStream) Consumers 2024-2026 • Table 1b – Annualized Bill Impact for Typical Hydro One Networks Consumers 2024-2026 • Table 1c – Annualized Bill Impact for Typical Toronto Hydro Consumers 2024-2026 • Table 2 – Calculation of Change in Weighted Average Payment Amount, EB-2020-0290 to EB-2023-0336

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998;*

AND IN THE MATTER OF an Application by Ontario Power Generation Inc. for an order or orders relating to impacts from the Market Renewal Program on prescribed generating facilities, and the disposition of balances in its deferral and variance accounts as of December 31, 2022.

APPLICATION

1. The applicant, Ontario Power Generation Inc. ("OPG") is a corporation, incorporated under the *Ontario Business Corporations Act*, with its head office in the City of Toronto. The principal business of OPG is the generation and sale of electricity in Ontario.

2. In this Application, OPG applies to the Ontario Energy Board ("OEB") pursuant to section 78.1 of the *Ontario Energy Board Act, 1998* (the "Act"), for:

   (i) an order or orders approving changes to the calculation of amounts for the Hydroelectric Surplus Baseload Generation Variance Account ("SBGVA") and the Hydroelectric Incentive Mechanism ("HIM"), and approving the treatment of real-time make whole payments, resulting from the implementation of the Independent Electricity System Operator's ("IESO") Market Renewal Program ("MRP"); and

   (ii) an order or orders approving the disposition of audited December 31, 2022 deferral and variance account balances less amortization amounts previously approved by the OEB in EB-2020-0290 for the 2023-2026 period, together with the income tax impacts associated with the recovery of the Pension & OPEB Cash Versus Accrual Differential Deferral Account, as set out in Ex. H1-1-1 and Ex. H1-2-1. To recover these amounts, OPG seeks two separate payment riders for the regulated hydroelectric and nuclear generating facilities prescribed under *Ontario Regulation*

53/05 ("O. Reg. 53/05"). OPG seeks to recover the amounts described above over a 30-month period from July 1, 2024 through December 31, 2026.

3. To disposition the balances in the deferral and variance accounts, and income tax impacts associated with the recovery of the balance in the Pension & OPEB Cash versus Accrual Differential Deferral Account, as described above, OPG is seeking payment riders for the output of the regulated hydroelectric facilities of $2.75/MWh for the period from July 1, 2024 to December 31, 2026; and for the output of the nuclear facilities of $3.25/MWh for the period from January 1, 2024 to December 31, 2024, $3.55/MWh for the period from January 1, 2025 to December 31, 2025, and $5.04/MWh for the period from January 1, 2026 to December 31, 2026.

4. The specific approvals sought in this Application are set out in Ex. A1-2-2.

5. The Application will be supported by written evidence. The written evidence filed by OPG may be supplemented or amended from time to time by OPG prior to the OEB's final decision on the Application.

6. OPG further applies to the OEB pursuant to the provisions of the Act and the OEB Rules of Practice and Procedure for such orders and directions as may be necessary in relation to the Application and the proper conduct of this proceeding.

7. OPG requests that pursuant to section 32.01 of the OEB "Rules of Practice and Procedure", this proceeding be conducted by way of a written hearing.

8. The persons affected by this Application are all electricity consumers in Ontario. It is impractical to set out the names and addresses of the consumers because they are too numerous.

9. OPG requests that copies of all documents filed with the OEB by each party to this Application along with copies of all comments filed with the OEB in accordance with Rule 24 of the OEB Rules of Practice and Procedure be served on the applicant and the applicant's counsel as follows:

(a)	The applicant:	Matt Kirk
		Ontario Power Generation Inc.
	Mailing address:	H19
		700 University Avenue
		Toronto ON M5G 1X6
	Telephone:	416-592-8541
	Facsimile:	416-592-8519
	Electronic mail:	opgregaffairs@opg.com
(b)	The applicant's Counsel:	Charles Keizer
		Torys LLP
	Mailing address:	79 Wellington St. W.
		PO Box 270
		Toronto Dominion Centre
		Toronto ON M5K 1N2
	Telephone:	416-865-0040
	Facsimile:	416-865-7380
	Electronic mail:	ckeizer@torys.com
(c)	The applicant's Counsel:	Peter Cuff
		Ontario Power Generation Inc.
	Mailing address:	H19
		700 University Avenue
		Toronto ON M5G 1X6

Telephone: 416-420-5511
Facsimile: 416-592-1466
Electronic mail: peter.cuff@opg.com

Dated at Toronto, Ontario, this 13th day of December, 2023.

Ontario Power Generation Inc.

Charles Keizer
Torys LLP

APPROVALS

In this Application, OPG seeks the following specific approvals:

1. Approval of the Hydroelectric Surplus Baseload Generation Variance Account spill calculation methodology described in Ex. M1-1-1, Section 2.3.2.

2. Approval of a revised Hydroelectric Incentive Mechanism ("HIM") methodology and HIM adjustment for spill described in Ex. M1-1-1, Section 3.3 and Section 3.4.6, respectively.

3. Approval to continue to retain real-time make whole payments, as described in Ex. M1-1-1, Section 4.0.

4. Approval for recovery of audited December 31, 2022 balances of the deferral and variance accounts for the regulated hydroelectric facilities and nuclear facilities as identified in Exhibit H.

5. Approval of the following payment riders to recover the applicable portion of the approved balances described in paragraph 4: for the regulated hydroelectric facilities of $2.75/MWh for the period from July 1, 2024 to December 31, 2026; and for the nuclear facilities of $3.25/MWh for the period from January 1, 2024 to December 31, 2024, $3.55/MWh for the period from January 1, 2025 to December 31, 2025, and $5.04/MWh for the period from January 1, 2026 to December 31, 2026.

DRAFT ISSUES LIST

The following is the draft issues list proposed by OPG.

1. Is the proposed Hydroelectric Surplus Baseload Generation Variance Account spill calculation methodology appropriate?

2. Is the proposed Hydroelectric Incentive Mechanism ("HIM") methodology and HIM adjustment for spill appropriate?

3. Is the proposed treatment of make whole payments appropriate?

4. Are the amounts recorded in the applicable deferral and variance accounts appropriate?

5. Are the balances for recovery in each of the deferral and variance accounts appropriate?

6. Are the proposed rate riders and disposition periods for the account balances appropriate?

STAKEHOLDER & RIGHTSHOLDER CONSULTATION

1.0 PURPOSE

This evidence provides a description of the stakeholder and rightsholder consultation process that OPG held on the Application prior to filing it with the OEB.

2.0 BACKGROUND

OPG held a stakeholder and rightsholder information session on November 30, 2023, in advance of submitting the Application. The following provides an outline of the session including the objective, process, participants, and participant funding guidelines.

3.0 OBJECTIVE

The objective of the consultation process was to inform stakeholders and rightsholders about the Application.

4.0 PROCESS

OPG invited stakeholders who participated in the last OEB proceeding regarding OPG's payment amounts, and other stakeholders and rightsholders who, in OPG's view, may have a material interest in the application.

The invitation letter, including funding guidelines, is provided in Attachment 1. Funding was offered to participants who qualified under the funding guidelines. The session presentation is provided in Attachment 2.

ATTACHMENTS

Attachment 1: Stakeholder Invitation Letter and Funding Guidelines

Attachment 2: Information Session Presentation

ONTARIO POWER GENERATION

Matt Kirk
Director, Regulatory Affairs

700 University Avenue, Toronto, ON 416-592-8541 matthew.kirk@opg.com

November 24, 2023

VIA EMAIL

Dear Stakeholders and Rightsholders:

Stakeholder and Rightsholder Information Session:
Application relating to impacts from the Market Renewal Program and disposition of 2022 deferral and variance account balances

Ontario Power Generation (OPG) is preparing an application to the Ontario Energy Board (OEB) to address impacts of the Independent Electricity System Operator's Market Renewal Program, and request disposition of the balances in OPG's deferral and variance accounts as at December 31, 2022.

OPG plans to file the application shortly. The purpose of this letter is to invite you to participate in an information session that OPG is conducting in advance of filing the application.

We are contacting stakeholders and rightsholders who we believe may have an interest in this application. The objective of the information session is to provide an overview of our application.

The session will be held on November 30, 2023, from 11:00am to 11:30am. The session will be held virtually via Teams, details of which are to follow.

The agenda for the session will be forwarded to participants in advance, and all of OPG's presentation materials will be posted on OPG's website, www.opg.com, following the session. OPG will provide funding for participation in the stakeholder and rightsholder information session to eligible participants. A copy of the funding guidelines is attached for your information.

If you have any questions, please contact me at matthew.kirk@opg.com. Please confirm your attendance at the session by contacting Lori Patchett by email at lori.patchett@opg.com or by phone at 416-592-3534.

Sincerely,

Matt Kirk

Attachment 1: OPG Stakeholder Information Session Participant Funding Guideline

Attachment 1:

Participant Funding Guidelines

To facilitate dialogue with its stakeholders, Ontario Power Generation (OPG) will provide funding to assist qualifying stakeholders to participate in its stakeholder consultation process for its application to the Ontario Energy Board (OEB) relating to impacts from the Market Renewal Program and disposition of 2022 deferral and variance account balances. The funding criteria that will be used are based on the OEB's most recent Practice Direction on Cost Awards. The following provides eligibility guidelines and a description of the funding process.

Eligibility

- The determination of whether a party is eligible for funding will be at the sole discretion of OPG.
- Funding is limited to not-for-profit organizations whose interests are affected by the application such as public interest organizations, environmental organizations, and Indigenous communities.
- Individuals and organizations with a direct commercial or business interest in the application are not eligible for funding. This includes, but may not be limited to, transmitters, wholesalers, generators, distributors, retailers and marketers, or organizations representing these interests.
- Municipal or provincial government staff or representatives are not eligible for funding.
- Parties with similar interests are encouraged to combine their participation.
- Funding will be provided only to stakeholders participating in the discussion session.

Process for Funding and Eligible expenses

- To allow timely processing of requests, it is suggested that stakeholders seeking funding apply to OPG prior to the session. Stakeholders should indicate in writing that they will be participating and include a statement justifying their eligibility. Parties should submit their request for financial support to:

  Matt Kirk
  matthew.kirk@opg.com

- OPG will notify the party prior to the session if their funding application is accepted.
- Funding will be provided for meeting preparation and attendance for one person based on rates outlined in the OEB's Cost Award Tariff.
- Preparation time is not to exceed an amount equal to the meeting time. Preparation time is only allowed if the stakeholder attends the session.
- As this will be a virtual meeting, no travel expenses will be allowed.
- Reasonable disbursements, such as postage, photocopying, etc., are eligible expenses.
- Eligible participants must submit an OPG disbursement claim sheet form complete with receipts, no later than 30 days after the session.

OPG | Electrifying life

Impacts of the Market Renewal Program and Clearance of Deferral & Variance Accounts

Stakeholder & Rightsholder Information Session

November 2023

Territory Acknowledgement

Application Summary and Timing

Impact of the IESO's Market Renewal Program

Deferral & Variance Account Clearance

Application Summary and Timing

EB-2020-0290 Settlement

- "OPG shall file an application with the OEB regarding any changes to the Hydroelectric Incentive Mechanism and other impacts arising from the MRP with sufficient time for the OEB to adjudicate the application prior to the scheduled implementation of the MRP."

- "in conjunction with [the MRP] application, or separately during the IR term, OPG may also file an application to clear deferral and variance accounts."

Application Summary and Timing

In the application, OPG is requesting:

- Approval of the Surplus Baseload Generation Variance Account spill calculation methodology.
- Approval of a revised Hydroelectric Incentive Mechanism ("HIM") methodology and HIM adjustment for spill.
- Continuation of current treatment of make whole payments.
- Approval for recovery of audited December 31, 2022 balances of regulated hydroelectric and nuclear deferral and variance accounts.

02

Impact of the IESO's Market Renewal Program

Market Renewal Program Status and Impacts

- IESO is currently in the implementation phase of its Market Renewal Program ("MRP") with an expected in-service date of May 2025.

Impacts of MRP on OPG's regulated framework are primarily due to:

- Replacing the two-schedule market with a single schedule market ("SSM") and locational marginal price ("LMP").
- Introducing a financially binding day-ahead market ("DAM").

02

Impact of the IESO's Market Renewal Program

Overview of OPG's Effective Payment Amounts

- OPG's base payment amounts for the 2022-2026 period were set in EB-2020-0290 for OPG's regulated hydroelectric and nuclear facilities.
- Certain components of OPG's regulatory framework incorporate features of the current two-schedule market, for example the uniform market price.
- Elements of OPG's payment amounts designed on this basis are incompatible with the market post-MRP implementation and will need to be revised to reflect resultant changes and new drivers.

Major Changes Introduced by Market Renewal Program

	Today's Market	Renewed Market
Market	• Day-Ahead Commitment Process + Real-time market • No financially binding day-ahead schedule/price	• Day-Ahead market + Real-Time balancing market • Financially binding day-ahead schedule/price
Scheduling & Dispatch	• Two Schedules: I. Pricing schedule – determines prices for market settlement II. Dispatch schedule – determines dispatch of resources	• Single Schedule One schedule for market prices and dispatch scheduling
Price	• Uniform market price	• Locationally-based market prices

IESO MRP Resources
Background: https://ieso.ca/en/Market-Renewal/Background/Overview-of-Market-Renewal
High-level Design documents: https://ieso.ca/en/Market-Renewal/Energy-Stream-Designs/High-Level-Designs

02

MRP Impacts on OPG Regulated Framework Addressed in this Application

MRP Changes		SBGVA	HIM	MWP/CMSC
Single Schedule Market	Uniform price to Locational Prices	☑	☑	
	Eliminate Unconstrained schedule	☑		☑
	Changes to MWP			☑
DAM & RTM	DAM & RTM Settlement		☑	

02

Surplus Baseload Generation Variance Account (SBGVA)

MRP Impact:

1. The calculation of SBG spill amounts will be affected by transition to a single schedule market with the elimination of the uniform market price used in the current SBG spill determination methodology
2. OPG will no longer have access to an indicator of global SBG conditions.

Proposed Treatment:

Revise the calculation of amounts booked in OPG's SBGVA to record the financial impact of forgone production due to SBG conditions based on LMP.

02

Hydroelectric Incentive Mechanism (HIM)

MRP Impact:

The HIM needs to be revised to reflect new market features including LMP and settlement of the new day-ahead and real-time markets.

Proposed HIM Treatment:

A revised Hydroelectric Incentive Mechanism to incorporate:

- separate incentives for the day-ahead and real-time timeframe;
- settlement on LMP;
- daily production averaging instead of the current monthly production averaging.

02

HIM Adjustment for SBG ("Unintended Benefit")

MRP Impact:

In alignment with proposed changes to the HIM and calculation of SBG spill, the formula for unintended benefit will be revised accordingly.

Proposed Unintended Benefit Treatment:

A revised unintended benefit formula that incorporates:

- Settlement on real-time LMP. (Due to the real-time nature of spill);
- daily averaging;

02

Make Whole Payments

MRP Impact:

MRP will introduce changes to the nature and frequency of MWPs. IESO describes MWPs expected post MRP implementation as small and infrequent.

Proposed Treatment:

Consistent with current treatment, OPG proposes to retain any real-time MWPs net of any clawbacks, separate from the regulated payment structure.

03

Deferral & Variance Account Clearance

- OPG proposes to recover December 31, 2022 D&V account balances for most accounts (less amounts previously approved for recovery through payment riders established in EB-2020-0290)
- Hydroelectric D&V account balances of $217M and nuclear D&V account balances of $222M

03

Proposed Recovery Periods

- OPG proposes to clear the recoverable amounts over a 30-month period from July 1, 2024 to December 31, 2026
- Riders concluding at the end of 2026 aligns with the current rate period and subsequent transition to base payment amounts and riders to be approved in OPG's next major rate application

03

Hydroelectric D&V Account Balances

Regulated Hydroelectric Deferral and Variance Accounts	Audited 2022 Balance ($M)	EB-2020-0290 Amortization ($M)	2022 Balance Less Approved Amortization ($M)*
Water Conditions VA	(172.4)	(72.7)	(99.6)
Ancillary Services Net Revenue VA	(34.3)	(22.2)	(12.1)
Hydroelectric Incentive Mechanism VA	0	0	0
Surplus Baseload Generation VA	401.8	112.2	289.6
Income and Other Taxes VA	(13.3)	(1.8)	(11.5)
Capacity Refurbishment VA	80.3	0	80.3
Niagara Tunnel Project 2008 Disallowance VA	8.0	2.5	5.5
Pension & OPEB Cost VA	2.1	2.1	0
Pension & OPEB Cash VA	(77.0)	(25.7)	(51.3)
Pension & OPEB Cash Vs. Accrual Differential DA	110.4	82.3	28.1
Pension & OPEB Forecast Accrual Vs. Actual Cash – Carrying Costs	(2.0)	(0.1)	(1.9)
Hydroelectric Over/Under Recovery VA	16.1	2.3	13.8
Total	**319.8**	**78.9**	**240.8**

* Represents balance available for recovery. Not all amounts proposed for recovery in this application.

03

Nuclear D&V Account Balances

Nuclear Deferral and Variance Accounts	Audited 2022 Balance ($M)	EB-2020-0290 Amortization ($M)	2022 Balance Less Approved Amortization ($M)*
Nuclear Liability DA	188.3	0	188.3
Impact Resulting from Changes in Pickering EOL DAs	(102.7)	(163.9)	61.2
Nuclear Development VA	110.9	2.5	108.4
Ancillary Services Net Revenue VA	(13.6)	(2.4)	(11.3)
Income and Other Taxes VA	(18.8)	(9.7)	(9.1)
Capacity Refurbishment VA	50.7	(76.8)	127.5
Bruce Lease Net Revenues VA	101.3	99.6	1.7
Pension & OPEB Cost VA	(79.6)	42.9	(122.6)
Pension & OPEB Cash VA	(383.4)	(116.1)	(267.3)
Pension & OPEB Cash Vs. Accrual Differential DA	688.3	523.5	164.8
Pension & OPEB Forecast Accrual Vs. Actual Cash – Carrying Costs	(12.3)	(0.4)	(11.9)
Nuclear Over/Under Recovery VA	(74.7)	(16.8)	(58.0)
Fitness for Duty DA	1.6	0	1.6
SR&ED ITC VA	(8.6)	(8.1)	(0.5)
Rate Smoothing DA	568.9	0	568.9
Pickering Closure Costs DA	2.8	0	2.8
Total	**1,018.8**	**274.4**	**744.4**

* Represents balance available for recovery. Not all amounts proposed for recovery in this application.

03

Proposed D&V Recovery

- EB-2020-0290 approved clearance of December 31, 2019 balances over five-year period of 2022-2026
- In this application, OPG will propose to clear December 31, 2022 balances over the 2024-2026 period.

	2024	2025	2026
EB-2023-0336 Proposed Riders ($/MWh)			
Hydro Rider	2.75	2.75	2.75
Nuclear Rider	3.26	3.56	5.05
EB-2023-0336 Estimated Residential Bill Impacts			
Typical Bill Impact ($/Month)	1.07	0.05	0.15
Typical Bill Impacts (%)	0.8%	0.0%	0.1%

Electrifying life

OPG

DEFERRAL AND VARIANCE ACCOUNTS

1.0 PURPOSE

This evidence describes OPG's deferral and variance accounts and presents the amounts recorded in these accounts as of December 31, 2022 that are proposed for clearance in this application. These accounts were established pursuant to O. Reg. 53/05 and past OEB decisions and orders, as most recently set out by the OEB in the EB-2020-0290 Payment Amounts Order ("EB-2020-0290 PAO").

2.0 OVERVIEW

OPG proposes to clear the audited balances in all deferral and variance accounts as at December 31, 2022, less amortization amounts previously approved by the OEB in EB-2020-0290 for the 2023-2026 period, with the exceptions noted below. OPG is not seeking clearance of the following balances in the accounts: the Darlington Refurbishment Program ("DRP")[1], the Pickering B Refurbishment Feasibility Assessment, and the Optimization of Pickering Shutdown components of the nuclear portion of the Capacity Refurbishment Variance Account ("CRVA"), the 2022 additions to the hydroelectric portion of the CRVA, the Fitness for Duty Deferral Account, the Rate Smoothing Deferral Account, the Pickering Closure Costs Deferral Account, and Sale of the Unprescribed Kipling Site Deferral Account.[2] OPG proposes to defer the clearance of most of these accounts to a future application for the reasons discussed later in this exhibit.[3] OPG's proposal to clear the remaining account balances is consistent with the terms of the OEB-approved settlement proposal reached between OPG and intervenors in EB-2020-0290 ("Settlement Agreement") as detailed in the EB-2020-0290 OEB Decision and Order, where it is acknowledged that "in conjunction with [the MRP] application, or separately during the IR term, OPG may also file an application to clear deferral and variance accounts."[4]

[1] Consistent with EB-2020-0290, OPG proposes to clear the CRVA balances related to the Heavy Water Storage and Drum Handling Facility ("D2O Storage Project") and the impact of accelerated investment incentive property rules on DRP-related capital cost allowance ("CCA") amounts in this application.
[2] The following deferral and variance accounts have a zero balance as at December 31, 2022: Gross Revenue Charge Variance Account, Hydroelectric Incentive Mechanism Variance Account, Clarington Corporate Campus Deferral Account, Earnings Sharing Deferral Account, and Impact for IFRS Deferral Account.
[3] OPG does not seek to clear the Unprescribed Kipling Site Deferral Account for the reasons set out in Section 5.25.
[4] EB-2020-0290 Decision and Order, November 15, 2021 ("EB-2020-0290 Decision"), Schedule A, Ex. 0, p. 19.

Adjusted for 2023-2026 amortization amounts approved in EB-2020-0290, the proposed year-end 2022 account balances recoverable in this application are a net debit balance of $217.0M[5] for the regulated hydroelectric facilities and a net debit balance of $221.2M[6] for the nuclear facilities.[7]

Details regarding proposed account clearance and riders are presented in Ex. H1-2-1. The audited balances in each of the deferral and variance accounts are shown in Ex. H1-1-1, Table 1. The unqualified Independent Auditors' Report prepared by Ernst & Young LLP on the Schedule of Regulatory Balances as at December 31, 2022 is presented as Attachment 1. The Schedule of Regulatory Balances as at December 31, 2022 is presented as Attachment 2.

In this application, OPG is not proposing any changes to the deferral and variance accounts approved in the EB-2020-0290 PAO, including the descriptions of the accounts and the methodologies used to determine additions to the accounts, with one exception. As discussed in Ex. M1-1-1, Section 2.3.2, OPG is proposing changes to the spill calculation methodology used to determine entries into the Hydroelectric Surplus Baseload Generation Variance Account as of the implementation date of the Independent Electricity System Operator's ("IESO") Market Renewal Program ("MRP").

The following information is provided in this exhibit:

- Section 3.0 lists OPG's existing deferral and variance accounts as at December 31, 2022.
- Section 4.0 describes the process by which the December 31, 2022 balances in the deferral and variance accounts were determined.
- Section 5.0 describes the existing deferral and variance accounts and how additions to each of the accounts were determined. This includes proposed prospective changes to the calculation methodology that underpins the additions to the Hydroelectric Surplus Baseload Generation Variance Account.

[5] Ex. H1-2-1, Table 1, col. (e), line 16.
[6] Ex. H1-2-1, Table 2, col. (e), line 26.
[7] A debit entry or balance is an amount to be collected from ratepayers. A credit entry or balance is an amount to be returned to ratepayers.

- Section 6.0 discusses the application of interest to the balances in the accounts.

3.0 LISTING OF EXISTING ACCOUNTS

The authorized deferral and variance accounts for OPG are listed below. For the January 1, 2020 to December 31, 2021 period, accounts were authorized by the OEB pursuant to the EB-2016-0152 Payment Amounts Order ("EB-2016-0152 PAO") and EB-2018-0002 Decision and Order.[8] Effective January 1, 2022, pre-existing accounts were continued and new accounts were authorized by the OEB pursuant to Appendix E and Appendix F of the EB-2020-0290 PAO.[9]

Pre-existing accounts continued in the EB-2020-0290 PAO were as follows:

- Hydroelectric Water Conditions Variance Account
- Ancillary Services Net Revenue Variance Account – Hydroelectric and Nuclear Sub-Accounts
- Hydroelectric Incentive Mechanism Variance Account
- Hydroelectric Surplus Baseload Generation Variance Account
- Income and Other Taxes Variance Account
- Capacity Refurbishment Variance Account
- Pension and OPEB Cost Variance Account
- Pension & OPEB Cash Payment Variance Account
- Pension & OPEB Cash Versus Accrual Differential Deferral Account
- Hydroelectric Deferral and Variance Over/Under Recovery Variance Account
- Gross Revenue Charge Variance Account
- Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account

[8] The 2021 Overearnings Variance Account established in the EB-2020-0248 proceeding was subsequently determined to have a zero balance and closed pursuant to the OEB's letter dated February 7, 2023. The Impacts Arising from the COVID-19 Emergency Deferral Account, the Impact Resulting from Changes in Station End-of-life Dates (December 31, 2015) Deferral Account and the Derivative Sub-Account of the Bruce Lease Net Revenues Variance Account were terminated pursuant to the EB-2020-0290 PAO. These accounts are therefore not discussed in this application.

[9] In addition, the Pickering B Extension Variance Account was established by O. Reg. 53/05 effective January 1, 2023, in connection with a plan to operate Units 5-8 at the Pickering Nuclear Generating Station to September 2026 subject to regulatory approval by the Canadian Nuclear Safety Commission ("CNSC"), as announced by the Government of Ontario in September 2022. As this account was not in effect as of December 31, 2022, it is not discussed in this application.

- Nuclear Liability Deferral Account
- Nuclear Development Variance Account
- Bruce Lease Net Revenues Variance Account
- Nuclear Deferral and Variance Over/Under Recovery Variance Account
- Rate Smoothing Deferral Account
- Fitness for Duty Deferral Account
- SR&ED ITC Variance Account
- Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral Account
- Pension & OPEB Forecast Accrual versus Actual Cash Payment Differential Variance Account – Primary and Contra Sub-Accounts, and Carrying Charges Sub-Account
- Pickering Closure Costs Deferral Account.

Newly authorized accounts in the EB-2020-0290 PAO were as follows:[10]

- Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account, effective January 1, 2021
- Clarington Corporate Campus Deferral Account, effective January 1, 2022
- Sale of Unprescribed Kipling Site Deferral Account, effective January 1, 2022[11]
- Earnings Sharing Deferral Account, effective January 1, 2022
- Impact for IFRS Deferral Account, effective January 1, 2022.

4.0 ACCOUNT BALANCES

This section describes the process by which the December 31, 2022 account balances were determined.

The 2019 audited balances set out in the EB-2020-0290 PAO are the starting point for the account continuity tables provided at Ex. H1-1-1, Table 1a (2020), Table 1b (2021) and Table 1c (2022). The 2019 audited balances for the applicable deferral and variance accounts listed

[10] EB-2020-0290 PAO, p. 7.
[11] No accounting entries are recorded for this account as it is a tracking account only. Refer to EB-2020-0290 PAO, Appendix F, p. 6.

in Section 3.0 above were approved by the OEB for disposition as provided in the EB-2020-0290 PAO, Appendix C, Table 1, col. (a) for the regulated hydroelectric facilities and EB-2020-0290 PAO, Appendix D, Table 1, col. (a) for the nuclear facilities. The continuity tables show, for each account, the closing balance for the prior period, additions (labelled "Transactions"), amortization subtracted and interest added, any transfers between accounts during the period, and the closing account balances. Exhibit H1-1-1 Tables 2 through 20 provide supporting calculations showing the derivation of additions to the accounts that OPG proposes to clear in this application.

In accordance with the EB-2016-0152 PAO and EB-2020-0290 PAO, additions to the regulated hydroelectric accounts are calculated with reference to amounts underpinning the hydroelectric payment amounts approved in EB-2013-0321 and additions to the nuclear accounts are calculated with reference to amounts underpinning the corresponding nuclear revenue requirements approved in EB-2016-0152 for 2020 and 2021 and EB-2020-0290 for 2022, unless otherwise specified in an account's description.

The amortization presented for 2020 in Ex. H1-1-1 Table 1a, cols. (e) and (f) is per the EB-2016-0152 PAO and the EB-2018-0243 Decision and Payment Amounts Order ("EB-2018-0243 PAO").[12] The amortization presented for 2021 in Ex. H1-1-1 Table 1b, col. (c) is per the EB-2018-0243 PAO. The amortization presented for 2022 in Ex. H1-1-1 Table 1c, col. (c) is per the EB-2020-0290 PAO.

Unless otherwise specified in an account's description, interest has been applied to the monthly opening balances of the accounts at the OEB-prescribed interest rates of 2.18% per annum for January 1, 2020 through June 30, 2020, 0.57% per annum for July 1, 2020 through March 31, 2022, 1.02% per annum for April 1, 2022 through June 30, 2022, 2.20% per annum for July 1, 2022 through September 30, 2022, and 3.87% per annum for October 1, 2022 through December 31, 2022, pursuant to the applicable orders of the OEB.

[12] EB-2018-0243 Settlement Proposal, Attachment A formed the basis of the payment amounts approved in the EB-2018-0243 PAO.

5.0 ACCOUNT DESCRIPTIONS AND ENTRIES

This section provides a description and summarizes the purpose for OPG's deferral and variance accounts, outlines how additions to the accounts are determined, and the reasons for the credits and debits recorded to the accounts in the years that OPG seeks to clear in this application. The methodologies used to record these entries to the accounts are those approved by the OEB in EB-2016-0152 and EB-2020-0290, as applicable.

5.1 Hydroelectric Water Conditions Variance Account

The Hydroelectric Water Conditions Variance Account was originally established by O. Reg. 53/05. It was subsequently approved by the OEB in EB-2007-0905 and all subsequent OPG applications in recognition of the fact that water conditions are subject to a high degree of forecast risk due to factors that are beyond OPG's ability to manage or control, such as weather.

This account records the financial impact of differences, including changes in gross revenue charge ("GRC") costs, between the actual production amount for the regulated hydroelectric facilities and the reference production amount, arising from changes in actual water conditions. The account applies to the five hydroelectric generating stations subject to rate regulation by the OEB since 2008 ("previously regulated hydroelectric facilities") and 21 of the 48 hydroelectric generating stations that became subject to OEB rate regulation effective July 1, 2014 ("newly regulated hydroelectric facilities"). These 21 facilities are as listed in EB-2020-0290, Ex. H1-1-1, Attachment 3.

The account additions for January 1, 2020 through December 31, 2022 are based on the production forecast methodology approved in EB-2013-0321 and EB-2014-0370 and continued in the EB-2016-0152 PAO (Appendix G, pp. 3-4) and the EB-2020-0290 PAO (Appendix E, pp. 3-4).

Due to favourable water supply conditions in 2020, the calculated actual hydroelectric production was higher than the reference forecast production by 2,285 GWh for the Niagara and R.H. Saunders facilities. This was partially offset by lower calculated actual production for

the remaining regulated hydroelectric facilities of 58 GWh. These variances resulted in a net credit addition of $62.6M to the account in 2020. Due to unfavourable water supply conditions in 2021, particularly in the Northwestern region of the province, calculated actual production was less than the reference forecast production by 2,732 GWh for the newly regulated hydroelectric facilities. This was partially offset by 1,982 GWh due to higher than the reference forecast production at the Niagara and R.H. Saunders facilities from favourable water supply conditions. These variances resulted in a net debit entry of $40.8M to the account in 2021. Due to favourable water supply conditions in 2022, the calculated actual hydroelectric production was higher than the reference forecast production by 1,764 GWh for the Niagara and R.H. Saunders facilities and by 620 GWh for the remaining regulated hydroelectric facilities. These variances resulted in a credit entry of $71.0M to the account in 2022. The derivation of the variances is shown in Ex. H1-1-1, Table 2.

5.2 Ancillary Services Net Revenue Variance Account – Hydroelectric and Nuclear Sub Accounts

The Ancillary Services Net Revenue Variance Account was originally established by O. Reg. 53/05. It was subsequently approved by the OEB in EB-2007-0905 and has been approved in all subsequent OPG applications. This account recognizes that ancillary services revenues are difficult to forecast accurately, with variability in actual ancillary revenues reflecting changing demand and system operating requirements.

The account is divided into the Ancillary Services Net Revenue Variance Account – Hydroelectric and Ancillary Services Net Revenue Variance Account – Nuclear sub-accounts. Ancillary services for regulated hydroelectric operations include black start capability, operating reserve, regulation service, and reactive support/voltage control service. Ancillary services for nuclear operations include reactive support/voltage control service.

The derivation of account entries for 2020, 2021 and 2022 is shown in Ex. H1-1-1, Table 3.

Hydroelectric ancillary revenues in 2020 were virtually the same as the reference amount that reflects the forecasts underpinning the revenue requirements approved in EB-2013-0321.

Hydroelectric ancillary revenues in 2021 were lower than such reference amount, primarily due to lower operating reserve and regulation service revenues, partially offset by higher reactive support revenue. Hydroelectric ancillary revenues in 2022 were higher than the reference amount because of higher operating reserve and regulation service revenues, partially offset by lower reactive support revenue. These factors resulted in debit entries to the Hydroelectric Sub Account of $0.1M in 2020 and $5.4M in 2021, and a credit entry of $16.1M in 2022.

Nuclear ancillary revenues from January 1, 2020 through December 31, 2021 were higher than the reference amounts that reflected the forecasts underpinning the corresponding revenue requirements approved in EB-2016-0152, driven by higher reactive support revenue. Nuclear ancillary revenues in 2022 were higher than the reference amount that reflected the forecast underpinning the revenue requirement approved for the year in EB-2020-0290, also due to higher reactive support revenue. These factors resulted in credit entries to the Nuclear Sub Account of $4.8M in 2020, $4.6M in 2021 and $1.5M in 2022.

5.3 Hydroelectric Incentive Mechanism Variance Account

The Hydroelectric Incentive Mechanism Variance Account was originally approved in EB-2010-0008 along with OPG's hydroelectric incentive mechanism ("HIM") and has been approved in all subsequent OPG applications. The account records a credit to ratepayers of 50% of OPG's HIM revenues above an OEB-specified threshold, currently set at $54.5M based on the forecast of HIM revenues reflected in the hydroelectric payment amounts approved in EB-2013-0321.

There were no additions to the account in 2020, 2021 and 2022 as actual HIM revenues of $5.1M in 2020, $16.8M in 2021 and $14.3M in 2022 were significantly below the threshold, as shown in Ex. H1-1-1, Table 4.

5.4 Hydroelectric Surplus Baseload Generation Variance Account

The Hydroelectric Surplus Baseload Generation Variance Account was originally approved in EB-2010-0008 and has been approved in all subsequent OPG applications. This account records the financial impact of foregone production at the previously regulated hydroelectric

facilities and the 21 newly regulated hydroelectric facilities identified in EB-2020-0290 Ex. H1-1-1, Attachment 3 due to surplus baseload generation ("SBG") conditions. The amounts recorded in the account are net of avoided GRC costs. In EB-2010-0008, the OEB concluded that the approach used to address the impact of SBG conditions on OPG's hydroelectric production forecast would be to "capture the impacts of all SBG through a variance account, with no allowance built into the [hydroelectric production] forecast."[13]

The derivation of account entries for 2020, 2021 and 2022 is shown in Ex. H1-1-1, Table 5.[14] Actual foregone production due to SBG conditions was approximately 4,315 GWh in 2020, 1,882 GWh in 2021, and 1,592 GWh in 2022. Net of avoided GRC costs, the resulting debit entries in the account were $130.4M in 2020, $56.4M in 2021 and $47.9M in 2022. Foregone production due to SBG conditions was calculated using the methodology reviewed in EB-2013-0321 and continued in the EB-2016-0152 PAO and the EB-2020-0290 PAO.

As part of the EB-2020-0290 Settlement Agreement, the parties agreed in connection with the account:

> that in the future in seeking clearance of the Hydroelectric Surplus Baseload Generation Variance Account, OPG shall demonstrate that it operates its regulated fleet based on the standard of minimizing total electricity supply costs (including market and regulated payments while avoiding economic loss) to customers, subject to unavoidable considerations for the safety of any persons, equipment damage, or the violation of any applicable law ("SEAL") and unavoidable physical constraints. OPG will report on how it has met this standard each time it seeks clearance of the Hydroelectric Surplus Baseload Generation Variance Account. OPG's report will identify each time that OPG did not operate its regulated fleet to minimize total electricity supply costs during hours when OPG is booking additions to this variance account because doing so would cause OPG to experience an economic loss, and explain why operating to minimize total electricity supply costs would have caused economic loss in each case.[15]

The above requirements are addressed below and supported by Attachment 3 to this exhibit.

---

[13] EB-2010-0008 Decision with Reasons, March 10, 2011, p. 22.
[14] In addition to account additions for the 2020-2022 period, OPG is seeking disposition of the remaining $40.0M of the year-end 2019 debit account balance, plus interest, the clearance of which was deferred to this proceeding pursuant to the Settlement Agreement (EB-2020-0290 Decision, Schedule A, Ex. 0, p. 47).
[15] EB-2020-0290 Decision, Schedule A, Ex. 0, p. 48.

Per IESO Market Rules, the objective of the IESO's dispatch scheduling and optimization ("DSO") algorithm is to maximize the gains from trade to ensure consumers of electricity receive the highest value based on electricity supply offers.[16] OPG's hydroelectric fleet supports this market objective by maximizing its availability to the market through its offers according to market signals and following dispatch instructions. OPG maximizes its availability to the market through the use of cost-based offers for hydroelectric facilities that are not must-run or where forebay storage capability has been utilized. OPG's variable cost is the GRC when OPG generates at its hydroelectric stations or its opportunity cost when incremental hydroelectric storage is available. These offers allow the IESO's DSO algorithm to consider OPG's energy offers in relation to all other energy offers. In this way, OPG supports maximizing the economic gain from trade in the market and minimizing total electricity supply cost. The operational result for OPG's hydroelectric facilities is that those with storage capability will follow the IESO dispatches such that storage is maximized until spill is initiated. The above is further discussed in OPG's surplus baseload generation study found at Ex. M1-1-1, Attachment 1.

The only facility where OPG has the opportunity to take additional action to minimize supply costs during SBG events is the Sir Adam Beck Pump Generating Station ("PGS"). For this reason, the analysis of OPG's operations to minimize total supply costs focuses on the operational decisions for the PGS. As discussed in EB-2020-0290, there are a variety of reasons why the PGS may not pump during SBG conditions, including the safety of any person, equipment damage, or the violation of any applicable law ("SEAL"), physical limitations, and uneconomic operations.[17] In the case of uneconomic operations, OPG has prepared Attachment 3 to address the Settlement Agreement's requirement to provide the reason why OPG would have experienced an economic loss for hours when OPG recorded additions to

[16] IESO Market Rules Chapter 7, ss 4.3.2.
[17] EB-2020-0290, Undertaking JT2.22. This information is also provided in OPG's annual SBG-related reporting to the OEB established in EB-2020-0290.

the Hydroelectric Surplus Baseload Generation Variance Account, but did not pump water at the PGS.[18]

5.5 Income and Other Taxes Variance Account

The Income and Other Taxes Variance Account was originally approved in EB-2007-0905 and has been approved in all subsequent OPG applications. This account records the financial impact on the revenue requirement of the following:

- Any differences in payments in lieu of corporate income or capital taxes that result from a legislative or regulatory change to the tax rates or rules of the *Income Tax Act* (Canada) and the *Taxation Act*, 2007 (Ontario) (formerly the *Corporations Tax Act* (Ontario), as modified by the regulations under the *Electricity Act, 1998*, and any differences in payments in lieu of property tax to the Ontario Electricity Financial Corporation that result from changes to the regulations under the *Electricity Act, 1998*;
- Any differences in municipal property taxes that result from a legislative or regulatory change to the tax rates or rules for OPG's prescribed assets under the *Assessment Act, 1990*;
- Any differences in payments in lieu of corporate income or capital taxes that result from a change in, or a disclosure of, a new assessing or administrative policy that is published in the public tax administration or interpretation bulletins by relevant federal or provincial tax authorities, or court decisions on other taxpayers; and,
- Any differences in payments in lieu of income or capital taxes that result from assessments or re-assessments (including re-assessments associated with the application of the tax rates and rules to OPG's regulated operations or changes in assessing or administrative policy including those arising from court decisions on other taxpayers).

OPG recorded four entries to the variance account in 2020, 2021 and 2022, as follows:

[18] The 2018 and 2019 data in Attachment 3 reflects enhancements to the PGS utilization assessment methodology made subsequent to EB-2020-0290; these are also reflected in OPG's annual SBG-related reporting requirements to the OEB established in EB-2020-0290.

1) Credit entries in 2020, 2021 and 2022 related to a CCA rule change pursuant to the passing of Bill C-97, the *Budget Implementation Act, 2019, No. 1* in 2019, which provides for a first-year increase in CCA deductions on eligible capital assets acquired after November 20, 2018, referred to as accelerated investment incentive property ("AIIP").[19] In 2022, the entry was applicable to the regulated hydroelectric facilities only, since the impact of this change for the nuclear facilities was reflected in the EB-2020-0290 nuclear revenue requirements;
2) As identified by OPG in EB-2020-0290, a credit entry in 2020 to correct a transcribing error, wherein the increase in the recognition of Scientific Research and Experimental Development investment tax credits ("SR&ED ITCs") for the 2014 taxation year from 75% to 100% was incorrectly reported in 2018 as a debit entry, rather than a credit entry;[20]
3) A credit entry related to an increase in the recognition of SR&ED ITCs for the 2016 taxation year from 75% to 100%, based on the resolution of the 2016 income tax audit in 2021; and
4) A debit entry related to a reduction to the rate for the Ontario Research and Development Tax Credit from 4.5% to 3.5% of qualifying expenditures, effective June 1, 2016. This entry applies to the regulated hydroelectric facilities only, as the impact of this change for the nuclear facilities was reflected in the nuclear revenue requirements from EB-2016-0152 onwards.

As shown in the derivations at Ex. H1-1-1, Table 6:

- Entry 1 is a credit of $5.8M in 2020 ($3.4M credit for nuclear and $2.4M credit for regulated hydroelectric), a credit of $7.6M in 2021 ($2.7M credit for nuclear and $4.9M credit for regulated hydroelectric) and a credit of $3.6M in 2022 for regulated hydroelectric.
- Entry 2 is a credit of $0.1M in 2020 for regulated hydroelectric.
- Entry 3 is a credit of $2.6M in 2021 ($2.4M credit for nuclear and $0.2M credit for regulated hydroelectric).

[19] The entries do not include the impacts on projects subject to the Capacity Refurbishment Variance Account, which are recorded in the Capacity Refurbishment Variance Account as part of the total CCA variances for those projects.
[20] EB-2020-0290, Ex. L-H1-01-Staff-320, Att. 1, Table 6, note 4. Interest was applied to the original entry date.

- Entry 4 is a debit of less than $0.05M in each of 2020, 2021 and 2022 for regulated hydroelectric.

Entries 1, 3 and 4 are the same in nature and calculation as the equivalent entries previously recorded in the account.

5.6 Capacity Refurbishment Variance Account

The Capacity Refurbishment Variance Account was originally approved in EB-2007-0905 and has been approved in all subsequent OPG applications. This account was established pursuant to Section 6(2)4 of O. Reg. 53/05 to record the financial impacts of variances between the actual capital and non-capital costs and firm financial commitments incurred to increase the output of, refurbish or add operating capacity to a prescribed generation facility referred to in Section 2 of O. Reg. 53/05 and those forecast costs and firm financial commitments underpinning the revenue requirement that was approved by the OEB, including for the DRP. As required by O. Reg. 53/05, Section 6(2)4, the account includes assessment costs and pre-engineering costs and commitments.

5.6.1 Regulated Hydroelectric

The variances recorded in the Capacity Refurbishment Variance Account for the regulated hydroelectric facilities are determined as between the revenue requirement impact of actual capital and non-capital costs for eligible projects and the corresponding forecast amounts included in the regulated hydroelectric revenue requirements approved by the OEB.[21]

In view of the regulated hydroelectric payment amounts transitioning to a price-cap rate-setting methodology, the EB-2016-0152 PAO stipulated that, effective June 1, 2017, the CRVA was to record entries for the regulated hydroelectric facilities relative to the annual reference amount of $0.9M reflected in the revenue requirement for 2014 and 2015 approved by the OEB in EB-2013-0321 as escalated to the corresponding year by the price cap index applied to adjust the hydroelectric payment amounts approved by the OEB for 2018 to 2021.

[21] EB-2013-0321 Payment Amounts Order, Appendix G, p. 10; EB-2014-0370 Payment Amounts Order, Appendix B, p. 12.

Additionally, the EB-2016-0152 PAO stipulated that OPG is entitled to recover amounts recorded in the CRVA in relation to the regulated hydroelectric facilities effective June 1, 2017 to the extent that total capital in-service capital additions for these facilities (including any CRVA-eligible projects) exceed the funding available for capital expenditures through the regulated hydroelectric payment amounts. The EB-2016-0152 PAO prescribed that such annual capital funding implicit in the regulated hydroelectric payment amounts be determined by escalating the average of 2014 and 2015 OEB-approved depreciation for the regulated hydroelectric facilities of $143.3M in EB-2013-0321 to the corresponding year by the price cap index applied to adjust the hydroelectric payment amounts approved by the OEB for 2018 to 2021.[22] This process is summarized in Chart 1 below, which is the same as in EB-2016-0152, Ex. H1-1-1, Table 3, as updated for the known price cap indices applicable to these years.

Chart 1[23]

Total Hydroelectric In-Service Additions Funded Through 2017-2021 Payment Amounts

Line No.	Description	EB-2013-0152 Average	2017	2018	2019	2020	2021	Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	Total Funding Available for Capital Expenditures[1,2]	143.3	145.3	146.6	148.2	150.5	153.0	743.6

Notes:

1 Average of 2014 and 2015 OEB Approved depreciation calculated as the sum of EB-2013-0321 Payment Amounts Order Table 1 line 17 cols. (c) and (f), and Table 2 line 17 cols. (c) and (f), divided by two.

2 Escalated at OEB-approved I-X rates of 1.4% in 2017, 0.9% in 2018, 1.1% in 2019, 1.5% in 2020, and 1.7% in 2021.

Similarly, the EB-2020-0290 PAO stipulates that, effective January 1, 2022, the CRVA records entries for the regulated hydroelectric facilities relative to the annual reference amount of $1.0M, being the $0.9M reflected in the revenue requirement for 2014 and 2015 approved by the OEB in EB-2013-0321 as escalated by the price cap index applied to adjust the hydroelectric payment amounts approved by the OEB for 2018 to 2021. Additionally, the EB-2020-0290 PAO stipulates that OPG is entitled to recover amounts recorded in the CRVA in

[22] EB-2016-0152 PAO, Appendix G, pp. 9-10.
[23] As set out in EB-2020-0290, Ex. H1-1-1, Chart 1.

relation to the regulated hydroelectric facilities effective January 1, 2022 to the extent that total capital in-service capital additions for these facilities (including any CRVA-eligible projects) exceed the funding available for capital expenditures through the regulated hydroelectric payment amounts. The EB-2020-0290 PAO prescribes that such annual capital funding implicit in the regulated hydroelectric payment amounts effective January 1, 2022 is $153.0M, which was determined by escalating the average of 2014 and 2015 OEB-approved depreciation for the regulated hydroelectric facilities of $143.3M in EB-2013-0321 by the price cap index applied to adjust the hydroelectric payment amounts approved by the OEB for 2018 to 2021.[24]

In this application, OPG seeks to clear the year-end 2021 regulated hydroelectric balance of the CRVA totaling a debit of $56.5M (inclusive of interest), as the completion of the June 1, 2017 to December 31, 2021 IR period provides the basis for assessing the recoverability of the applicable amounts recorded during this period based on the thresholds set out in the EB-2016-0152 PAO.[25] OPG proposes to defer the clearance of the regulated hydroelectric additions to the CRVA during 2022 to a future application, which would provide the necessary details for assessing the recoverability of amounts recorded over the full 2022-2026 IR period based on the thresholds set out in the EB-2020-0290 PAO.[26]

The year-end 2021 regulated hydroelectric balance of the CRVA comprises the following additions recorded over the 2016-2021 period:[27]

- For the capital portion related to projects placed in service prior to June 1, 2017, net debit additions totaling $24.4M;[28]
- For the non-capital portion, net debit additions totaling $22.5M;[29] and

[24] EB-2020-0290 PAO, Appendix E, pp. 8-9.
[25] Ex. H1-1-1, Table 1, line 6, col. (c).
[26] For the same reason, OPG did not seek clearance of the regulated hydroelectric balances in the CRVA in EB-2018-0243 and EB-2020-0290.
[27] Prior to this application, the regulated hydroelectric portion of the CRVA was most recently cleared in EB-2016-0152, based on the year-end 2015 balances.
[28] Ex. H1-1-1, Table 7, line 17, col. (i).
[29] Ex. H1-1-1, Table 7, line 22, col. (i). Non-capital amounts recorded as of year-end 2021 are in relation to projects placed in service up to December 31, 2021. Non-capital amounts related to projects placed in service during the 2022-2026 period will be captured in the 2022-2026 period, along with the capital-related revenue requirement impacts of such projects.

- For the capital portion related to projects placed in service during the June 1, 2017 to December 31, 2021 IR period and upon application of the capital-related recoverability thresholds stipulated in the EB-2016-0152 PAO, net debit additions totaling $8.2M.[30]

Capital Projects Placed In Service Prior to June 1, 2017 and Non-Capital Costs

For the regulated hydroelectric projects placed in service prior to June 1, 2017, the capital-related entries were determined by comparing the actual revenue requirement impacts to such forecasts reflected in the revenue requirement approved in EB-2013-0321. The majority of these additions relate to the Sir Adam Beck Pump Generating Station – Reservoir Refurbishment project placed in service in February 2017, for which no forecasts were included in the EB-2013-0321 revenue requirement set on the basis of 2014 and 2015 planned amounts. Further details on the project can be found in Attachment 4. Additionally, continuing variances were recorded for projects previously identified in EB-2016-0152 as part of the approved year-end 2015 account balance, which was the most recent clearance of the hydroelectric portion of the CRVA prior to this application.[31]

The non-capital portion of account additions relates to removal costs for existing assets incurred as part of the capital projects captured by the CRVA. These costs are not eligible for capitalization. The variances for non-capital costs were determined by comparing such actual costs to the forecast amounts reflected in the revenue requirement approved in EB-2013-0321. The single largest project giving rise to the non-capital entries is the Sir Adam Beck I Generating Station – Units G1, G2 Replacement project, discussed further in Attachment 4.

The derivation of the above account entries for the 2016-2021 period is shown in Ex. H1-1-1, Table 7.

[30] Ex. H1-1-1, Table 7d, line 3, col. (h).

[31] The continuing variances comprise the following projects: Otto Holden Generating Station – Replace Headgates and Rehabilitate Gains, Des Joachims Generating Station – Replace Main Output Transformers, Des Joachims Generating Station – Turbine Runner Replacement, Otto Holden Generating Station – Replace Sluicegates and Rehabilitate Sluicegate Systems, and Sir Adam Beck I Generating Station – Unit G10 Major Overhaul and Upgrade. See EB-2016-0152, Ex. H1-1-1, Table 7. The first four of these projects were largely placed in service prior to January 1, 2016, whereas the remaining project was not placed in service until after June 1, 2017.

Capital Projects Placed In-Service During June 1, 2017 to December 31, 2021

Nineteen regulated hydroelectric projects placed in service between June 1, 2017 and December 31, 2021 give rise to capital-related additions recorded to the CRVA during the period.[32] In accordance with the hydroelectric CRVA clearance methodology set out in EB-2016-0152, Ex. H1-1-2, these entries were determined through the steps set out below. The entries were finalized upon completion of the IR period, having regard to actual capital in-service information for the period.

1. For each partial or full year, capital-related revenue requirement impacts were calculated for the CRVA eligible projects, as derived at Ex. H1-1-1, Table 7b, line 10.
2. For each partial or full year, the revenue requirement impacts from step 1 were compared to the reference amounts prescribed in the EB-2016-0152 PAO to determine the account additions prior to the application of the recoverability threshold, as derived at Ex. H1-1-1, Table 7b, line 12.
3. Total actual regulated hydroelectric capital in-service additions during the period were compared to the capital funding implicit in the hydroelectric payment amounts over the period as prescribed in the EB-2016-0152 PAO, as derived at Ex. H1-1-1, Table 7c, lines 1 and 2.
4. For each partial or full year, estimated revenue requirement impacts were determined arising from the difference between the actual regulated hydroelectric capital in-service additions and the capital funding implicit in the regulated hydroelectric payment amounts determined in step 3, as derived at Ex. H1-1-1, Table 7c, line 13.
5. The lesser of the aggregate amount determined in step 2 and step 4 was recorded as recoverable in the account for the period, as derived at Ex. H1-1-1, Table 7d, line 3, with the annual entries corresponding to such lesser aggregate amount.[33]

[32] Inclusive of credit entries for the January 1, 2016 to May 31, 2017 period totaling $0.5M related to income tax deductions for SR&ED qualifying expenditures incurred during that period for the projects placed in service during the June 1, 2017 to December 31, 2021 period.

[33] In the event of an aggregate debit amount determined in step 2, the aggregate amount for the IR period determined in step 5 cannot be less than zero. In the event of an aggregate credit amount determined in step 2, the aggregate amount for the IR period determined in step 5 cannot be a greater credit than the aggregate credit amount determined in step 2.

The projects placed in service during the June 1, 2017 to December 31, 2021 period that give rise to capital-related account additions are identified in Ex. H1-1-1, Table 7b, Note 4. Further details on these projects can be found in Attachment 4.

5.6.2 Nuclear

For the nuclear facilities, the variances recorded in the Capacity Refurbishment Variance Account are determined as between the revenue requirement impact of actual capital and non-capital costs for eligible projects and the corresponding forecast amounts included in the annual nuclear revenue requirements approved by the OEB.

The nuclear portion of the account entries recorded during 2020, 2021 and 2022 relates to variances for the following initiatives:

- Darlington Refurbishment Program
- Pickering Extended Operations
- Fuel Channel Life Extension Project
- Fuel Channel Life Extension Ongoing Costs
- Darlington Steam Generator Primary Moisture Separators Replacement
- Darlington Unit 3 Fuel Channel Component Retrieval Project
- Darlington Annulus Spacer Life Management Project
- Optimization of Pickering Shutdown
- Pickering Units 5-8 (Pickering "B") Refurbishment Feasibility Assessment

Consistent with EB-2018-0243 and EB-2020-0290, OPG proposes to defer the clearance of DRP-related balances other than those related to the D2O Storage Project and the impact of AIIP rules on DRP-related CCA amounts to a future application, which would allow an assessment of these variances, if any, in the context of the overall performance of the four-unit refurbishment. In total, OPG is proposing to defer clearance of a credit balance of $48.5M (inclusive of interest) related to these variances as at December 31, 2022, inclusive of such amounts deferred in previous proceedings.[34]

[34] Ex. H1-2-1, Table 2, line 4, col. (d).

OPG also proposes to defer the clearance of balances related to the Optimization of Pickering Shutdown initiative, totaling $2.4M in net credit additions from 2020 to 2022, as large portions of the work required to complete this initiative are ongoing. The aim of the initiative, originally presented in EB-2020-0290, has been to safely optimize the shutdown of the Pickering Nuclear Generating Station ("Pickering") by operating all six operating units until September 2024, five of the six units through 2024 and the remaining four units until December 2025, subject to the approval by the Canadian Nuclear Safety Commission ("CNSC").[35] Subsequently, in September 2022, the Province of Ontario ("Province") announced a plan to extend the operation of Pickering Units 5-8 to September 2026, subject to the CNSC's approval. Deferring clearance of balances related to Optimization of Pickering Shutdown to a future application would allow for an assessment of any variances in the context of the overall performance of the initiative.

Additionally, OPG proposes to defer the clearance of initial non-capital costs related to the refurbishment feasibility assessment for Pickering "B", totaling a debit of $0.2M recorded in 2022, given that the majority of the work on the assessment was carried out subsequently in 2023. This work was undertaken at the Government of Ontario's request, announced in September 2022, for OPG to update its previous feasibility assessment for refurbishing Pickering Units 5-8.

OPG proposes to clear all other entries recorded in the nuclear portion of the account during 2020, 2021 and 2022, which additions total as follows and are further described below:

- For the D2O Storage Project, a debit of $33.4M in 2020 and a debit of $43.9M in 2021;[36]
- For the impact of AIIP rules on DRP-related CCA amounts, a credit of $19.9M in 2020 and a debit of $3.1M in 2021;
- For the non-DRP non-capital portion, a credit of $1.7M in 2020, a debit of $83.9M in 2021 and a debit of $14.0M in 2022;[37] and

[35] EB-2020-0290, Ex. F2-1-1.
[36] Ex. H1-1-1, Table 17, line 12.
[37] Ex. H1-1-1, Table 15, line 29 less line 24 and line 26.

- For the non-DRP capital portion, a debit of $4.1M in 2020, a debit of $10.9M in 2021, and a debit of $5.9M in 2022.[38]

Darlington Refurbishment Program – D2O Storage Project and AIIP CCA Variances

Revenue requirement impacts of the D2O Storage Project were recorded in the account for 2020 and 2021. These impacts reflect the amount and timing of the project costs approved for inclusion in rate base by the OEB's EB-2020-0290 Decision and Order, as reflected in the EB-2020-0290 PAO. There were no such account additions in 2022 as the OEB-approved project costs were reflected in the EB-2020-0290 nuclear revenue requirements. The derivation of the account additions for 2020 and 2021 is shown at Ex. H1-1-1, Table 17, which together with interest on the balance total a debit of $79.3M proposed for recovery in this application.[39]

The net credit balance related to the impact of AIIP rules on DRP-related CCA amounts proposed to be repayable in this application is $18.1M.[40] The underlying account additions for 2020 and 2021 were calculated in the same manner as the equivalent entries previously recorded in the account. There were no such additions in 2022 since the impact of the AIIP rules was reflected in the EB-2020-0290 nuclear revenue requirements.

Pickering Extended Operations

The Pickering Extended Operations initiative, originally presented in EB-2016-0152, was aimed at operating Pickering Units 1 and 4 to 2022 and Pickering Units 5-8 to 2024.[41] As anticipated in EB-2020-0290, work programs related to this initiative were substantially completed in 2021, with continued supply chain delays from the onset of the COVID-19 pandemic resulting in a small amount of residual work executed in 2022 and 2023. The initiative was completed in 2023 within a total cost of $307M, consistent with the forecast presented in EB-2016-0152. The total expenditures over the life the initiative are summarized in Chart 2 below.

[38] Ex. H1-1-1, Table 16, line 16.
[39] Ex. H1-2-1, Table 2, line 7, col. (e).
[40] Ex. H1-2-1, Table 2, line 6, col. (e).
[41] EB-2016-0152, Ex. F2-2-3.

Chart 2

Pickering Extended Operations Costs ($M)*

Description	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual[42]	2021 Actual	2022 Actual[43]	2023 Actual	Total Actual
Base OM&A[44]	9.6	14.9	10.0	12.1	7.2	5.5	0.0	0.0	59.3
Project OM&A[45]	1.2	0.2	6.3	25.4	30.0	19.6	0.9	0.4	84.1
Outage OM&A[46]	-	3.2	9.3	24.7	47.3	26.1	-	-	110.7
Capital Expenditures[47]	-	-	2.8	9.0	19.7	16.9	0.5	0.3	49.2
Minor Fixed Assets[48]	-	-	1.4	0.6	-	0.7	0.4	-	3.1
Total Pickering Extended Operations	**10.8**	**18.4**	**29.9**	**71.9**	**104.1**	**68.7**	**1.9**	**0.7**	**306.3**

* Numbers may not add due to rounding.

As shown at Ex. H1-1-1, Table 15, line 19, actual non-capital expenditures on the initiative gave rise to a credit entry of $21.0M in 2020 and a debit entry of $51.2M in 2021. These variances were primarily due to changes to the scope and timing of outage activities required to meet program requirements over its life, relative to the OEB-approved forecasts established in EB-2016-0152. The non-capital debit entry of $8.6M in 2022 was largely due to the retirement of an algae mitigation bubble curtain system. This proof-of-concept system was initially commissioned in 2021 as part of a strategy to investigate options for reducing algae ingress in the Pickering cooling water intake systems on Lake Ontario in support of ongoing safe and reliable operations. Excessive algae ingress via the water intake systems can reduce the amount and flow of water needed to cool the nuclear reactors, resulting in a forced outage. The bubble curtain system was completed as a capital project, but upon a period operation, did not prove to be sufficiently effective due to degradation of in-water components in Lake Ontario conditions, and its remaining undepreciated book value was charged as a non-capital

[42] Non-capital (OM&A) costs for 2020 differ from Ex. H1-1-1, Table 15, line 10, col. (a), which is presented net of a $1.2M reversal related to a non-CRVA eligible project inadvertently recorded to the account in 2016.
[43] Non-capital (OM&A) costs for 2022 differ from Ex. H1-1-1, Table 15, line 10, col. (c), which is shown inclusive of the retirement of the algae mitigation bubble curtain project, discussed below. Chart 3 shows the full amount of expenditures on the project as capital, in the years incurred.
[44] For 2016-2020, as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 18, line 11, cols. (a)-(e).
[45] For 2016-2020, as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 20, line 9, cols. (a)-(e).
[46] For 2016-2020, as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 21, line 8, cols. (a)-(e).
[47] For 2016-2020, as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 10, line 10, cols. (a)-(e).
[48] For 2016-2020, as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 10, note 2.

cost in 2022. The project was informed by industry experience that the use of bubble curtains had achieved some success in other jurisdictions.

Additionally, Pickering Extended Operations costs are the driver of the non-DRP capital portion of the debit entries in the account in 2020, 2021 and 2022.[49] As discussed in EB-2020-0290, while there were no capital expenditures included in the initiative in EB-2016-0152, OPG subsequently determined that certain projects met capitalization eligibility criteria.[50] As such, the full revenue requirement impact of the Pickering Extended Operations capital in-service additions was recorded in the account in 2020 and 2021. The impact of the capital expenditures was offset by lower non-capital costs incurred relative to the OEB-approved forecasts established in EB-2016-0152. Based on the EB-2020-0290 forecasts, variances related to the revenue requirement impacts of the capital in-service additions in 2020 and 2021 partly continued into 2022, and were partially offset by the retirement of the algae mitigation bubble curtain system. The derivation of the resulting debit account additions of $4.1M in 2020, $10.9M in 2021 and $5.9M in 2022 is shown in Ex. H1-1-1, Table 16.

Fuel Channel Life Extension Project

Under this initiative, OPG performs work to update its assessments of degradation mechanisms on fuel channel components through research and development and various technical assessments. Degradation mechanisms on fuel channels may impact OPG's ability to demonstrate their fitness for service and capability to operate until a nuclear station's planned end of life, including ability to operate the Darlington units until their refurbishment dates and the Pickering units until their planned shutdown dates. Since being initiated to support the operation of the Darlington units to 235,000 equivalent full power hours (EFPH) and the Pickering units to 261,000 EFPH, the scope of the work was extended to support the operation of the Pickering units to 295,000 EFPH.[51] Additional research and testing activities related to fuel channel degradation mechanisms were required to be performed in 2020, 2021

[49] The capital debit entries in 2020 and 2021 were partially offset by variances related to the Darlington Spacer Retrieval Project, which was completed under budget in 2017 (EB-2020-0290, Ex. D2-1-3, p. 49, lines 11-12 and Ex. D2-1-2, Table 4a, line 9).
[50] EB-2020-0290, Ex. D2-1-2: p. 12, lines 8-19; p. 16, lines 29-30; p.17, lines 1-11.
[51] EB-2020-0290, Ex. F2-3-1, p. 3, lines 2-11.

and 2022 relative to the forecasts underpinning the respective revenue requirements, giving rise to net debit entries totaling $5.7M for 2020 and 2021 and a debit entry of $2.7M for 2022.[52]

Fuel Channel Life Extension Ongoing Costs

The fuel channel life extension ongoing (consequential) costs represent expenditures incurred for incremental base and outage work required to enable fuel channel and other major component operation until a nuclear station's planned end of life that is beyond original design targets. As noted above, fuel channel life expectancy is a critical factor that can limit station operations. The costs include activities to demonstrate the ongoing fitness for service of the fuel channel assemblies, including pressure tube and spacer surveillance, fuel channel inspection and maintenance, spacer retrieval and analysis, and pressure tube fracture toughness testing, as well as other major component life cycle management scope. The fitness for service process is a CNSC Licence and Canadian Standards Association requirement, and as appropriate, OPG shares costs with other utilities by leveraging joint industry projects and activities.

Additional planned outage scope and additional assessment and analysis work to demonstrate ongoing fitness for service of the pressure tubes and other major components was required in 2020 and 2021 relative to the forecasts underpinning the EB-2016-0152 revenue requirements. As anticipated in EB-2020-0290, this reflected additional requirements and timing for Single Fuel Channel Replacements at Darlington and Pickering units, along with increased fuel channel scrapes and related sample analyses and annulus spacer retrieval and analysis, as well as additional steam generator waterlancing scope, to support fitness for service to the planned refurbishment dates and shutdown dates, respectively.[53] Similar to the Fuel Channel Life Extension project, the original planned scope of the work was expanded to support the extended operation of the Pickering units under the Optimization of Pickering Shutdown initiative. The above factors gave rise to debit entries to the account of $13.7M for

[52] Ex. H1-1-1, Table 15, line 20 less line 28.
[53] EB-2020-0290, Ex. F2-2-2: p. 5, lines 3-5; p. 6, lines 3-4. EB-2020-0290, Ex. F2-4-2: p. 4, line 29 to p. 5, line 2; p. 6, lines 20-22.

2020 and $26.6M for 2021. The costs incurred in 2022 were virtually the same as the forecasts underpinning the EB-2020-0290 revenue requirement.

Darlington Steam Generator Primary Moisture Separators Replacement

As part of refurbishment activities at Darlington Unit 3, an inspection of the steam generators revealed that the primary moisture separators within had deteriorated, causing thinning of the carbon steel from which they were fabricated. Steam generators are a major component of the Darlington station, acting as a heat exchanger during the operation of the plant. They transfer heat from the Primary Heat Transport System to Secondary Side Feedwater to convert it to high pressure dry steam that is delivered to turbine equipment to generate electricity. The primary and secondary moisture separators play an essential role in removing any moisture from the high pressure steam to ensure it is dry, as wet steam carried across pipes risks eroding downstream components, increasing maintenance and reducing the useful lives of critical station assets. Across all four units, there are 1,664 primary moisture separators and 1,664 secondary moisture separators at the Darlington station. Each unit contains four steam generators.

Following the detection of the increased degradation of the primary moisture separators in Unit 3, OPG expanded the inspection scope on Unit 3 and conducted additional inspections on the primary moisture separators in the other Darlington units to quantify the extent of the condition. Further inspections on Unit 3 and Unit 4 showed additional evidence of primary moisture separator degradation. The damage to the primary moisture separators was determined to have been caused by flow-assisted corrosion, which is irreversible and can only be mitigated through replacement of the affected components. Given the magnitude of the deterioration detected on Unit 3 and Unit 4 and the results of routine inspections on Unit 1 and Unit 2, and in view of the substantial risks, disruption and cost that this condition could pose for future operations, OPG has opted to proceed with replacement of all primary moisture separators in the four units at Darlington. Replacement of these components does not form part of the DRP scope. The significant risks posed by operating the units with degraded primary moisture separators include generation of foreign material that could rupture the steam generator tubes,

causing leaks that disrupt the steam generators' performance, compromise nuclear safety and force outages.

During 2022, OPG began a project to replace the primary moisture separators in Unit 3. As part of the project, non-capital costs of $3.3M were incurred during the year in connection with the removal of the 208 primary moisture separators and associated support structure at two steam generators in Unit 3, and were recorded in the CRVA.

Darlington Unit 3 Fuel Channel Component Retrieval and Darlington Annulus Spacer Life Management Projects

The non-capital cost variances related to the Darlington Unit 3 Fuel Channel Component Retrieval Project and the Darlington Annulus Spacer Life Management Project set out at Ex. H1-1-1, Table 15, lines 22 and 23 arose due to the fact that these projects were identified subsequent to EB-2016-0152. As identified in EB-2020-0290, these projects were required in support of demonstrating high confidence in continued fitness for service of Darlington Units 1 and 4 up to their respective refurbishment dates.[54] The Darlington Unit 3 Fuel Channel Component Retrieval Project has been completed within budget, inclusive of minor costs incurred in 2022 and 2023. With additional research and development activities completed in 2022 and 2023 to collect experimental data, the Darlington Annulus Spacer Life Management Project is in the process of being closed out, within budget.

5.7 Pension and OPEB Cost Variance Account

The Pension and OPEB Cost Variance Account was originally approved in EB-2011-0090 and has been continued in subsequent proceedings. This account records the difference between (i) the pension and other post-employment benefit ("OPEB") costs, plus related income tax payments in lieu, reflected in the revenue requirement approved by the OEB; and (ii) OPG's actual pension and OPEB costs, and associated tax impacts, for the prescribed generation facilities. Actual pension and OPEB costs used in the calculation of the difference are calculated on an accrual basis using the same accounting standards as those used to derive the reference amount.

[54] EB-2020-0290, Ex. F2-3-1, p. 4, lines 3-10 and Ex. F2-3-3, p. 2, lines 15-25.

There were no additions to the account in 2020 or 2021 as the nuclear and regulated hydroelectric payment amounts then in effect did not reflect pension and OPEB costs calculated on an accrual basis. As the EB-2020-0290 nuclear revenue requirements reflect pension and OPEB costs calculated on an accrual basis, OPG resumed recording additions to the account for the nuclear facilities effective January 1, 2022, pursuant to the EB-2020-0290 PAO. These additions are identified in the Post-2021 Additions component of the account balance. Pursuant to the EB-2020-0290 PAO, there were no account additions recorded for the regulated hydroelectric facilities in 2022 as the EB-2013-0321 revenue requirements underpinning the regulated hydroelectric payment amounts in effect did not include pension and OPEB costs calculated on an accrual basis.[55]

The derivation of the $122.6M credit entry to the account for the nuclear facilities in 2022 is shown in Ex. H1-1-1, Table 8b. These additions reflect actual pension and OPEB costs for nuclear facilities that are lower than the forecast amounts underpinning the EB-2020-0290 revenue requirement, primarily due to the impact of higher discount rates and higher than expected year-end 2020 and 2021 pension fund asset values, partially offset by the impact of an increase in the inflation rate assumption from 1.75% to 2.0% and a decrease in the expected rate of return assumption on pension fund assets from 6.0% to 5.75%. Further details of the assumptions underpinning OPG's actual pension and OPEB costs for 2022 can be found in Section 5.11 below.

Actual pension and OPEB costs used in the calculation of the account entries were determined using the same accrual accounting method applied in OPG's audited consolidated financial statements for the corresponding years. In calculating the entries, OPG's total pension and OPEB costs were attributed to the nuclear facilities using the same methodology as in previous proceedings. OPG's total pension and OPEB costs for 2022 can be found in Aon's independent actuary's report included as Attachment 5 to this exhibit.[56] The accrual accounting

[55] EB-2020-0290 PAO, Appendix E, pp.10-11.
[56] Attachment 5, p. 4.

methodology used in determining the costs, and the methodology used to attribute them to the nuclear facilities, is described in detail in EB-2020-0290, Ex. F4-3-2, Section 4.0.

Pursuant to the EB-2020-0290 PAO, OPG also continues to maintain the Future Recovery component of the account balance, which was previously approved for recovery.[57] As this component is set to be fully amortized by December 31, 2024 through the rate riders established in EB-2020-0290, no further amortization for this component is included in the clearance proposal in this application.

No interest was recorded on the balance of the account in 2020, 2021 or 2022 pursuant to the EB-2016-0152 PAO and the EB-2020-0290 PAO.

5.8 Hydroelectric Deferral and Variance Over/Under Recovery Variance Account

The Hydroelectric Deferral and Variance Over/Under Recovery Variance Account was originally approved in EB-2009-0174 and has been approved in all subsequent OPG applications. This account records the differences between the amounts approved for recovery in the hydroelectric deferral and variance accounts and the actual amounts recovered based on the actual regulated hydroelectric production and approved riders. Pursuant to the OEB's orders, the account also captures the transfer of the hydroelectric portions of the balances remaining in other accounts as they expire from time to time.

The derivation of the $3.3M, $8.0M and $2.0M debit additions to the account for 2020, 2021 and 2022, respectively, is shown in Ex. H1-1-1, Table 9. There were no transfers from expiring accounts in 2020, 2021 or 2022.

5.9 Gross Revenue Charge Variance Account

The Gross Revenue Charge Variance Account was originally approved in EB-2013-0321 and has been approved in all subsequent OPG applications. It records the cost impact of a gross revenue charge reduction under Ontario Regulation 124/02, once approved by the Ontario

[57] EB-2016-0152 PAO, Appendix G, p. 11; EB-2020-0290 PAO, Appendix E, p. 10.

Ministry of Natural Resources and Forestry, pertaining to production increases at OPG's Sir Adam Beck plants due to the operation of the Niagara tunnel.

As no decision on the GRC reduction has been issued by the Ministry of Natural Resources and Forestry to date, there have been no amounts recorded in the account since its inception.

5.10 Pension & OPEB Cash Payment Variance Account

The Pension & OPEB Cash Payment Variance Account was approved in EB-2013-0321 and has been continued in all subsequent OPG applications. It records the difference between OPG's actual registered pension plan ("RPP") contributions and OPEB plan payments (including the long-term disability benefit plan) attributed to the prescribed generating facilities, and such forecast amounts underpinning the revenue requirement approved by the OEB.

The account recorded the above difference for the nuclear facilities and the regulated hydroelectric facilities in 2020 and 2021 and for the regulated hydroelectric facilities in 2022, as the corresponding payment amounts then in effect reflected pension and OPEB amounts on a cash basis. As the EB-2020-0290 nuclear revenue requirements reflect pension and OPEB costs calculated on an accrual basis, OPG ceased recording additions to the account for the nuclear facilities effective January 1, 2022, pursuant to the EB-2020-0290 PAO.[58]

The derivation of the credit additions of $19.6M in 2020, $15.7M in 2021 and $13.4M in 2022 for the regulated hydroelectric facilities and the credit additions of $121.0M in 2020 and $132.3M in 2021 for the nuclear facilities is shown in Ex. H1-1-1, Table 8. These additions reflect RPP contributions attributed to the prescribed facilities for 2020 and 2021 that were lower than the reference amounts approved in EB-2016-0152, reflecting the results of actuarial valuations of the RPP as of January 1, 2020 and April 1, 2021 filed with the Financial Services Regulatory Authority of Ontario ("FSRA") in September 2020 and December 2021, respectively. The 2020 and 2021 valuations resulted in lower minimum required contributions relative to the projected January 1, 2019 valuation that underpinned the reference amounts for the nuclear facilities, primarily due to no solvency special payments, and relative to the January

[58] EB-2020-0290 PAO, Appendix E, p. 12.

1, 2014 valuation that underpinned the reference amounts for the regulated hydroelectric facilities, primarily due to no going concern special payments.

For 2022, the above additions reflect RPP contributions attributed to the regulated hydroelectric facilities that were lower than the reference amount approved in EB-2020-0290, reflecting the results of the actuarial valuation of the RPP as of January 1, 2022 filed with the FSRA in September 2022. The 2022 valuation resulted in lower minimum required contributions relative to the January 1, 2014 valuation that underpinned the reference amount for the regulated hydroelectric facilities, primarily due to no going concern special payments.

OPEB payments attributed to the nuclear facilities for 2020 and 2021 were lower than the reference amounts, primarily due to changes in claim patterns resulting from the COVID-19 pandemic. OPEB payments attributed to the regulated hydroelectric facilities for 2020 to 2022 were higher than the reference amounts, primarily due to a growing retiree population.

In calculating the above variances, OPG's total RPP contributions and OPEB benefit payments were attributed to the prescribed facilities using the same methodology as in previous proceedings. OPG's total RPP contributions and OPEB benefit payments for the above periods can be found in Aon's independent actuary's report included as Attachment 5 to this exhibit.[59] Additional background information on OPG's RPP contributions and OPEB benefit payments can be found in EB-2020-0290, Ex. F4-3-2, section 5.0.

5.11 Pension & OPEB Cash Versus Accrual Differential Deferral Account

The Pension & OPEB Cash Versus Accrual Differential Deferral Account was approved in EB-2013-0321 and has been continued in all subsequent OPG applications. The account records differences between: (i) OPG's actual pension and OPEB costs for its prescribed generating facilities determined using the accrual accounting method applied in OPG's audited consolidated financial statements; and, (ii) OPG's actual registered pension plan contributions and other post-employment benefit plan payments (including the long-term disability benefit plan) attributed to OPG's prescribed generating facilities.

[59] Attachment 5, pp. 9-11.

This account recorded the above differences for the nuclear facilities and the regulated hydroelectric facilities in 2020 and 2021 and for the regulated hydroelectric facilities in 2022, as the corresponding payment amounts then in effect reflected pension and OPEB amounts on a cash basis. As the EB-2020-0290 nuclear revenue requirements reflect pension and OPEB costs calculated on an accrual basis, OPG ceased recording additions to the account for the nuclear facilities effective January 1, 2022, pursuant to the EB-2020-0290 PAO.[60]

The derivation of debit account additions of $14.9M in 2020 and $16.7M in 2021 and credit additions of $3.5M in 2022 for the regulated hydroelectric facilities and debit additions of $71.8M in 2020 and $93.1M in 2021 for the nuclear facilities is shown in Ex. H1-1-1, Table 8.

Actual pension and OPEB accrual costs used in the calculation of the account entries were determined using the same method as applied in OPG's audited consolidated financial statements for the corresponding years. In calculating the entries, OPG's total pension and OPEB accrual costs were attributed to the prescribed facilities using the same methodology as in previous proceedings. OPG's total pension and OPEB accrual costs for 2020, 2021 and 2022 can be found in Aon's independent actuary's report included as Attachment 5 to this exhibit.[61] The accrual accounting methodology used in determining the costs, and the methodology used to attribute to the prescribed facilities, is described in detail in EB-2020-0290, Ex. F4-3-2, Section 4.0. OPG's actual RPP contributions and OPEB benefit payments for 2020, 2021 and 2022 are discussed in Section 5.10 above.

Chart 3 below presents the assumptions used to determine the 2020, 2021 and 2022 actual pension and OPEB costs. The process behind developing these assumptions is discussed in EB-2020-0290, Ex. F4-3-2, Section 4.0.

[60] EB-2020-0290 PAO, Appendix E, p. 13.
[61] Attachment 5, p. 4.

Chart 3: Pension and OPEB Accrual Cost Assumptions for 2020, 2021 and 2022 (rate per annum)

	2020 Actual[62]	2021 Actual	2022 Actual
Discount rate for pension[63, 64]	Current service cost – 3.19% Interest cost – 2.91%	Current service cost – 2.86% Interest cost – 2.10%	Current service cost – 3.38% Interest cost – 2.79%
Discount rate for other post-retirement benefits[63, 64]	Current service cost – 3.21% Interest cost – 3.00%	Current service cost – 2.93% Interest cost – 2.29%	Current service cost – 3.43% Interest cost – 2.91%
Discount rate for long-term disability[63, 64, 65]	Current service cost – 2.83% Interest cost – 2.55%	Current service cost – 1.89% Interest cost – 1.28%	Current service cost – 2.69% Interest cost – 2.16%
Expected long-term rate of return on pension fund assets	6.00%	5.75%	5.75%
Inflation rate	1.75%	1.75%	2.00%
Weighted average salary schedule escalation rate[66]	1.7% from Jan 1, 2020 to Dec 31 2026; 2.25% thereafter	1.6% from Jan 1, 2021 to Dec 31 2026; 2.25% thereafter	1.6% from Jan 1, 2022 to Dec 31 2026; 2.50% thereafter

As anticipated, with the exception of the long-term disability costs that are calculated using information as of December 31, 2020, the 2020 actual accrual costs for pension and OPEB

[62] Except for the long-term disability discount rate determined at year-end, these are the same assumptions used to develop the 2020 pension and OPEB cost projections presented in EB-2020-0290 (EB-2020-0290, Ex. F4-3-2, Chart 4).
[63] The rate for current service cost shown represents the single equivalent discount rate implicit in the current service cost calculations under the Full Yield Curve Approach. Under this approach, current service cost is calculated by applying individual spot interest rates along the corresponding bond yield curve to discount each future year's underlying projected benefit payments.
[64] The rates for interest cost shown apply to the projected benefit obligations at the beginning of the year under the Full Yield Curve Approach. Under this approach, a separate rate is used to calculate the interest cost on the current service cost recognized during the year. For 2020-2022, these rates can be found at pp. 6-7 of Attachment 5.
[65] As the long-term disability costs for the year are based on the re-measurement of the benefit obligation at the end of the year in accordance with US GAAP, the total long-term disability costs inclusive of any actuarial gains or losses due to the re-measurement reflect the discount rate used to determine the year-end benefit obligations, notwithstanding the Full Yield Curve Approach. This discount rate was 1.89% for December 31, 2020, 2.69% for December 31, 2021, and 5.21% for December 31, 2022.
[66] The weighted average salary schedule escalation rates reflect assumptions based on existing collective agreements and other short-term salary expectations at the time. The longer term salary schedule escalation is set at the assumed inflation rate plus 0.5%, as in EB-2020-0290 and prior proceedings.

were very close or equal to the 2020 projected costs provided in EB-2020-0290 (total OPG and as attributed to the nuclear facilities), as the projection was determined using actual December 31, 2019 values of the benefit obligations and pension fund assets, and the final assumptions as of December 31, 2019.[67]

The 2021 actual accrual costs for pension and OPEB were lower than projected in EB-2020-0290. This was driven by pension costs being lower than projected, primarily due to the impact of a higher-than-expected year-end 2020 pension fund asset value, partially offset by the impact of lower discount rates and a reduction in the expected rate of return on pension fund assets assumption from 6.0% to 5.75%.

Actual pension accrual costs increased from 2020 to 2021, primarily due to the impact of lower discount rates and a reduction in the expected rate of return on pension fund assets assumption from 6.0% to 5.75%, partially offset by the impact of negative expected net growth in the cost components.[68] Actual pension accrual costs decreased from 2021 to 2022, primarily due to the impact of higher discount rates and a higher-than-expected year-end 2021 pension fund asset value, partially offset by the impact of an increase in the inflation rate assumption from 1.75% to 2.0%.

No interest was recorded on the balance of the account in 2020, 2021 or 2022 pursuant to the EB-2016-0152 PAO and the EB-2020-0290 PAO.

As noted in EB-2020-0290, EB-2018-0243 and prior OPG proceedings, the continued recognition of amounts recorded in the Pension & OPEB Cash Versus Accrual Differential Deferral Account as a regulatory asset in OPG's financial statements in accordance with US GAAP requires that the period of deferring amounts recorded in the account related to OPEB

[67] EB-2020-0290, Ex. F4-3-2, p. 8, lines 13-16 and note 14. Total OPG projected costs for 2020 can be found at EB-2020-0290, Ex. F4-3-2, Attachment 1, p. 5 and p.16, with the corresponding amounts attributed to the nuclear facilities at EB-2020-0290, Ex. F4-3-2, Chart 4.

[68] As in previous proceedings, "expected net growth" (i.e., change) in cost components is used to refer to the net impact of the following: increases in current service costs due to the passage of time in the present value calculation, higher interest costs on a higher benefit obligation due to the passage of time, changes in the pension asset value due to expected earnings and expected unwinding of the market-related value, and related changes in amortization of historical actuarial gains or losses under the corridor approach.

not exceed five years from the time that they were incurred.[69] For example, this means that amounts recorded at the beginning of 2020 must be recovered as of the beginning of 2025 to satisfy US GAAP criteria.

5.12 Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance Account

The Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance Account was established by the OEB on a generic basis in EB-2015-0040. The account has three sub-accounts, as set out in the EB-2020-0290 PAO and described below.

The Primary Sub-Account tracks amortization amounts for the Pension & OPEB Cash Versus Accrual Differential Deferral Account, for both regulated hydroelectric and nuclear facilities. Beginning January 1, 2022, for the nuclear facilities only, the Primary Sub-Account also tracks the difference between actual pension and OPEB costs on an accrual basis[70] and OPG's actual RPP contributions and OPEB plan payments (including the long-term disability benefit plan) (i.e., cash payments). When the cumulative accrual amount (including amortization amounts from the Pension & OPEB Cash Versus Accrual Differential Deferral Account) exceeds the cumulative cash payments, the sub-account holds a credit balance and accrues carrying charges in favour of ratepayers in the Carrying Charges Sub-Account. The Contra Sub-Account records offsetting entries with the Primary Sub-Account to enable book-keeping with offsetting entries. Carrying charges do not apply to this sub-account. The Carrying Charges Sub-Account records interest at the OEB's prescribed Construction Work In Progress rate. As tracking accounts, neither the Primary Sub-Account nor the Contra Sub-Account are subject to disposition. The Carrying Charges Sub-Account is subject to disposition.

For each of 2020 and 2021, the entries to the Primary Sub-Account were a credit of $7.0M for the regulated hydroelectric facilities and $44.1M for the nuclear facilities, representing the

[69] EB-2020-0290, Ex. H1-1-1, Note 45; EB-2018-0243, Ex. F1-1-1, p. 6; EB-2015-0040 OPG Submission on September 22, 2016, p. 18.
[70] The actual amount of pension and OPEB costs on an accrual basis is used as the basis for entries in the Primary Sub-Account in order to account for the interaction of this account with the Pension and OPEB Cost Variance Account.

OEB-approved amortization amounts for the Pension & OPEB Cash versus Accrual Differential Deferral Account. For 2022, the entries to the Primary Sub-Account were a credit of $24.1M for the regulated hydroelectric facilities, representing the OEB-approved amortization amounts for the Pension & OPEB Cash versus Accrual Differential Deferral Account, and a credit of $135.1M for the nuclear facilities, representing the sum of the OEB-approved amortization amounts for the Pension & OPEB Cash versus Accrual Differential Deferral Account and the difference between actual pension and OPEB costs on an accrual basis and the cash payments for the year. The derivation of these entries and associated cumulative balances is set out in Ex. H1-1-1, Table 8a.

The resulting credit additions to the Carrying Charges Sub-Account were $0.2M in 2020, $0.4M in 2021 and $1.3M in 2022 for the regulated hydroelectric facilities, and $1.6M in 2020, $2.4M in 2021 and $8.0M in 2022 for the nuclear facilities.

No interest was recorded on the balance of the Carrying Charges Sub-Account in 2020, 2021 or 2022.

5.13 Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account

The Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account was approved in EB-2014-0369 and continued in all subsequent OPG applications. The account records the difference between the annual revenue requirement impact of the original Niagara Tunnel Project rate base addition disallowance of $28.0M per EB-2013-0321 and the varied disallowance of $6.4M per EB-2014-0369. As the payment amounts for the regulated hydroelectric facilities approved in EB-2016-0152 and EB-2020-0290 reflected the EB-2013-0321 disallowance and not the impact of the varied disallowance, OPG continued to record entries to the account pursuant to the corresponding payment amounts orders.

The derivation of the $1.7M debit additions to the account in each of 2020, 2021 and 2022 is shown in Ex. H1-1-1, Table 10.

5.14 Nuclear Liability Deferral Account

The Nuclear Liability Deferral Account was originally approved in EB-2007-0905 pursuant to O. Reg. 53/05 and has been approved in all subsequent OPG applications. In accordance with section 5.2(1) of O. Reg. 53/05, this account records the revenue requirement impact on the prescribed facilities of any change in OPG's nuclear decommissioning and used fuel and waste management liabilities ("nuclear liabilities") arising from an approved reference plan under the Ontario Nuclear Funds Agreement ("ONFA"), measured against the forecast impact reflected in the revenue requirement approved by the OEB.[71]

No entries were recorded in the account in 2020 or 2021 as the forecasts underpinning the nuclear revenue requirements approved in EB-2016-0152 reflected the nuclear liabilities' impact arising from the 2017-2021 ONFA reference plan effective January 1, 2017 ("2017 ONFA Reference Plan") and its attendant segregated funds contribution schedule ("2017 ONFA Contribution Schedule") approved by the Province. The nuclear revenue requirements approved in EB-2020-0290 also reflected the 2017 ONFA Reference Plan, which was the most recent approved ONFA reference plan at the time of the proceeding.

As required by the ONFA, ONFA reference plans are updated at least once every five years. Subsequent to the EB-2020-0290 proceeding, the Province approved the 2022-2026 ONFA reference plan effective January 1, 2022 ("2022 ONFA Reference Plan") and its attendant contribution schedule ("2022 ONFA Contribution Schedule"). The debit entry of $188.3M to the account in 2022 represents the revenue requirement impact on the prescribed facilities related to changes in the nuclear liabilities arising from this current approved ONFA reference plan. It was determined using the OEB-approved methodology for recovery of OPG's nuclear liabilities as reflected in EB-2020-0290 and prior proceedings. The derivation of these additions is shown at Ex. H1-1-1, Table 18. The OEB-approved methodology for recovery of OPG's nuclear liabilities is described in detail in Ex. C2-1-1, section 4.0. A copy of the letter from the Province approving the 2022 ONFA Reference Plan is provided in Attachment 6, and the 2022 ONFA Contribution Schedule is provided in Attachment 7.

[71] O. Reg. 53/05 also specifies that the balance recorded in the account is to be recovered on a straight-line basis over a period not to exceed three years (subsection 6(2)).

The revenue requirement impact of the 2022 ONFA Reference Plan reflects the accounting impact of the change in the nuclear liabilities on the asset retirement obligation ("ARO") and asset retirement costs ("ARC") for the prescribed facilities recognized in OPG's financial statements at the end of 2021, as well as changes in the station-level segregated fund contributions from the 2022 ONFA Contribution Schedule based on the 2022 ONFA Reference Plan. OPG recorded an increase of $272.6M in the ARO and associated ARC for the prescribed facilities as of year-end 2021 to reflect the 2022 ONFA Reference Plan. The increase in the accounting liabilities was primarily driven by updated station decommissioning estimates and the net impact of a new conceptual long-term disposal strategy for low and intermediate level waste (L&ILW) as a result of the cancellation of the previously planned deep geologic repository in Kincardine, Ontario. The details of the year-end 2021 ARO/ARC adjustment are provided in Ex. H1-1-1, Table 18a.

The revenue requirement impact recorded in the account for 2022 primarily arises from the following:

- Higher ARC depreciation for the prescribed facilities as a result of the increase in the ARC balance;
- Higher return on rate base for the prescribed facilities due to the increase in the ARC balance, calculated using the weighted average accretion rate of 4.89% as per the EB-2020-0290 PAO;[72]
- Higher L&ILW variable expenses for the prescribed facilities due to higher per cubic metre cost rates, primarily reflecting the impact on these costs of a new conceptual long-term disposal strategy for L&ILW as a result of the cancellation of the previously planned deep geologic repository in Kincardine, Ontario; and
- Regulatory income tax impact arising in connection with the recovery of the above three items and a reduction in segregated fund contributions for the prescribed facilities under the 2022 ONFA Contribution Schedule.

[72] EB-2020-0290 PAO, Appendix E, p. 15.

Additionally, the nuclear revenue requirements approved in EB-2020-0290 did not reflect the extension of the accounting station end-of-life ("EOL") date for Pickering Units 1 and 4 to December 31, 2024, effective December 31, 2020. While this extension was anticipated at the time OPG's payment amounts application was filed, the final year-end 2020 information required to calculate the resulting impacts on the ARO/ARC balances was not available and therefore OPG's underlying business plan did not include them.[73] This change was also not anticipated in the 2017 ONFA Reference Plan. The EB-2020-0290 PAO authorized the Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account to record the revenue requirement impacts for the prescribed facilities arising from this and any other changes to nuclear liabilities and depreciation and amortization expense resulting from changes to the Pickering station EOL dates, effective January 1, 2021.[74] As discussed in Section 5.24 below, this account recorded such impacts resulting during 2021 from the year-end 2020 extension to the station EOL date for Pickering Units 1 and 4 to December 31, 2024 and associated adjustments to the ARO/ARC balances. As the 2022 ONFA Reference Plan incorporates this new station EOL date for Pickering Units 1 and 4, in accordance with O. Reg. 53/05, the nuclear liabilities' impact arising from the year-end 2020 ARO/ARC adjustment is recorded in the Nuclear Liability Deferral Account, rather than the Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account, beginning in 2022.[75] The derivation of this impact for 2022 is discussed in Section 5.23 below.

No interest was recorded on the balance of the account in 2020, 2021 or 2022 pursuant to the EB-2016-0152 PAO and the EB-2020-0290 PAO.

5.15 Nuclear Development Variance Account

The Nuclear Development Variance Account ("NDVA") was originally approved in EB-2007-0905 in accordance with Section 5.4 of O. Reg. 53/05 and has been approved in all subsequent OPG applications. Following an amendment to O. Reg. 53/05 in November 2021, this account

[73] EB-2020-0290, Ex. F4-1-1, p. 10, lines 1-17.
[74] The revenue requirement impact of changes in nuclear liabilities not reflected in the current approved ONFA reference plan is ineligible to be recorded in the Nuclear Liability Deferral Account until such time as it is so reflected.
[75] As discussed in Section 5.23 below, the non-ARC revenue requirement impact continues to be recorded in the Impact Resulting from Optimization of Pickering Station End of Life Deferral Account in 2022 onwards.

records differences between the revenue requirement impacts arising from the actual non-capital costs and capital costs incurred and firm financial commitments made for proposed new nuclear generation facilities, including but not limited to the costs of planning, preparation, and technology identification for the new facilities, as well as design, development and construction of the new facilities.[76] Prior to the amendment, the stated scope of the account was for non-capital costs and firm financial commitments made in the course of planning and preparation for proposed new nuclear generation facilities.

The EB-2016-0152 and EB-2020-0290 revenue requirements included forecasted non-capital costs to preserve the option to build new nuclear generation at the Darlington new nuclear site, for which OPG has an approved environmental assessment and has held a CNSC Licence to Prepare Site since 2012. In EB-2020-0290, OPG also identified forecasted non-capital preliminary planning and preparation costs in 2020 and 2021 for a new on-grid small modular reactor facility ("SMR") at the Darlington new nuclear site ("Darlington SMR"), to be recorded in the NDVA.[77] This included costs for technology developer selection with the objective of arriving at the selection decision by the end of 2021. In the EB-2020-0290 Decision and Order, the OEB found that these costs were appropriate to be recorded in the NDVA.[78]

Over the 2020-2022 period, OPG recorded debit additions of $105.2M to the account in relation to non-capital preliminary planning and preparation costs for a Darlington SMR, reflecting the planned activities identified in EB-2020-0290.[79] A summary of the actual costs incurred in 2020, 2021 and 2022 is presented in Chart 4 below and the derivation of the account additions is shown in Ex. H1-1-1, Table 20.

[76] O. Reg. 53/05 also specifies that the balance recorded in the account is to be recovered on a straight-line basis over a period not to exceed three years (subsection 6(2)).
[77] EB-2020-0290, Ex. F2-8-1; activities are consistent with the shareholder's concurrence letter on OPG's 2020-2026 Business Plan (EB-2020-0290, Ex. L-A2-02-CCC-014, Attachment 1).
[78] EB-2020-0290 Decision, pp. 8-10.
[79] As noted in EB-2020-0290, Ex. F2-8-1, note 3, OPG also incurred total costs of $0.7M in 2018 and 2019 related to preliminary planning and preparation activities for a Darlington SMR that were recorded in the NDVA. The clearance of this amount was deferred in that proceeding and is included in the amounts sought for recovery in this application.

Chart 4

Non-Capital Preliminary Planning and Preparation Expenditures for Darlington SMR

Description ($M)	2020	2021	2022
Developer Technology Design and Planning	2.5	54.5	2.1
OPG Project Management and Engineering Oversight	4.9	21.2	0.4
Licencing	5.7	8.5	0
OPG Site-Specific and Other Activities	0.0	11.3	(0.1)
Total	**13.1**	**95.4**	**2.4**

The majority of the costs incurred during the period related to selecting an appropriate technology for the Darlington SMR. OPG's key objectives for this process were:

(i) ensuring compatibility with the existing environmental parameters as outlined within the CNSC's Licence to Prepare Site for the Darlington new nuclear site,

(ii) ensuring readiness for submission of the License to Construct application to the CNSC, and

(iii) targeting an in-service date for the first unit by the end of 2028.

Beyond these key objectives, OPG's evaluation process was focused on selecting a technology deployment partnership that would deliver overall value to the province.

During 2020, activities focused on conducting a technology down-selection process to narrow down the pool of potential technology partners, followed by the commencement of a further due diligence assessment toward a final technology selection using a process endorsed by OPG's Board of Directors and overseen by a protocol monitor. Once completed in 2020, the down-selection process reduced the number of SMR technologies under consideration from seven to three.

In 2021, activities with the three down-selected technologies significantly increased, reflecting extensive planning and evaluation that was required to establish requirements and conduct an in-depth examination across 11 key assessment areas with a view to identify developer-

specific benefits, risks, and potential mitigating actions. Based on the three potential technologies, this included progressing design efforts of the nuclear power plant, conducting preliminary safety analysis, developing project business cases, advancing modularization and construction strategies, developing the supplier strategy and economic benefits analysis, enhancing project quality programs, identifying site preparation requirements, assessing waste management and developing a nuclear fuel strategy. In addition to internal labour costs for project management, engineering oversight and related support services, technology selection costs included funding for developers to produce the necessary information and support development of their respective designs, site specific requirements, project deployment models, preliminary cost and schedule estimates, and initial commercial terms, in order to facilitate final selection within the targeted timeline in 2021.

Analyses of each of the key assessment areas were conducted by independent assessment teams and subsequently an internal senior leadership team. The results of the assessments were reviewed by OPG's senior executive team, and ultimately presented to OPG's Board of Directors and the Province. Based on the results of the process and as approved by OPG's Board of Directors, in December 2021 OPG announced that it had selected GE Hitachi Nuclear Energy's SMR design, BWRX-300, to move forward with the Darlington New Nuclear Project ("DNNP"). In 2022, the DNNP transitioned to the first phase of a capital project, increasing its efforts and focus on the BWRX-300 design to enable construction in 2028-2029 timeline.[80]

Throughout 2020 and 2021, OPG also advanced CNSC licensing efforts, including submission and hearing support for an application to renew the existing Licence to Prepare Site and, given the significant effort involved, licensing plans and document preparation for a Preliminary Safety Assessment Report and Licence to Construct application. The CNSC renewed OPG's Licence to Prepare Site for a further ten years in October 2021 and, in 2022, OPG submitted the Licence to Construct application. Other project planning activities included: geotechnical surveys, work scope definition and other site preparation readiness, endangered species and other permitting, project governance planning, information technology system planning, and initiating preliminary design for technology-agnostic scope.

[80] Non-capital expenditures in 2022 related primarily to final invoicing and closing out of technology selection costs.

5.16 Bruce Lease Net Revenues Variance Account

The Bruce Lease Net Revenues Variance Account was originally approved in EB-2007-0905 to ensure that the actual difference between OPG's revenues and costs for the Bruce facilities is ultimately reflected in the payment amounts and riders and that OPG recovers its actual costs associated with the Bruce facilities. The account has been approved in all subsequent OPG applications.[81]

This account records differences between (i) the quotient of the annual forecast amount of Bruce lease net revenues reflected in the OEB-approved nuclear revenue requirement and the OEB approved nuclear production forecast ("rate of recovery") for the corresponding year multiplied by OPG's actual nuclear production for the year, and (ii) OPG's actual revenues and costs in respect of the Bruce facilities. This includes the cost impact of any changes in OPG's liabilities for decommissioning the Bruce nuclear generating facilities and the management of nuclear waste and nuclear fuel related to the Bruce stations.

Pursuant to the EB-2016-0152 PAO, rates of recovery of ($0.537)/MWh and ($1.141)/MWh were used to calculate entries to the account for 2020 and 2021, respectively.[82] Pursuant to the EB-2020-0290 PAO, a rate of recovery of ($1.36)/MWh was used to calculate entries to the account for 2022.[83] The derivation of the 2020 credit entry of $11.6M, the 2021 debit entry of $23.6M and the 2022 credit entry of $14.9M to the account is shown in Ex. H1-1-1, Table 11. A comparison of Bruce revenues net of costs is provided in Ex. H1-1-1, Table 11a.

Bruce revenues net of costs for 2020 were higher than the forecasts underpinning the nuclear revenue requirement approved in EB-2016-0152, primarily due to higher earnings from the nuclear segregated funds, lower used fuel expenses and lower interest expense attributed to the Bruce assets, partially offset by higher ARO accretion expense. Higher earnings from the segregated funds were mainly due to lower fund disbursements and a higher portion of the

[81] Prior to January 1, 2022, the account was comprised of the Derivative Sub-Account and the Non-Derivative Sub-Account. Pursuant to the EB-2020-0290 PAO, the Non-Derivative Sub-Account has been terminated effective January 1, 2022. There were no additions to the Derivative Sub-Account in 2020 or 2021.
[82] EB-2016-0152 PAO, Appendix G, p. 16.
[83] EB-2020-0290 PAO, Appendix E, p. 17.

earnings attributable to the Bruce facilities. Used fuel expenses were lower mainly due to a lower than forecasted volume of spent fuel bundles received from Bruce Power L.P. ("Bruce Power"). The lower interest expense was mainly due to a lower than budgeted allocation factor applied to OPG's corporate-wide interest expense to determine the portion attributable to the Bruce assets, based on the ratio of the net book value of the Bruce fixed assets relative to OPG's total fixed assets. The higher ARO accretion expense was primarily due to the impact of the year-end 2017 ARO adjustment related to changes in the Pickering station EOL dates for accounting purposes and lower expenditures against the ARO.

Bruce revenues net of costs for 2021 were lower than the forecasts underpinning the nuclear revenue requirement approved in EB-2016-0152, with higher used fuel expenses being the largest driver. The increase in used fuel expenses mainly reflected the impact of the year-end 2020 ARO adjustment related to changes in the station EOL dates for Pickering Units 1 and 4 for accounting purposes, which resulted in an increase in the per fuel bundle cost rates used to determine these expenses, due to a lower discount rate of 2.01% (compared to 3.20%[84] used to forecast these costs in EB-2016-0152).[85] A higher than forecast ARO accretion expense also contributed to the lower than forecast Bruce revenues net of costs, for the same reasons as in 2020. Additionally, OPG incurred a cost in 2021 as part of a settlement reached with British Energy Limited and British Energy International Holdings Limited (together, "British Energy"), as an initial owner of Bruce Power, regarding their claim of contribution and indemnity from OPG for amounts British Energy was found liable for in an arbitration commenced against it by purchasers of British Energy's interest in Bruce Power. The action and arbitration pertained to corrosion of a steam generator unit, discovered after OPG leased the Bruce nuclear generating stations to Bruce Power. These factors were partially offset by higher services revenue, mainly due to revenues received as an upfront fee for managing non-routine wastes (e.g., steam generators and reactor pressure tubes) generated during the Bruce Unit

[84] EB-2020-0290, Ex. C2-1-1, p. 7, note 4.
[85] As discussed in Ex. EB-2020-0290, Ex. C2-1-1, Section 3.1, used fuel and L&ILW variable expenses represent incremental committed costs for the nuclear liabilities that arise as quantities of spent fuel and L&ILW are produced over time and are added to the ARO. Like other component of the ARO, these costs are expressed in present value terms. In accordance with US GAAP, they are calculated using a credit-adjusted risk-free rate as of the date of the latest ARO adjustment.

6 Major Component Replacement, and a lower interest expense for the same reasons as in 2020.

Bruce revenues net of costs for 2022 were higher than the forecasts underpinning the nuclear revenue requirement approved in EB-2020-0290, primarily due to lower depreciation and ARO accretion expenses combined with higher earnings from the nuclear segregated funds, partially offset by higher used fuel variable fuel expenses and lower services revenue. Depreciation and accretion expenses were lower mainly due to the accounting impact of the 2022 ONFA Reference Plan that resulted in a decrease of $599.9M in the ARO and associated ARC for the Bruce facilities as of year-end 2021, while higher earnings from the segregated funds reflected an adjustment to the accounting value of the funds to reflect the change in funding liabilities as a result of the 2022 ONFA Reference Plan. Higher used fuel variable expenses mainly reflected an increase in the per fuel bundle cost rates used to determine these expenses, due to a lower discount rate of 2.45% applied following the year-end 2021 ARO adjustment (compared to 2.94%[86] used to forecast these costs in EB-2020-0290). Lower services revenue was mainly due to lower waste volumes received from Bruce Power, and a retrospective true-up of the volumetric fees received from Bruce Power for managing such waste since the beginning of 2016 in accordance with the existing agreement, based on the 2022 ONFA Reference Plan cost estimates, recognized in 2022. The decrease in the ARO and associated ARC was primarily driven by lower cost estimates for used fuel disposal accounting liabilities and the net impact of a new conceptual long-term disposal strategy for L&ILW as a result of the cancellation of the previously planned deep geologic repository in Kincardine, Ontario. The details of the year-end 2021 ARO/ARC adjustment are provided in Ex. H1-1-1, Table 18a.

5.17 Nuclear Deferral and Variance Over/Under Recovery Variance Account

The Nuclear Deferral and Variance Over/Under Recovery Variance Account was originally approved in EB-2009-0174 and has been approved in all subsequent OPG applications. This account records the differences between the amounts approved for recovery in the nuclear deferral and variance accounts and the actual amounts recovered based on the actual nuclear

[86] EB-2020-0290, Ex. C2-1-1, sections 4.1.2 and 4.2.2.

production and approved riders. Pursuant to OEB's orders, the account also captures the transfer of the nuclear portions of the balances remaining in other accounts as they expire from time to time.

The derivation of the $27.9M, $25.8M and $1.9M credit additions to the account for 2020, 2021 and 2022, respectively, is shown in Ex. H1-1-1, Table 12. Additionally, the remaining credit balance of $2.4M from the Derivative Sub-Account of the Bruce Lease Net Revenue Variance Account, which was terminated effective January 1, 2022,[87] and its subsequent amortization were transferred to the Nuclear Deferral and Variance Over/Under Recovery Variance Account.[88] There were no other transfers from expiring accounts in 2020, 2021 or 2022.

5.18 Rate Smoothing Deferral Account

The Rate Smoothing Deferral Account was established in accordance with section 5.5 of O. Reg. 53/05 and approved in EB-2016-0152. The account records the difference between: (i) the total annual nuclear revenue requirement approved by the OEB; and, (ii) the portion of that revenue requirement in (i) that is used in connection with setting the nuclear payment amounts in each year ("the annual deferral amount"). According to O. Reg. 53/05, an annual deferral amount as determined by the OEB is recorded in the account from January 1, 2017 until the DRP ends (the "deferral period"). The regulation stipulates that the OEB shall ensure that OPG recovers the balance recorded in the account and shall authorize recovery of the account balance on a straight-line basis over a period not to exceed ten years commencing at the end of the deferral period. The regulation also stipulates that the deferral account shall record interest on the balance of the account at a long-term debt rate reflecting OPG's cost of long-term borrowing, as approved by the OEB, compounded annually. As the deferral period has not yet ended, OPG does not propose to clear the account balance in this application.

5.19 Fitness for Duty Deferral Account

The Fitness for Duty Deferral Account was approved by the OEB in EB-2016-0152 and continued in EB-2020-0290. The account records costs to implement the CNSC Fitness for

[87] EB-2020-0290 PAO, Appendix E, p. 17.
[88] For purposes of account balance continuity, the transfer is shown in Ex. H1-1-1, Table 1b as of year-end 2021.

Duty program, which is a drug, alcohol, psychological and physical testing program for employees in nuclear facilities. The total December 31, 2022 debit balance in the account is $1.6M.[89]

OPG has implemented programmatic changes to comply with certain requirements as set out in the CNSC's regulatory document *REGDOC 2.2.4 – Fitness for Duty, Vol. II: Managing Alcohol and Drug Use (version 3)* ("REGDOC 2.2.4") issued in November 2020 with an effective date of January 22, 2021. However, the implementation of requirements related to pre-placement and random alcohol and drug testing is currently stayed, pending the outcome of the labour unions' appeal of the Federal Court's decision which endorsed these requirements for Safety-Critical Workers at high-security nuclear facilities.

Given the ongoing legal challenges, OPG proposes to defer the clearance of the balance in the account to a future application, which would allow an assessment of the costs to be undertaken after the legal challenges have been resolved.[90]

5.20 SR&ED ITC Variance Account

The SR&ED ITC Variance Account was approved in EB-2016-0152 and continued in EB-2020-0290. The account records the difference between actual SR&ED ITCs attributed to the nuclear facilities as determined after any tax audits and the forecast SR&ED ITCs included in the nuclear revenue requirement approved by the OEB, including the tax on the difference.[91]

Actual SR&ED ITCs net of tax attributed to the nuclear facilities recorded in 2020 and 2021, inclusive of immediately preceding year's true-up adjustments based on income tax return completion, were lower than the forecast amounts reflected in the corresponding revenue requirements approved in EB-2016-0152. Actual SR&ED ITCs net of tax recorded in 2022, inclusive of immediately preceding year's true-up adjustment based on income tax return

[89] Ex. H1-1-1, Table 1, col. (d), line 40.
[90] For similar reasons, OPG did not seek clearance of the Fitness for Duty Deferral Account balance in EB-2020-0290 and EB-2018-0243.
[91] The impact of tax audit resolution related to SRE&ED ITCs for taxation years prior to 2017 (and for 2017, as pro-rated for the period prior to the effective date of the SR&ED ITC Variance Account of June 1, 2017), attributed to the nuclear facilities, is recorded in the Income and Other Taxes Variance Account.

completion, were higher than the forecast amount reflected in the corresponding revenue requirement approved in EB-2020-0290. The derivation of the resulting debit additions of $4.6M and $2.9M in 2020 and 2021, and the credit addition of $7.7M in 2022 is shown in Ex. H1-1-1, Table 14.

5.21 Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral Account

The Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral Account was approved in EB-2018-0002 and continued in EB-2020-0290. Effective January 1, 2018, this account recorded the revenue requirement impact for the prescribed facilities arising from changes to nuclear liabilities and depreciation and amortization expense resulting from the Pickering station EOL date changes that came into effect on December 31, 2017. These changes extended the accounting station EOL dates for Pickering Units 1 and 4 to December 31, 2022 and for Pickering Units 5-8 to December 31, 2024 from the previous dates of December 31, 2020. Pursuant to the EB-2020-0290 PAO, additions to this account ceased to be recorded effective January 1, 2022, as the impact arising from these EOL date changes was reflected in the revenue requirements approved in that proceeding.[92] The changes to the Pickering station EOL dates are discussed in detail in EB-2020-0290, Ex. F4-2-1, Section 3.3.

The derivation of the $157.1M credit entry in 2020 and the $263.5M debit entry in 2021 is shown in Ex. H1-1-1, Table 13. These entries were calculated in the manner detailed by OPG in EB-2018-0002 and applied in EB-2020-0290 and are very close to the projection of these entries identified in those proceedings.[93] The impacts recorded in the account were determined by applying the revised Pickering station EOL dates that came into effect on December 31, 2017 to recalculate the corresponding OEB-approved values (such as depreciation and amortization expense) reflected in the EB-2016-0152 revenue requirement, holding other variables constant (such as capital in-service amounts). Together with the 2018 and 2019

[92] EB-2020-0290 PAO, Appendix E, p, 18.
[93] EB-2018-0002, OPG's response to Board Staff Interrogatory #1, Attachment 1, Table 1 projected a credit entry of $156.7M in 2020 and a debit entry of $264.1M in 2021. EB-2020-0290, Ex. H1-1-1, Table 13 projected a credit entry of $157.1M for 2020 and a debit entry of $263.6M in 2021.

account additions approved for disposition in EB-2020-0290, the entries over the period combine to a net credit amount of approximately $140M.

The entries in 2020 and 2021 comprise debit additions for revenue requirement impacts arising from changes to nuclear liabilities of $24.2M for 2020 and $109.6M for 2021, and additions from changes to non-ARC depreciation and amortization expense of $181.4M (credit) for 2020 and $154.0M (debit) for 2021. The nuclear liabilities' impact reflects the increase in the ARO and associated ARC balances of $143.7M for the prescribed facilities recorded at year-end 2017 to reflect the changes in the Pickering station EOL dates, primarily due to the increase in committed costs associated with used fuel disposal activities resulting from the station's extended operating period and resulting additional used fuel.[94] The year-end 2017 nuclear liabilities adjustment is described in further detail in EB-2020-0290, Ex. C2-1-1, Section 6.0.

No interest was recorded on the balance of the account in 2020, 2021 or 2022 pursuant to the EB-2018-0002 Decision and Order and the EB-2020-0290 PAO.

5.22 Pickering Closure Costs Deferral Account

The Pickering Closure Costs Deferral Account was established in accordance with section 5.6 of O. Reg. 53/05. Effective January 1, 2021, this account records any employment-related costs and non-capital costs related to third party service providers incurred by OPG that arise from any Pickering closure activities. The regulation specifies that Pickering closure costs can be incurred before or after the closure of a Pickering unit, but does not include costs that are eligible for reimbursement to OPG under the ONFA.

The account has a debit balance of $2.8M as of December 31, 2022.[95] OPG proposes to defer the clearance of the balance to a future application, which would allow these costs to be considered after the Pickering closure activities have further advanced.

[94] EB-2020-0290, Ex. C2-1-1, Table 4.
[95] Ex. H1-1-1, Table 1, col. (d), line 45.

5.23 Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account

The Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account was approved in EB-2020-0290. Effective January 1, 2021, this account records the revenue requirement impact for the prescribed facilities arising from changes to nuclear liabilities and depreciation and amortization expense resulting from changes to the Pickering station EOL dates. Account additions in 2021 and 2022 represent such impacts of extending the accounting station EOL date for Pickering Units 1 and 4 from December 31, 2022 to December 31, 2024, which was implemented as of year-end 2020. This change was not anticipated in the EB-2016-0152 revenue requirements. It also was not reflected in the EB-2020-0290 revenue requirements for the reasons discussed under Section 5.14 above.

The derivation of the $1.0M debit entry in 2021 and $45.9M credit entry in 2022 is shown in Ex. H1-1-1, Table 19. These entries were calculated in the manner set out by OPG in EB-2020-0290 and are very close to the projection of these entries identified in that proceeding.[96] The impacts recorded in the account are determined by applying the revised Pickering station EOL dates that came into effect on December 31, 2020 to recalculate the corresponding OEB-approved values (such as depreciation and amortization expense) reflected in the EB-2020-0290 revenue requirement, holding other variables constant (such as capital in-service amounts).

The entry in 2021 comprises debit additions of $25.6M for revenue requirement impacts arising from changes to nuclear liabilities and credit additions of $24.6M from changes to non-ARC depreciation and amortization expense. The nuclear liabilities' impact reflects the increase in the ARO and associated ARC balances of $51.1M for the prescribed facilities recorded at year-end 2020 to reflect the changes in the Pickering station EOL dates, as well as higher used fuel variable expenses due to an increase in the per bundle cost rates reflecting a lower discount

[96] OPG's responses to interrogatories in EB-2020-0290, which were completed after OPG had finalized the year-end 2020 financial information required to calculate the ARO/ARC impacts, projected a comparable debit entry of $1.0M for 2021 (EB-2020-0290, Ex. L-H1-01-Staff-337, Attachment 1, Table 1, line 19, col. (a)) and a comparable debit entry of $45.8M for 2022 (EB-2020-0290, Ex. L-F4-01-Staff-271, Attachment 1, Table 2, line 18, col. (a)).

rate of 2.01% (compared to 3.20% used to forecast these costs in EB-2016-0152).[97] The entry in 2022 comprises credit additions of $45.9M for revenue requirement impacts from changes to non-ARC depreciation and amortization expense. As discussed under Section 5.14 above, for 2022, debit additions of $24.0M related to the nuclear liabilities' impact were recorded in the Nuclear Liability Deferral Account, rather than the Optimization of Pickering Station's End-of-Life Deferral Account, in accordance with O. Reg. 53/05. The derivation of these nuclear liabilities impacts is included in Ex. H1-1-1, Table 19. The details of the year-end 2020 ARO/ARC adjustment are provided in Ex. H1-1-1 Table 18a.

In calculating the above impacts, OPG applied the same methodologies used to make entries to the Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral Account and a similar deferral account previously authorized in EB-2015-0374.[98]

No interest was recorded on the balance of the account in 2021 or 2022 pursuant to the EB-2020-0290 PAO.[99]

5.24 Clarington Corporate Campus Deferral Account

The Clarington Corporate Campus Deferral Account was approved in EB-2020-0290, effective January 1, 2022, to record, for the nuclear facilities, the revenue requirement impacts of OPG's capital expenditures and operating costs for its previously planned Clarington Corporate Campus. No entries were recorded in this account for 2022.

5.25 Sale of Unprescribed Kipling Site Deferral Account

The Sale of Unprescribed Kipling Site Deferral Account was established in EB-2020-0290, effective January 1, 2022, to track 23% of the net proceeds arising from any sale of OPG's unprescribed site located at 800 Kipling Avenue (the "Kipling Site") in Toronto during the 2022-

[97] See notes 82 and 83 in Section 5.16.
[98] The Impact Resulting from Changes in Station End-of-life Dates (December 31, 2015) Deferral Account recorded the revenue requirement for the prescribed facilities arising from changes to nuclear liabilities and depreciation and amortization expense resulting from changes to the nuclear station accounting EOL dates implemented effective December 31, 2015, for the period from January 1, 2016 to May 31, 2017.
[99] EB-2020-0290 PAO, Appendix F, p. 2.

2026 period.[100] The account was established as part of the Settlement Agreement, which provided in connection with any amounts tracked in the account that "[t]he recording of this amount is without prejudice to any position a Party may take as to whether any portion of this amount should be returned to ratepayers at the time of the account's disposition."[101]

In 2022, OPG sold the Kipling Site, receiving overall net proceeds of $196.1M. OPG received $161.8M in partial net proceeds in 2022, resulting in $37.2M being tracked in this tracking account as at December 31, 2022. The after-tax gain on the sale recognized by OPG in 2022 was $110.8M, 23% of which equates to $25.5M. The gain represents the excess of the net proceeds received over the difference between the net book value of the Kipling Site assets of $34.6M and the related asset retirement and environmental liabilities and other balances of $11.1M carried on OPG's balance sheet in connection with the property. The remaining net proceeds of $34.3M were received in 2023, with a corresponding additional after-tax gain on sale of $23.2M recognized at that time. At 23% of these amounts, this equates to $7.9M of additional net proceeds and $5.3M of after-tax gain in 2023. Pursuant to the EB-2020-0290 PAO, no interest is recorded on the balance of the account.[102]

OPG does not propose to clear this tracking account, as OPG's position is that the net proceeds and net gain on the sale of this unregulated property should accrue entirely to OPG. The Kipling Site was not a prescribed facility under O. Reg. 53/05 and, accordingly, has never been included in OPG's rate base. Prior to the sale, the Kipling Site primarily supported OPG's unregulated business and was reported as an unregulated asset in OPG's financial statements. To the extent that OPG has historically used a portion of the Kipling Site to support the company's regulated operations, the revenue requirements have included asset service fees, as an ongoing OM&A expense akin to lease payments, charging the regulated operations for such use.[103] Additionally, ratepayers have not been previously charged for costs related to

[100] The 23% represents the portion of the site attributable to the use by OPG's regulated assets (EB-2020-0290 PAO, Appendix F, p. 6).
[101] EB-2020-0290 Decision, Schedule A, Ex. 0, p. 30.
[102] EB-2020-0290 PAO, Appendix F, p. 6.
[103] EB-2020-0290, Ex. F3-2-1, pp. 2-3. Such asset services fees have been included as an OM&A expense in OPG's revenue requirements since EB-2007-0905.

the asset retirement and environmental liabilities carried on OPG's balance sheet in connection with the Kipling Site.[104]

5.26 Earnings Sharing Deferral Account

The Earnings Sharing Deferral Account was approved in EB-2020-0290, effective January 1, 2022, to record 50% of any regulated earnings for OPG's combined nuclear and regulated hydroelectric business that exceed 100 basis points above the OEB-approved ROE rate, assessed over a cumulative 5-year period from January 1, 2022 to December 31, 2026. No entries will be recorded in this account until following the completion of the above five-year period, if applicable.

5.27 Impact of IFRS Deferral Account

The Impact for IFRS Deferral Account was approved in EB-2020-0290, effective January 1, 2022, to record financial impacts of transition to and implementation of International Financial Reporting Standard ("IFRS") from US GAAP in the event that OPG adopts IFRS for financial reporting purposes to meet the requirements of the *Securities Act* (Ontario). No entries were recorded in this account in 2022 as OPG has continued to apply US GAAP to report its consolidated financial statements. Pursuant to the EB-2020-0290 PAO, no interest is to be recorded on the balance of the account.

6.0 INTEREST

OPG recorded interest on all deferral and variance accounts unless specified otherwise in the account descriptions above. For these accounts, OPG applied interest to the monthly opening balances of these accounts at the interest rate set by the OEB from time to time pursuant to its interest policy for deferral and variance accounts, unless specified otherwise in the account descriptions above.

[104] EB-2020-0290, Ex. L-F3-02-Staff-264, p. 2.

ATTACHMENTS

Attachment 1:	Independent Auditors' Report prepared by Ernst & Young LLP Chartered Professional Accountants
Attachment 2:	Schedule of Regulatory Balances as at December 31, 2022
Attachment 3:	Reasons for Economic Loss when Cycling Sir Adam Beck Pump Generating Station
Attachment 4:	Regulated Hydroelectric Projects – Capacity Refurbishment Variance Account
Attachment 5:	Aon's Report on the Accounting Cost for Post Employment Benefit Plans for Fiscal Years 2020, 2021 and 2022
Attachment 6:	Letter Regarding 2022 Ontario Nuclear Funds Agreement Reference Plan
Attachment 7:	2022 Ontario Nuclear Funds Agreement Contribution Schedule

INDEPENDENT AUDITORS' REPORT

To the management of
Ontario Power Generation Inc.

Opinion

We have audited the schedule of regulatory balances of **Ontario Power Generation Inc.**, (the Company) as at December 31, 2022 (the "Schedule").

In our opinion, the accompanying schedule, which presents the balances of the deferral and variance accounts authorized for Ontario Power Generation Inc. by the decisions and orders of the Ontario Energy Board, is prepared, in all material respects in accordance with the basis of accounting as described in Note 1 to the Schedule.

Basis for opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's responsibilities for the audit of the Schedule* section of our report. We are independent of the Company in accordance with the ethical requirements that are relevant to our audit of the Schedule in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of matter – Basis of accounting and restriction on use

We draw attention to Note 1 of the Schedule, which describes the basis of accounting. The Schedule is prepared to assist the Company in filing with the Ontario Energy Board as part of the regulatory process. As a result, the Schedule may not be suitable for another purpose. Our report is intended solely for the information and use of the Company and for filing with the Ontario Energy Board as part of the regulatory process. Our opinion is not modified in respect of this matter.

Responsibilities of management for the Schedule

Management is responsible for the preparation and fair presentation of the Schedule in accordance with the basis of accounting as described in Note 1 of the Schedule; this includes determining that the basis of accounting is an acceptable basis for the preparation of the Schedule in the circumstances, and for such internal control as management determines is necessary to enable the preparation of the Schedule that are free from material misstatement, whether due to fraud or error.

In preparing the Schedule, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters relating to going concern, and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

Auditor's responsibilities for the audit of the Schedule

Our objectives are to obtain reasonable assurance about whether the Schedule as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the Schedule.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the Schedule, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the Schedule or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the Schedule, including the disclosures, and whether the Schedule represents the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence to express an opinion on the Schedule. We are responsible for the direction, supervision and performance of the audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Ernst & Young LLP

Toronto, Canada
November 28, 2023

Chartered Professional Accountants
Licensed Public Accountants

SCHEDULE OF REGULATORY BALANCES
AS AT DECEMBER 31, 2022

The *Ontario Energy Board Act, 1998* and *Ontario Regulation 53/05* provide that Ontario Power Generation Inc. (OPG or the Company) receives regulated prices for electricity generated from most of the Company's hydroelectric generating facilities and all of the nuclear generating facilities that the Company operates. OPG's regulated prices for the generation from these facilities are determined by the Ontario Energy Board (OEB).

The OEB's decisions and orders have authorized OPG to establish certain variance and deferral accounts, including those authorized pursuant to *Ontario Regulation 53/05*. The balances in these accounts are calculated in accordance with the OEB's decisions and orders and *Ontario Regulation 53/05*. In accordance with United States generally accepted accounting principles ("US GAAP"), OPG's consolidated financial statements recognize regulatory assets and regulatory liabilities for balances in the variance and deferral accounts.

Through its August 2021 oral decision approving the settlement agreement between OPG and intervenors on OPG's application for new regulated prices under case number EB-2020-0290 and its November 2021 written decision on the same, the OEB approved balances as at December 31, 2019 in all of the Company's variance and deferral accounts for which clearance was sought, as adjusted by the OEB's decisions, and less amounts previously approved for recovery or repayment in these accounts under case numbers EB-2016-0152 and EB-2018-0243. The OEB's 2021 decision and related settlement agreement also deferred recovery of a portion of the balance in the Hydroelectric Surplus Baseload Generation Variance Account to a future proceeding. Balances related to the Darlington Refurbishment Program in the Capacity Refurbishment Variance Account – Nuclear, the Capacity Refurbishment Variance Account – Hydroelectric, preliminary planning and preparation of nuclear small modular reactor generating facilities within the Nuclear Development Variance Account, the Fitness for Duty Deferral Account, and the Rate Smoothing Deferral Account were excluded from OPG's application. To effect recovery of the balances approved in the EB-2020-0290 proceeding, the OEB established rate riders for OPG's regulated generation for the period from January 1, 2022 to December 31, 2026.

For the period from January 1, 2020 to December 31, 2022, OPG recognized additions to the variance and deferral accounts and amortized the balances in the accounts as authorized by the OEB in the EB-2016-0152 Payment Amounts Order, the EB-2018-0002 Decision and Order, the EB-2018-0243 Payment Amounts Order, and the EB-2020-0290 Payment Amounts Order, as applicable. Where authorized by the OEB, OPG recorded interest on the unamortized balances in the applicable variance and deferral accounts at the OEB-prescribed rate ranging from 0.57 percent per annum to 3.87 percent per annum during the period from January 1, 2020 to December 31, 2022.

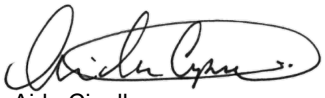
As at December 31, 2022, the balances to be recovered from (refunded to) ratepayers in the variance and deferral accounts authorized for OPG were as follows:

(millions of dollars)	**2022**
Regulated Hydroelectric	
Hydroelectric Surplus Baseload Generation Variance Account	**402**
Capacity Refurbishment Variance Account – Hydroelectric	**80**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Hydroelectric – Registered Pension Plan (RPP) – EB-2018-0243 Approved	**33**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Hydroelectric – Non RPP – EB-2018-0243 Approved	**14**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Hydroelectric – Post-2017 Additions – EB-2020-0290 Approved	**35**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Hydroelectric – Post-2019 Additions	**28**
Pension and OPEB Cost Variance Account – Hydroelectric – Future Recovery (Dec. 31, 2012 Balance)	**2**
Pension & OPEB Cash Payment Variance Account – Hydroelectric	**(77)**
Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance Account – Carrying Charges Sub-Account – Hydroelectric	**(2)**
Ancillary Services Net Revenue Variance Account – Hydroelectric	**(34)**
Hydroelectric Water Conditions Variance Account	**(172)**
Hydroelectric Deferral and Variance Over/Under Recovery Variance Account	**16**
Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account	**8**
Hydroelectric Incentive Mechanism Variance Account	**-**
Income and Other Taxes Variance Account – Hydroelectric	**(13)**
Gross Revenue Charge Variance Account	**-**
Impact for IFRS Deferral Account – Hydroelectric	**-**
Total – Regulated Hydroelectric	**320**
Nuclear	
Pension and OPEB Cost Variance Account – Nuclear – Future Recovery (Dec. 31, 2012 Balance)	**43**
Pension and OPEB Cost Variance Account – Nuclear – Post 2021 Additions	**(123)**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Nuclear – Registered Pension Plan (RPP) – EB-2018-0243 Approved	**213**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Nuclear – Non-RPP – EB-2018-0243 Approved	**88**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Nuclear – Post-2017 Additions – EB-2020-0290 Approved	**223**
Pension & OPEB Cash Versus Accrual Differential Deferral Account – Nuclear – Post-2019 Additions	**165**
Pension & OPEB Cash Payment Variance Account – Nuclear	**(383)**
Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account – Carrying Charges Sub-Account – Nuclear	**(12)**
Nuclear Liability Deferral Account	**188**
Bruce Lease Net Revenues Variance Account	**101**
Nuclear Deferral and Variance Over/Under Recovery Variance Account	**(75)**
Capacity Refurbishment Variance Account – Nuclear – DRP	**(48)**
Capacity Refurbishment Variance Account – Nuclear – Non-DRP	**50**
Capacity Refurbishment Variance Account – Nuclear – Accelerated Investment Incentive CCA-DRP	**(31)**
Capacity Refurbishment Variance Account – Nuclear – Heavy Water Storage Facility (D2O)	**80**
Income and Other Taxes Variance Account – Nuclear	**(19)**
Nuclear Development Variance Account	**111**
Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account	**(45)**
Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral Account	**(58)**
Ancillary Services Net Revenue Variance Account – Nuclear	**(14)**
SR&ED ITC Variance Account	**(9)**
Fitness for Duty Deferral Account	**2**
Rate Smoothing Deferral Account	**569**

Pickering Closure Costs Deferral Account	**3**
Clarington Corporate Campus Deferral Account	**-**
Impact for IFRS Deferral Account – Nuclear	**-**
Total – Nuclear	**1,019**
Earnings Sharing Deferral Account	**-**

This schedule of regulatory balances has been prepared solely for the use of OPG's management and for filing with the OEB, and is considered by OPG's management to be a fair and reasonable representation of the balances in the authorized variance and deferral accounts as at December 31, 2022. These balances have been determined in accordance with the basis of accounting described in Note 1 to this schedule.

On behalf of Ontario Power Generation Inc.



Aida Cipolla
Chief Financial Officer and Senior Vice President – Finance
November 28, 2023

See accompanying note to the schedule

NOTE TO THE SCHEDULE OF REGULATORY BALANCES
AS AT DECEMBER 31, 2022

1. BASIS OF ACCOUNTING

The schedule of regulatory balances presents the balances as at December 31, 2022 in all variance and deferral accounts authorized for OPG, with the exception of the Pension and OPEB Forecast Accrual Versus Actual Cash Differential Variance Account – Primary and Contra sub-accounts which are offsetting by definition and the tracking-only Sale of Unprescribed Kipling Site Deferral Account. The balances presented represent the regulatory assets and regulatory liabilities for these accounts recorded by OPG in accordance with US GAAP for the purposes of its consolidated financial statements, as modified to include a return on equity amount as part of cost of capital additions recorded in the accounts for recovery from, or refund to, ratepayers and to include the full amount of additions recorded in the Capacity Refurbishment Variance Account – Hydroelectric effective June 1, 2017. The Pension and OPEB Forecast Accrual Versus Actual Cash Differential Variance Account – Primary and Contra sub-accounts have a net zero balance at all times pursuant to the Report of the Ontario Energy Board under case number EB-2015-0040. All dollar amounts are presented in Canadian dollars.

For the purposes of its consolidated financial statements prepared in accordance with US GAAP, as required by FASB Accounting Standards Codification Topic 980, *Regulated Operations*, OPG limits the portion of cost of capital additions recognized as a regulatory asset to the amount calculated using the average rate of capitalized interest applied by OPG to construction and development in progress balances. The amortization expense related to the regulatory assets for variance and deferral accounts that include cost of capital additions are correspondingly limited in OPG's consolidated financial statements to amounts calculated using the average rate of capitalized interest applied to OPG's construction and development in progress balances.

In the EB-2016-0152 Payment Amounts Order issued on March 23, 2018, the OEB stipulated that OPG will be entitled to future recovery of additions recorded in the Capacity Refurbishment Variance Account – Hydroelectric effective June 1, 2017 to the extent that OPG's total capital in-service additions for the regulated hydroelectric facilities over the 2017-2021 period exceed the funding for capital expenditures for these facilities implicit in the hydroelectric payment amounts over that period, as calculated pursuant to the EB-2016-0152 Payment Amounts Order. In the EB-2020-0290 Payment Amounts Order issued on January 27, 2022, the OEB stipulated that OPG will be entitled to future recovery of additions recorded in the Capacity Refurbishment Variance Account – Hydroelectric effective January 1, 2022 to the extent that OPG's total capital in-service additions for the regulated hydroelectric facilities over the 2022-2026 period exceed the funding for capital expenditures for these facilities implicit in the hydroelectric payment amounts over that period, as calculated pursuant to the EB-2020-0290 Payment Amounts Order. In accordance with US GAAP, OPG's consolidated financial statements recognize a regulatory asset for additions recorded in the Capacity Refurbishment Variance Account – Hydroelectric effective June 1, 2017 when OPG assesses there is sufficient assurance that these amounts will be recoverable in the future based on the above condition.

US GAAP recognizes that rate regulation can create economic benefits and obligations that are required to be obtained from, or settled with, the ratepayers. When OPG assesses that there is sufficient assurance that incurred costs in respect of its regulated facilities will be recovered in the future, those costs are deferred and reported as a regulatory asset in the Company's consolidated financial statements. When OPG is required to refund amounts in respect of its regulated facilities to ratepayers in the future, including amounts related to costs that have not been incurred and for which the OEB has provided recovery through regulated prices, the Company records a regulatory liability in its consolidated financial statements. The measurement of regulatory assets and regulatory liabilities is subject to certain estimates and assumptions, including assumptions made in the interpretation of *Ontario Regulation 53/05* and the OEB's decisions. The estimates and assumptions made in the interpretation of the regulation and the OEB's decisions are reviewed as part of the OEB's regulatory process.

OPG's most recent annual consolidated financial statements filed with the Ontario Securities Commission are as at and for the year ended December 31, 2022. OPG's most recent interim consolidated financial statements filed with the Ontario Securities Commission are as at and for the nine months ended September 30, 2023.

REASONS FOR ECONOMIC LOSS WHEN CYCLING SIR ADAM BECK PUMP GENERATING STATION

Cycling the Sir Adam Beck Pump Generating Station ("PGS") would result in an economic loss when:

- The forecasted market revenues from PGS generation in the next on-peak period would be insufficient to recover the costs of pumping in the current off-peak period; or
- Such forecasted revenues would not be realized based on a comparison to the cost of replacing water in the PGS reservoir in a subsequent period (i.e., the forecasted costs of pumping in the future off-peak period).

Assessing Opportunity to Recover Pumping Cost

When deciding if it is economic to pump the PGS in the current off-peak period, OPG evaluates its pumping costs against forecasted generation revenues from stored water in the next on-peak period. Forecasted generation revenues include PGS revenues and Sir Adam Beck Generating Station ("SAB") 1 and 2 revenues from the PGS water used at SAB 1 and 2. These revenues are considered net of applicable gross revenue charge ("GRC").

Costs associated with pumping are dependent on whether water pumped by the PGS would reduce water available to generate at SAB 1 and 2, and include:

- Load charges (energy charges, network service charge, others)
- Opportunity cost of SAB 1 and 2 forgone production while the PGS is pumping, if applicable

OPG would incur an economic loss when the forecasted revenues are lower than the pumping costs. In the table below, each hour when OPG recorded additions to the Hydroelectric Surplus Baseload Generation Variance Account and where OPG did not pump the PGS for these reasons is labelled as "Economic Loss due to inability to recover pumping costs."

Assessing Opportunity for Economic Generation

When deciding if it is economic to pump the PGS in the current off-peak period, OPG evaluates the value of generation in the next on-peak period and the likelihood of recovering replacement costs in a future pump cycle, in order to assess whether the forecasted revenues would be realized. This assessment is based on a comparison of forecasted generation revenues in that on-peak period, determined in the manner as set out above, compared to the forecasted costs associated with replacing that water in a subsequent off-peak period.

Costs associated with replacing the water used for generation at the PGS are based on the reduced water available to generate at SAB 1 and 2, and include:

- Load charges (energy charges, network service charge, others)
- Opportunity cost of SAB 1 and 2 forgone production while the PGS is pumping, if applicable.

OPG would incur an economic loss if it does not realize the generation revenues in the next on-peak period based on a comparison to the cost of replacing water in the PGS reservoir in a future period. In the table below, each hour when OPG recorded additions to the Hydroelectric Surplus Baseload Generation Variance Account and where OPG did not pump the PGS for these reasons is labelled as “Economic loss due to inability to economically generate.”

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/1/2018	14	Economic loss due to inability to recover pumping costs
1/3/2018	9	Economic loss due to inability to recover pumping costs
1/3/2018	10	Economic loss due to inability to recover pumping costs
1/3/2018	11	Economic loss due to inability to recover pumping costs
1/3/2018	12	Economic loss due to inability to recover pumping costs
1/3/2018	13	Economic loss due to inability to recover pumping costs
1/4/2018	7	Economic loss due to inability to recover pumping costs
1/4/2018	8	Economic loss due to inability to recover pumping costs
1/4/2018	9	Economic loss due to inability to recover pumping costs
1/4/2018	10	Economic loss due to inability to recover pumping costs
1/4/2018	11	Economic loss due to inability to recover pumping costs
1/4/2018	12	Economic loss due to inability to recover pumping costs
1/4/2018	13	Economic loss due to inability to recover pumping costs
1/4/2018	14	Economic loss due to inability to recover pumping costs
1/4/2018	15	Economic loss due to inability to recover pumping costs
1/4/2018	16	Economic loss due to inability to recover pumping costs
1/5/2018	3	Economic loss due to inability to economically generate
1/5/2018	4	Economic loss due to inability to economically generate
1/5/2018	5	Economic loss due to inability to economically generate
1/5/2018	6	Economic loss due to inability to economically generate
1/6/2018	2	Economic loss due to inability to economically generate
1/6/2018	3	Economic loss due to inability to economically generate
1/6/2018	4	Economic loss due to inability to economically generate
1/6/2018	6	Economic loss due to inability to economically generate
1/7/2018	9	Economic loss due to inability to recover pumping costs
1/7/2018	10	Economic loss due to inability to recover pumping costs
1/7/2018	11	Economic loss due to inability to recover pumping costs
1/7/2018	12	Economic loss due to inability to recover pumping costs
1/7/2018	13	Economic loss due to inability to recover pumping costs
1/7/2018	15	Economic loss due to inability to economically generate
1/7/2018	16	Economic loss due to inability to recover pumping costs
1/9/2018	7	Economic loss due to inability to recover pumping costs
1/9/2018	8	Economic loss due to inability to recover pumping costs
1/9/2018	11	Economic loss due to inability to recover pumping costs
1/9/2018	12	Economic loss due to inability to recover pumping costs
1/9/2018	13	Economic loss due to inability to recover pumping costs
1/9/2018	14	Economic loss due to inability to recover pumping costs
1/9/2018	15	Economic loss due to inability to recover pumping costs
1/17/2018	14	Economic loss due to inability to recover pumping costs
1/17/2018	16	Economic loss due to inability to recover pumping costs
1/17/2018	17	Economic loss due to inability to recover pumping costs
1/17/2018	18	Economic loss due to inability to recover pumping costs
1/18/2018	8	Economic loss due to inability to recover pumping costs
1/18/2018	9	Economic loss due to inability to recover pumping costs
1/18/2018	10	Economic loss due to inability to recover pumping costs
1/18/2018	11	Economic loss due to inability to recover pumping costs
1/18/2018	12	Economic loss due to inability to recover pumping costs
1/18/2018	13	Economic loss due to inability to recover pumping costs
1/18/2018	14	Economic loss due to inability to recover pumping costs
1/18/2018	15	Economic loss due to inability to recover pumping costs
1/18/2018	16	Economic loss due to inability to recover pumping costs
1/18/2018	17	Economic loss due to inability to recover pumping costs
1/21/2018	8	Economic loss due to inability to recover pumping costs
1/21/2018	9	Economic loss due to inability to recover pumping costs
1/21/2018	10	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/21/2018	11	Economic loss due to inability to recover pumping costs
1/21/2018	12	Economic loss due to inability to recover pumping costs
1/21/2018	13	Economic loss due to inability to recover pumping costs
1/21/2018	14	Economic loss due to inability to recover pumping costs
1/21/2018	17	Economic loss due to inability to recover pumping costs
1/21/2018	18	Economic loss due to inability to recover pumping costs
1/24/2018	1	Economic loss due to inability to economically generate
1/24/2018	2	Economic loss due to inability to economically generate
1/24/2018	3	Economic loss due to inability to economically generate
1/24/2018	4	Economic loss due to inability to economically generate
1/24/2018	5	Economic loss due to inability to economically generate
1/24/2018	6	Economic loss due to inability to economically generate
1/24/2018	7	Economic loss due to inability to recover pumping costs
1/24/2018	8	Economic loss due to inability to recover pumping costs
1/24/2018	9	Economic loss due to inability to recover pumping costs
1/24/2018	10	Economic loss due to inability to recover pumping costs
1/24/2018	11	Economic loss due to inability to recover pumping costs
1/24/2018	12	Economic loss due to inability to recover pumping costs
1/24/2018	13	Economic loss due to inability to recover pumping costs
1/24/2018	14	Economic loss due to inability to recover pumping costs
1/24/2018	15	Economic loss due to inability to recover pumping costs
1/28/2018	2	Economic loss due to inability to economically generate
1/28/2018	3	Economic loss due to inability to economically generate
1/28/2018	4	Economic loss due to inability to economically generate
1/28/2018	5	Economic loss due to inability to economically generate
1/28/2018	6	Economic loss due to inability to economically generate
1/28/2018	7	Economic loss due to inability to economically generate
1/28/2018	8	Economic loss due to inability to economically generate
1/28/2018	9	Economic loss due to inability to economically generate
1/28/2018	10	Economic loss due to inability to economically generate
1/28/2018	11	Economic loss due to inability to economically generate
1/28/2018	12	Economic loss due to inability to economically generate
1/28/2018	13	Economic loss due to inability to economically generate
1/28/2018	14	Economic loss due to inability to economically generate
1/28/2018	15	Economic loss due to inability to economically generate
1/28/2018	16	Economic loss due to inability to economically generate
1/28/2018	17	Economic loss due to inability to recover pumping costs
1/28/2018	18	Economic loss due to inability to recover pumping costs
1/28/2018	19	Economic loss due to inability to recover pumping costs
1/28/2018	20	Economic loss due to inability to recover pumping costs
1/29/2018	7	Economic loss due to inability to recover pumping costs
1/29/2018	8	Economic loss due to inability to recover pumping costs
1/29/2018	9	Economic loss due to inability to recover pumping costs
1/29/2018	10	Economic loss due to inability to recover pumping costs
1/29/2018	13	Economic loss due to inability to recover pumping costs
1/29/2018	14	Economic loss due to inability to recover pumping costs
1/29/2018	15	Economic loss due to inability to recover pumping costs
1/29/2018	16	Economic loss due to inability to recover pumping costs
1/29/2018	21	Economic loss due to inability to recover pumping costs
1/30/2018	7	Economic loss due to inability to recover pumping costs
1/30/2018	8	Economic loss due to inability to recover pumping costs
1/30/2018	9	Economic loss due to inability to recover pumping costs
1/30/2018	10	Economic loss due to inability to recover pumping costs
1/30/2018	11	Economic loss due to inability to recover pumping costs
1/30/2018	12	Economic loss due to inability to recover pumping costs
2/1/2018	8	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/1/2018	9	Economic loss due to inability to recover pumping costs
2/1/2018	10	Economic loss due to inability to recover pumping costs
2/1/2018	11	Economic loss due to inability to recover pumping costs
2/1/2018	12	Economic loss due to inability to recover pumping costs
2/1/2018	13	Economic loss due to inability to recover pumping costs
2/1/2018	14	Economic loss due to inability to recover pumping costs
2/1/2018	15	Economic loss due to inability to recover pumping costs
2/1/2018	16	Economic loss due to inability to recover pumping costs
2/1/2018	17	Economic loss due to inability to recover pumping costs
2/1/2018	18	Economic loss due to inability to recover pumping costs
2/1/2018	19	Economic loss due to inability to recover pumping costs
2/1/2018	22	Economic loss due to inability to recover pumping costs
2/1/2018	23	Economic loss due to inability to recover pumping costs
2/2/2018	7	Economic loss due to inability to recover pumping costs
2/2/2018	8	Economic loss due to inability to recover pumping costs
2/2/2018	9	Economic loss due to inability to recover pumping costs
2/2/2018	10	Economic loss due to inability to recover pumping costs
2/3/2018	2	Economic loss due to inability to recover pumping costs
2/3/2018	5	Economic loss due to inability to recover pumping costs
2/3/2018	11	Economic loss due to inability to recover pumping costs
2/3/2018	12	Economic loss due to inability to recover pumping costs
2/3/2018	13	Economic loss due to inability to recover pumping costs
2/3/2018	14	Economic loss due to inability to recover pumping costs
2/3/2018	15	Economic loss due to inability to economically generate
2/3/2018	16	Economic loss due to inability to economically generate
2/3/2018	17	Economic loss due to inability to recover pumping costs
2/3/2018	18	Economic loss due to inability to recover pumping costs
2/3/2018	20	Economic loss due to inability to recover pumping costs
2/3/2018	21	Economic loss due to inability to recover pumping costs
2/5/2018	1	Economic loss due to inability to economically generate
2/5/2018	2	Economic loss due to inability to economically generate
2/5/2018	3	Economic loss due to inability to economically generate
2/5/2018	4	Economic loss due to inability to economically generate
2/5/2018	5	Economic loss due to inability to recover pumping costs
2/5/2018	6	Economic loss due to inability to recover pumping costs
2/5/2018	7	Economic loss due to inability to recover pumping costs
2/5/2018	8	Economic loss due to inability to recover pumping costs
2/5/2018	9	Economic loss due to inability to recover pumping costs
2/5/2018	10	Economic loss due to inability to recover pumping costs
2/5/2018	11	Economic loss due to inability to recover pumping costs
2/5/2018	12	Economic loss due to inability to recover pumping costs
2/5/2018	13	Economic loss due to inability to recover pumping costs
2/5/2018	14	Economic loss due to inability to recover pumping costs
2/5/2018	15	Economic loss due to inability to recover pumping costs
2/5/2018	16	Economic loss due to inability to recover pumping costs
2/5/2018	17	Economic loss due to inability to recover pumping costs
2/5/2018	18	Economic loss due to inability to recover pumping costs
2/5/2018	19	Economic loss due to inability to recover pumping costs
2/5/2018	20	Economic loss due to inability to recover pumping costs
2/5/2018	21	Economic loss due to inability to recover pumping costs
2/5/2018	22	Economic loss due to inability to recover pumping costs
2/5/2018	23	Economic loss due to inability to recover pumping costs
2/5/2018	24	Economic loss due to inability to recover pumping costs
2/7/2018	24	Economic loss due to inability to recover pumping costs
2/8/2018	13	Economic loss due to inability to recover pumping costs
2/8/2018	14	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/8/2018	15	Economic loss due to inability to recover pumping costs
2/8/2018	16	Economic loss due to inability to recover pumping costs
2/8/2018	17	Economic loss due to inability to recover pumping costs
2/8/2018	18	Economic loss due to inability to recover pumping costs
2/8/2018	19	Economic loss due to inability to recover pumping costs
2/8/2018	20	Economic loss due to inability to recover pumping costs
2/8/2018	21	Economic loss due to inability to recover pumping costs
2/8/2018	22	Economic loss due to inability to recover pumping costs
2/8/2018	23	Economic loss due to inability to recover pumping costs
2/10/2018	8	Economic loss due to inability to recover pumping costs
2/11/2018	9	Economic loss due to inability to economically generate
2/11/2018	10	Economic loss due to inability to recover pumping costs
2/11/2018	11	Economic loss due to inability to recover pumping costs
2/11/2018	12	Economic loss due to inability to recover pumping costs
2/11/2018	13	Economic loss due to inability to recover pumping costs
2/11/2018	14	Economic loss due to inability to recover pumping costs
2/11/2018	15	Economic loss due to inability to recover pumping costs
2/11/2018	16	Economic loss due to inability to economically generate
2/11/2018	17	Economic loss due to inability to recover pumping costs
2/11/2018	18	Economic loss due to inability to recover pumping costs
2/11/2018	20	Economic loss due to inability to recover pumping costs
2/11/2018	22	Economic loss due to inability to economically generate
2/11/2018	23	Economic loss due to inability to economically generate
2/11/2018	24	Economic loss due to inability to economically generate
2/12/2018	3	Economic loss due to inability to economically generate
2/12/2018	4	Economic loss due to inability to economically generate
2/12/2018	5	Economic loss due to inability to recover pumping costs
2/12/2018	7	Economic loss due to inability to recover pumping costs
2/12/2018	8	Economic loss due to inability to recover pumping costs
2/12/2018	9	Economic loss due to inability to recover pumping costs
2/12/2018	14	Economic loss due to inability to recover pumping costs
2/12/2018	15	Economic loss due to inability to recover pumping costs
2/12/2018	16	Economic loss due to inability to recover pumping costs
2/12/2018	17	Economic loss due to inability to recover pumping costs
2/13/2018	3	Economic loss due to inability to recover pumping costs
2/13/2018	4	Economic loss due to inability to recover pumping costs
2/13/2018	5	Economic loss due to inability to recover pumping costs
2/13/2018	6	Economic loss due to inability to recover pumping costs
2/13/2018	7	Economic loss due to inability to recover pumping costs
2/13/2018	8	Economic loss due to inability to recover pumping costs
2/13/2018	10	Economic loss due to inability to recover pumping costs
2/15/2018	6	Economic loss due to inability to economically generate
2/15/2018	7	Economic loss due to inability to recover pumping costs
2/15/2018	8	Economic loss due to inability to recover pumping costs
2/15/2018	9	Economic loss due to inability to recover pumping costs
2/15/2018	10	Economic loss due to inability to recover pumping costs
2/15/2018	11	Economic loss due to inability to recover pumping costs
2/15/2018	12	Economic loss due to inability to recover pumping costs
2/15/2018	13	Economic loss due to inability to recover pumping costs
2/15/2018	14	Economic loss due to inability to recover pumping costs
2/15/2018	15	Economic loss due to inability to recover pumping costs
2/15/2018	16	Economic loss due to inability to recover pumping costs
2/15/2018	19	Economic loss due to inability to recover pumping costs
2/15/2018	20	Economic loss due to inability to recover pumping costs
2/15/2018	21	Economic loss due to inability to recover pumping costs
2/15/2018	22	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/17/2018	1	Economic loss due to inability to recover pumping costs
2/17/2018	7	Economic loss due to inability to recover pumping costs
2/17/2018	8	Economic loss due to inability to recover pumping costs
2/17/2018	9	Economic loss due to inability to recover pumping costs
2/17/2018	10	Economic loss due to inability to recover pumping costs
2/17/2018	11	Economic loss due to inability to recover pumping costs
2/22/2018	7	Economic loss due to inability to recover pumping costs
2/22/2018	8	Economic loss due to inability to recover pumping costs
2/22/2018	9	Economic loss due to inability to recover pumping costs
2/22/2018	10	Economic loss due to inability to recover pumping costs
2/22/2018	11	Economic loss due to inability to recover pumping costs
2/22/2018	12	Economic loss due to inability to recover pumping costs
2/22/2018	13	Economic loss due to inability to recover pumping costs
2/22/2018	14	Economic loss due to inability to recover pumping costs
2/22/2018	15	Economic loss due to inability to recover pumping costs
2/22/2018	16	Economic loss due to inability to recover pumping costs
2/22/2018	17	Economic loss due to inability to recover pumping costs
2/22/2018	18	Economic loss due to inability to recover pumping costs
2/22/2018	19	Economic loss due to inability to recover pumping costs
2/22/2018	20	Economic loss due to inability to recover pumping costs
2/22/2018	21	Economic loss due to inability to recover pumping costs
2/22/2018	23	Economic loss due to inability to recover pumping costs
3/6/2018	8	Economic loss due to inability to recover pumping costs
3/6/2018	9	Economic loss due to inability to recover pumping costs
3/6/2018	10	Economic loss due to inability to recover pumping costs
3/6/2018	11	Economic loss due to inability to recover pumping costs
3/6/2018	12	Economic loss due to inability to recover pumping costs
3/6/2018	13	Economic loss due to inability to recover pumping costs
3/6/2018	14	Economic loss due to inability to recover pumping costs
3/6/2018	15	Economic loss due to inability to recover pumping costs
3/6/2018	16	Economic loss due to inability to recover pumping costs
3/6/2018	17	Economic loss due to inability to recover pumping costs
3/6/2018	18	Economic loss due to inability to recover pumping costs
3/6/2018	19	Economic loss due to inability to recover pumping costs
3/10/2018	4	Economic loss due to inability to economically generate
3/10/2018	5	Economic loss due to inability to economically generate
3/10/2018	6	Economic loss due to inability to economically generate
3/10/2018	7	Economic loss due to inability to economically generate
3/10/2018	8	Economic loss due to inability to economically generate
3/10/2018	9	Economic loss due to inability to economically generate
3/10/2018	10	Economic loss due to inability to economically generate
3/10/2018	11	Economic loss due to inability to recover pumping costs
3/10/2018	12	Economic loss due to inability to economically generate
3/10/2018	13	Economic loss due to inability to economically generate
3/10/2018	14	Economic loss due to inability to economically generate
3/10/2018	15	Economic loss due to inability to economically generate
3/10/2018	16	Economic loss due to inability to economically generate
3/10/2018	22	Economic loss due to inability to recover pumping costs
3/11/2018	1	Economic loss due to inability to economically generate
3/11/2018	2	Economic loss due to inability to economically generate
3/11/2018	3	Economic loss due to inability to economically generate
3/11/2018	4	Economic loss due to inability to economically generate
3/11/2018	5	Economic loss due to inability to economically generate
3/11/2018	10	Economic loss due to inability to recover pumping costs
3/11/2018	11	Economic loss due to inability to economically generate
3/11/2018	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/11/2018	13	Economic loss due to inability to recover pumping costs
3/11/2018	14	Economic loss due to inability to economically generate
3/11/2018	15	Economic loss due to inability to recover pumping costs
3/11/2018	16	Economic loss due to inability to recover pumping costs
3/11/2018	17	Economic loss due to inability to recover pumping costs
3/11/2018	18	Economic loss due to inability to recover pumping costs
3/11/2018	19	Economic loss due to inability to recover pumping costs
3/11/2018	20	Economic loss due to inability to recover pumping costs
3/11/2018	21	Economic loss due to inability to recover pumping costs
3/11/2018	22	Economic loss due to inability to recover pumping costs
3/11/2018	23	Economic loss due to inability to recover pumping costs
3/11/2018	24	Economic loss due to inability to recover pumping costs
3/12/2018	3	Economic loss due to inability to recover pumping costs
3/12/2018	4	Economic loss due to inability to recover pumping costs
3/13/2018	14	Economic loss due to inability to recover pumping costs
3/13/2018	15	Economic loss due to inability to recover pumping costs
3/13/2018	16	Economic loss due to inability to recover pumping costs
3/13/2018	17	Economic loss due to inability to recover pumping costs
3/13/2018	18	Economic loss due to inability to recover pumping costs
3/13/2018	19	Economic loss due to inability to recover pumping costs
3/13/2018	20	Economic loss due to inability to recover pumping costs
3/13/2018	22	Economic loss due to inability to recover pumping costs
3/13/2018	23	Economic loss due to inability to economically generate
3/13/2018	24	Economic loss due to inability to economically generate
3/14/2018	1	Economic loss due to inability to economically generate
3/14/2018	2	Economic loss due to inability to economically generate
3/14/2018	6	Economic loss due to inability to recover pumping costs
3/14/2018	7	Economic loss due to inability to recover pumping costs
3/14/2018	8	Economic loss due to inability to recover pumping costs
3/14/2018	9	Economic loss due to inability to recover pumping costs
3/14/2018	10	Economic loss due to inability to recover pumping costs
3/14/2018	11	Economic loss due to inability to recover pumping costs
3/14/2018	12	Economic loss due to inability to recover pumping costs
3/14/2018	13	Economic loss due to inability to recover pumping costs
3/14/2018	14	Economic loss due to inability to recover pumping costs
3/14/2018	15	Economic loss due to inability to recover pumping costs
3/14/2018	16	Economic loss due to inability to recover pumping costs
3/14/2018	17	Economic loss due to inability to recover pumping costs
3/14/2018	18	Economic loss due to inability to recover pumping costs
3/14/2018	19	Economic loss due to inability to recover pumping costs
3/14/2018	20	Economic loss due to inability to recover pumping costs
3/14/2018	21	Economic loss due to inability to recover pumping costs
3/14/2018	22	Economic loss due to inability to recover pumping costs
3/17/2018	1	Economic loss due to inability to economically generate
3/17/2018	2	Economic loss due to inability to economically generate
3/17/2018	3	Economic loss due to inability to economically generate
3/17/2018	4	Economic loss due to inability to economically generate
3/17/2018	5	Economic loss due to inability to economically generate
3/17/2018	6	Economic loss due to inability to economically generate
3/17/2018	7	Economic loss due to inability to economically generate
3/17/2018	9	Economic loss due to inability to economically generate
3/17/2018	10	Economic loss due to inability to recover pumping costs
3/17/2018	11	Economic loss due to inability to economically generate
3/17/2018	12	Economic loss due to inability to recover pumping costs
3/17/2018	13	Economic loss due to inability to economically generate
3/17/2018	14	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/17/2018	15	Economic loss due to inability to recover pumping costs
3/17/2018	16	Economic loss due to inability to recover pumping costs
3/17/2018	17	Economic loss due to inability to recover pumping costs
3/17/2018	18	Economic loss due to inability to recover pumping costs
3/17/2018	19	Economic loss due to inability to recover pumping costs
3/17/2018	20	Economic loss due to inability to recover pumping costs
3/17/2018	21	Economic loss due to inability to recover pumping costs
3/17/2018	22	Economic loss due to inability to recover pumping costs
3/17/2018	23	Economic loss due to inability to recover pumping costs
3/17/2018	24	Economic loss due to inability to recover pumping costs
3/19/2018	4	Economic loss due to inability to economically generate
3/19/2018	5	Economic loss due to inability to recover pumping costs
3/19/2018	6	Economic loss due to inability to recover pumping costs
3/19/2018	7	Economic loss due to inability to recover pumping costs
3/19/2018	8	Economic loss due to inability to recover pumping costs
3/19/2018	9	Economic loss due to inability to recover pumping costs
3/19/2018	10	Economic loss due to inability to recover pumping costs
3/19/2018	11	Economic loss due to inability to recover pumping costs
3/19/2018	13	Economic loss due to inability to recover pumping costs
3/19/2018	14	Economic loss due to inability to recover pumping costs
3/19/2018	15	Economic loss due to inability to recover pumping costs
3/19/2018	16	Economic loss due to inability to recover pumping costs
3/19/2018	22	Economic loss due to inability to recover pumping costs
3/21/2018	1	Economic loss due to inability to recover pumping costs
3/21/2018	2	Economic loss due to inability to recover pumping costs
3/21/2018	6	Economic loss due to inability to recover pumping costs
3/21/2018	7	Economic loss due to inability to recover pumping costs
3/21/2018	8	Economic loss due to inability to recover pumping costs
3/21/2018	10	Economic loss due to inability to recover pumping costs
3/21/2018	11	Economic loss due to inability to recover pumping costs
3/21/2018	12	Economic loss due to inability to recover pumping costs
3/21/2018	13	Economic loss due to inability to recover pumping costs
3/21/2018	14	Economic loss due to inability to recover pumping costs
3/21/2018	15	Economic loss due to inability to recover pumping costs
3/21/2018	16	Economic loss due to inability to recover pumping costs
3/21/2018	17	Economic loss due to inability to recover pumping costs
3/21/2018	22	Economic loss due to inability to recover pumping costs
3/21/2018	23	Economic loss due to inability to economically generate
4/7/2018	3	Economic loss due to inability to economically generate
4/7/2018	4	Economic loss due to inability to economically generate
4/7/2018	8	Economic loss due to inability to recover pumping costs
4/7/2018	9	Economic loss due to inability to economically generate
4/7/2018	10	Economic loss due to inability to recover pumping costs
4/7/2018	11	Economic loss due to inability to recover pumping costs
4/8/2018	4	Economic loss due to inability to recover pumping costs
4/8/2018	5	Economic loss due to inability to recover pumping costs
4/8/2018	14	Economic loss due to inability to recover pumping costs
4/8/2018	15	Economic loss due to inability to economically generate
4/8/2018	16	Economic loss due to inability to recover pumping costs
4/8/2018	17	Economic loss due to inability to recover pumping costs
4/10/2018	22	Economic loss due to inability to recover pumping costs
4/10/2018	24	Economic loss due to inability to recover pumping costs
4/12/2018	5	Economic loss due to inability to recover pumping costs
4/12/2018	6	Economic loss due to inability to recover pumping costs
4/12/2018	13	Economic loss due to inability to recover pumping costs
4/12/2018	14	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
4/12/2018	15	Economic loss due to inability to recover pumping costs
4/12/2018	17	Economic loss due to inability to recover pumping costs
4/12/2018	18	Economic loss due to inability to recover pumping costs
4/12/2018	20	Economic loss due to inability to recover pumping costs
4/13/2018	6	Economic loss due to inability to recover pumping costs
4/13/2018	7	Economic loss due to inability to recover pumping costs
4/13/2018	11	Economic loss due to inability to recover pumping costs
4/13/2018	12	Economic loss due to inability to recover pumping costs
4/13/2018	13	Economic loss due to inability to recover pumping costs
4/13/2018	14	Economic loss due to inability to recover pumping costs
4/13/2018	15	Economic loss due to inability to recover pumping costs
4/13/2018	19	Economic loss due to inability to recover pumping costs
4/13/2018	20	Economic loss due to inability to recover pumping costs
4/13/2018	21	Economic loss due to inability to recover pumping costs
4/15/2018	7	Economic loss due to inability to economically generate
4/15/2018	8	Economic loss due to inability to economically generate
4/15/2018	9	Economic loss due to inability to economically generate
4/15/2018	10	Economic loss due to inability to economically generate
4/15/2018	11	Economic loss due to inability to economically generate
4/15/2018	12	Economic loss due to inability to recover pumping costs
4/15/2018	13	Economic loss due to inability to recover pumping costs
4/15/2018	14	Economic loss due to inability to economically generate
4/18/2018	3	Economic loss due to inability to economically generate
4/18/2018	4	Economic loss due to inability to economically generate
6/19/2018	6	Economic loss due to inability to recover pumping costs
6/19/2018	7	Economic loss due to inability to recover pumping costs
6/19/2018	8	Economic loss due to inability to recover pumping costs
6/19/2018	9	Economic loss due to inability to recover pumping costs
6/19/2018	10	Economic loss due to inability to recover pumping costs
6/19/2018	11	Economic loss due to inability to recover pumping costs
6/20/2018	8	Economic loss due to inability to recover pumping costs
6/20/2018	9	Economic loss due to inability to recover pumping costs
6/20/2018	11	Economic loss due to inability to recover pumping costs
6/20/2018	12	Economic loss due to inability to recover pumping costs
7/11/2018	13	Economic loss due to inability to recover pumping costs
7/11/2018	14	Economic loss due to inability to recover pumping costs
7/11/2018	15	Economic loss due to inability to recover pumping costs
7/11/2018	17	Economic loss due to inability to recover pumping costs
7/11/2018	18	Economic loss due to inability to recover pumping costs
7/11/2018	21	Economic loss due to inability to recover pumping costs
7/15/2018	4	Economic loss due to inability to economically generate
7/20/2018	7	Economic loss due to inability to recover pumping costs
7/20/2018	8	Economic loss due to inability to recover pumping costs
7/20/2018	11	Economic loss due to inability to recover pumping costs
7/20/2018	12	Economic loss due to inability to recover pumping costs
7/20/2018	13	Economic loss due to inability to recover pumping costs
7/20/2018	14	Economic loss due to inability to recover pumping costs
7/20/2018	20	Economic loss due to inability to recover pumping costs
7/20/2018	21	Economic loss due to inability to recover pumping costs
7/20/2018	22	Economic loss due to inability to recover pumping costs
7/21/2018	8	Economic loss due to inability to recover pumping costs
7/21/2018	9	Economic loss due to inability to recover pumping costs
7/21/2018	10	Economic loss due to inability to recover pumping costs
7/21/2018	11	Economic loss due to inability to recover pumping costs
7/21/2018	12	Economic loss due to inability to recover pumping costs
7/21/2018	13	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/21/2018	14	Economic loss due to inability to recover pumping costs
7/21/2018	19	Economic loss due to inability to recover pumping costs
7/21/2018	20	Economic loss due to inability to recover pumping costs
7/21/2018	21	Economic loss due to inability to recover pumping costs
7/22/2018	9	Economic loss due to inability to economically generate
7/22/2018	10	Economic loss due to inability to economically generate
7/22/2018	11	Economic loss due to inability to recover pumping costs
7/22/2018	12	Economic loss due to inability to recover pumping costs
7/22/2018	13	Economic loss due to inability to economically generate
7/22/2018	14	Economic loss due to inability to economically generate
7/22/2018	15	Economic loss due to inability to economically generate
7/22/2018	16	Economic loss due to inability to recover pumping costs
7/22/2018	17	Economic loss due to inability to recover pumping costs
7/22/2018	18	Economic loss due to inability to recover pumping costs
7/22/2018	19	Economic loss due to inability to recover pumping costs
7/27/2018	5	Economic loss due to inability to recover pumping costs
7/31/2018	24	Economic loss due to inability to economically generate
8/2/2018	2	Economic loss due to inability to economically generate
8/2/2018	3	Economic loss due to inability to economically generate
8/2/2018	4	Economic loss due to inability to economically generate
8/2/2018	7	Economic loss due to inability to recover pumping costs
8/2/2018	8	Economic loss due to inability to recover pumping costs
8/2/2018	9	Economic loss due to inability to recover pumping costs
8/2/2018	10	Economic loss due to inability to recover pumping costs
8/2/2018	11	Economic loss due to inability to recover pumping costs
8/2/2018	12	Economic loss due to inability to recover pumping costs
8/3/2018	6	Economic loss due to inability to economically generate
8/5/2018	9	Economic loss due to inability to recover pumping costs
8/5/2018	10	Economic loss due to inability to recover pumping costs
8/5/2018	11	Economic loss due to inability to recover pumping costs
8/5/2018	12	Economic loss due to inability to recover pumping costs
8/5/2018	13	Economic loss due to inability to recover pumping costs
8/5/2018	14	Economic loss due to inability to recover pumping costs
8/5/2018	17	Economic loss due to inability to recover pumping costs
8/5/2018	18	Economic loss due to inability to recover pumping costs
8/5/2018	19	Economic loss due to inability to recover pumping costs
8/5/2018	20	Economic loss due to inability to recover pumping costs
8/8/2018	4	Economic loss due to inability to economically generate
8/9/2018	1	Economic loss due to inability to economically generate
8/9/2018	2	Economic loss due to inability to economically generate
8/10/2018	7	Economic loss due to inability to recover pumping costs
8/11/2018	1	Economic loss due to inability to economically generate
8/11/2018	2	Economic loss due to inability to economically generate
8/11/2018	3	Economic loss due to inability to economically generate
8/11/2018	4	Economic loss due to inability to economically generate
8/11/2018	5	Economic loss due to inability to economically generate
8/11/2018	6	Economic loss due to inability to economically generate
8/11/2018	7	Economic loss due to inability to economically generate
8/12/2018	4	Economic loss due to inability to economically generate
8/12/2018	6	Economic loss due to inability to economically generate
8/12/2018	8	Economic loss due to inability to economically generate
8/12/2018	9	Economic loss due to inability to economically generate
8/12/2018	10	Economic loss due to inability to economically generate
8/13/2018	4	Economic loss due to inability to economically generate
8/13/2018	5	Economic loss due to inability to economically generate
8/13/2018	6	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
8/13/2018	7	Economic loss due to inability to recover pumping costs
8/13/2018	8	Economic loss due to inability to recover pumping costs
8/13/2018	9	Economic loss due to inability to recover pumping costs
8/13/2018	10	Economic loss due to inability to recover pumping costs
8/13/2018	11	Economic loss due to inability to recover pumping costs
8/13/2018	12	Economic loss due to inability to recover pumping costs
8/13/2018	13	Economic loss due to inability to recover pumping costs
8/13/2018	14	Economic loss due to inability to recover pumping costs
8/13/2018	15	Economic loss due to inability to recover pumping costs
8/16/2018	6	Economic loss due to inability to economically generate
8/19/2018	3	Economic loss due to inability to economically generate
8/19/2018	10	Economic loss due to inability to recover pumping costs
8/19/2018	11	Economic loss due to inability to economically generate
8/19/2018	12	Economic loss due to inability to recover pumping costs
8/24/2018	7	Economic loss due to inability to recover pumping costs
8/24/2018	8	Economic loss due to inability to recover pumping costs
8/24/2018	9	Economic loss due to inability to recover pumping costs
8/24/2018	10	Economic loss due to inability to recover pumping costs
8/24/2018	11	Economic loss due to inability to recover pumping costs
8/24/2018	22	Economic loss due to inability to recover pumping costs
8/29/2018	11	Economic loss due to inability to recover pumping costs
8/29/2018	12	Economic loss due to inability to recover pumping costs
8/29/2018	19	Economic loss due to inability to recover pumping costs
9/2/2018	8	Economic loss due to inability to economically generate
9/2/2018	9	Economic loss due to inability to economically generate
9/2/2018	10	Economic loss due to inability to economically generate
9/2/2018	11	Economic loss due to inability to economically generate
9/2/2018	14	Economic loss due to inability to recover pumping costs
9/7/2018	6	Economic loss due to inability to recover pumping costs
9/10/2018	6	Economic loss due to inability to economically generate
9/10/2018	7	Economic loss due to inability to recover pumping costs
9/10/2018	8	Economic loss due to inability to recover pumping costs
9/10/2018	9	Economic loss due to inability to recover pumping costs
9/10/2018	10	Economic loss due to inability to recover pumping costs
9/10/2018	11	Economic loss due to inability to recover pumping costs
9/10/2018	12	Economic loss due to inability to recover pumping costs
9/10/2018	15	Economic loss due to inability to recover pumping costs
9/10/2018	16	Economic loss due to inability to recover pumping costs
9/10/2018	17	Economic loss due to inability to recover pumping costs
9/10/2018	18	Economic loss due to inability to recover pumping costs
9/10/2018	20	Economic loss due to inability to recover pumping costs
9/11/2018	5	Economic loss due to inability to economically generate
9/11/2018	6	Economic loss due to inability to recover pumping costs
9/11/2018	7	Economic loss due to inability to recover pumping costs
9/11/2018	8	Economic loss due to inability to recover pumping costs
9/11/2018	9	Economic loss due to inability to recover pumping costs
9/11/2018	10	Economic loss due to inability to recover pumping costs
9/13/2018	7	Economic loss due to inability to recover pumping costs
9/14/2018	5	Economic loss due to inability to economically generate
9/16/2018	3	Economic loss due to inability to economically generate
9/16/2018	4	Economic loss due to inability to economically generate
9/16/2018	6	Economic loss due to inability to economically generate
9/16/2018	7	Economic loss due to inability to economically generate
10/1/2018	8	Economic loss due to inability to recover pumping costs
10/1/2018	9	Economic loss due to inability to recover pumping costs
10/1/2018	19	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
10/1/2018	20	Economic loss due to inability to recover pumping costs
10/1/2018	21	Economic loss due to inability to recover pumping costs
10/5/2018	6	Economic loss due to inability to recover pumping costs
10/5/2018	7	Economic loss due to inability to recover pumping costs
10/5/2018	8	Economic loss due to inability to recover pumping costs
10/5/2018	9	Economic loss due to inability to recover pumping costs
10/5/2018	10	Economic loss due to inability to recover pumping costs
10/5/2018	11	Economic loss due to inability to recover pumping costs
10/5/2018	12	Economic loss due to inability to recover pumping costs
10/5/2018	13	Economic loss due to inability to recover pumping costs
10/5/2018	14	Economic loss due to inability to recover pumping costs
10/5/2018	15	Economic loss due to inability to recover pumping costs
10/5/2018	16	Economic loss due to inability to recover pumping costs
10/5/2018	17	Economic loss due to inability to recover pumping costs
10/5/2018	18	Economic loss due to inability to recover pumping costs
10/5/2018	23	Economic loss due to inability to recover pumping costs
10/9/2018	4	Economic loss due to inability to economically generate
10/9/2018	5	Economic loss due to inability to economically generate
10/9/2018	6	Economic loss due to inability to economically generate
10/9/2018	7	Economic loss due to inability to recover pumping costs
10/9/2018	8	Economic loss due to inability to recover pumping costs
10/9/2018	9	Economic loss due to inability to recover pumping costs
10/9/2018	10	Economic loss due to inability to recover pumping costs
10/9/2018	11	Economic loss due to inability to recover pumping costs
10/9/2018	12	Economic loss due to inability to recover pumping costs
10/9/2018	13	Economic loss due to inability to recover pumping costs
10/9/2018	14	Economic loss due to inability to recover pumping costs
10/9/2018	15	Economic loss due to inability to recover pumping costs
10/9/2018	16	Economic loss due to inability to recover pumping costs
10/9/2018	17	Economic loss due to inability to recover pumping costs
10/9/2018	18	Economic loss due to inability to recover pumping costs
10/9/2018	19	Economic loss due to inability to recover pumping costs
10/9/2018	20	Economic loss due to inability to recover pumping costs
10/9/2018	21	Economic loss due to inability to recover pumping costs
10/24/2018	6	Economic loss due to inability to economically generate
10/24/2018	7	Economic loss due to inability to recover pumping costs
10/24/2018	19	Economic loss due to inability to recover pumping costs
10/25/2018	6	Economic loss due to inability to recover pumping costs
10/25/2018	7	Economic loss due to inability to recover pumping costs
10/25/2018	8	Economic loss due to inability to recover pumping costs
10/25/2018	9	Economic loss due to inability to recover pumping costs
10/25/2018	10	Economic loss due to inability to recover pumping costs
10/25/2018	11	Economic loss due to inability to recover pumping costs
10/25/2018	12	Economic loss due to inability to recover pumping costs
10/25/2018	13	Economic loss due to inability to recover pumping costs
10/25/2018	14	Economic loss due to inability to recover pumping costs
10/25/2018	15	Economic loss due to inability to recover pumping costs
10/25/2018	16	Economic loss due to inability to recover pumping costs
10/25/2018	17	Economic loss due to inability to recover pumping costs
10/25/2018	18	Economic loss due to inability to recover pumping costs
10/25/2018	19	Economic loss due to inability to recover pumping costs
10/25/2018	20	Economic loss due to inability to recover pumping costs
10/25/2018	21	Economic loss due to inability to recover pumping costs
10/25/2018	22	Economic loss due to inability to recover pumping costs
10/27/2018	5	Economic loss due to inability to economically generate
10/27/2018	6	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
10/27/2018	8	Economic loss due to inability to economically generate
10/27/2018	9	Economic loss due to inability to economically generate
10/27/2018	10	Economic loss due to inability to economically generate
10/27/2018	11	Economic loss due to inability to economically generate
10/27/2018	12	Economic loss due to inability to economically generate
10/27/2018	15	Economic loss due to inability to recover pumping costs
10/27/2018	16	Economic loss due to inability to recover pumping costs
10/27/2018	17	Economic loss due to inability to recover pumping costs
11/2/2018	7	Economic loss due to inability to recover pumping costs
11/2/2018	8	Economic loss due to inability to recover pumping costs
11/12/2018	7	Economic loss due to inability to recover pumping costs
11/12/2018	8	Economic loss due to inability to recover pumping costs
11/12/2018	12	Economic loss due to inability to recover pumping costs
11/12/2018	13	Economic loss due to inability to recover pumping costs
11/14/2018	6	Economic loss due to inability to economically generate
11/14/2018	7	Economic loss due to inability to recover pumping costs
11/14/2018	8	Economic loss due to inability to recover pumping costs
11/14/2018	9	Economic loss due to inability to recover pumping costs
11/14/2018	10	Economic loss due to inability to recover pumping costs
11/14/2018	11	Economic loss due to inability to recover pumping costs
11/14/2018	13	Economic loss due to inability to recover pumping costs
11/14/2018	14	Economic loss due to inability to recover pumping costs
11/14/2018	18	Economic loss due to inability to recover pumping costs
11/14/2018	19	Economic loss due to inability to recover pumping costs
11/14/2018	20	Economic loss due to inability to recover pumping costs
11/15/2018	8	Economic loss due to inability to recover pumping costs
11/15/2018	9	Economic loss due to inability to recover pumping costs
11/15/2018	10	Economic loss due to inability to recover pumping costs
11/16/2018	7	Economic loss due to inability to recover pumping costs
11/16/2018	8	Economic loss due to inability to recover pumping costs
11/16/2018	9	Economic loss due to inability to recover pumping costs
11/16/2018	10	Economic loss due to inability to recover pumping costs
11/16/2018	13	Economic loss due to inability to recover pumping costs
11/16/2018	14	Economic loss due to inability to recover pumping costs
11/16/2018	15	Economic loss due to inability to recover pumping costs
11/16/2018	16	Economic loss due to inability to recover pumping costs
11/17/2018	9	Economic loss due to inability to economically generate
11/17/2018	10	Economic loss due to inability to economically generate
11/17/2018	11	Economic loss due to inability to economically generate
11/17/2018	12	Economic loss due to inability to economically generate
11/17/2018	13	Economic loss due to inability to economically generate
11/17/2018	14	Economic loss due to inability to economically generate
11/17/2018	15	Economic loss due to inability to recover pumping costs
11/17/2018	16	Economic loss due to inability to recover pumping costs
11/17/2018	17	Economic loss due to inability to recover pumping costs
11/18/2018	15	Economic loss due to inability to recover pumping costs
11/20/2018	1	Economic loss due to inability to economically generate
11/20/2018	2	Economic loss due to inability to economically generate
11/20/2018	3	Economic loss due to inability to economically generate
11/20/2018	4	Economic loss due to inability to economically generate
11/20/2018	5	Economic loss due to inability to economically generate
11/20/2018	6	Economic loss due to inability to economically generate
11/20/2018	7	Economic loss due to inability to recover pumping costs
11/20/2018	8	Economic loss due to inability to recover pumping costs
11/20/2018	9	Economic loss due to inability to recover pumping costs
11/20/2018	10	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
11/20/2018	11	Economic loss due to inability to recover pumping costs
11/20/2018	12	Economic loss due to inability to recover pumping costs
11/20/2018	13	Economic loss due to inability to recover pumping costs
11/20/2018	14	Economic loss due to inability to recover pumping costs
11/20/2018	15	Economic loss due to inability to recover pumping costs
11/20/2018	16	Economic loss due to inability to recover pumping costs
11/20/2018	17	Economic loss due to inability to recover pumping costs
11/20/2018	18	Economic loss due to inability to recover pumping costs
11/25/2018	6	Economic loss due to inability to economically generate
11/25/2018	9	Economic loss due to inability to economically generate
11/25/2018	10	Economic loss due to inability to economically generate
11/25/2018	11	Economic loss due to inability to economically generate
11/25/2018	12	Economic loss due to inability to economically generate
11/25/2018	13	Economic loss due to inability to economically generate
11/25/2018	14	Economic loss due to inability to economically generate
11/25/2018	15	Economic loss due to inability to economically generate
11/25/2018	16	Economic loss due to inability to economically generate
11/25/2018	17	Economic loss due to inability to recover pumping costs
11/25/2018	18	Economic loss due to inability to recover pumping costs
11/25/2018	19	Economic loss due to inability to recover pumping costs
11/25/2018	20	Economic loss due to inability to recover pumping costs
11/25/2018	21	Economic loss due to inability to recover pumping costs
11/27/2018	6	Economic loss due to inability to economically generate
11/27/2018	7	Economic loss due to inability to economically generate
11/27/2018	8	Economic loss due to inability to recover pumping costs
11/27/2018	9	Economic loss due to inability to recover pumping costs
11/27/2018	10	Economic loss due to inability to recover pumping costs
11/27/2018	11	Economic loss due to inability to recover pumping costs
11/27/2018	12	Economic loss due to inability to recover pumping costs
11/27/2018	13	Economic loss due to inability to recover pumping costs
11/27/2018	14	Economic loss due to inability to recover pumping costs
11/27/2018	15	Economic loss due to inability to recover pumping costs
11/27/2018	16	Economic loss due to inability to recover pumping costs
11/27/2018	17	Economic loss due to inability to recover pumping costs
11/27/2018	18	Economic loss due to inability to recover pumping costs
11/27/2018	19	Economic loss due to inability to recover pumping costs
11/27/2018	20	Economic loss due to inability to recover pumping costs
11/27/2018	21	Economic loss due to inability to recover pumping costs
11/27/2018	22	Economic loss due to inability to recover pumping costs
11/29/2018	8	Economic loss due to inability to recover pumping costs
11/29/2018	9	Economic loss due to inability to recover pumping costs
12/3/2018	7	Economic loss due to inability to economically generate
12/3/2018	8	Economic loss due to inability to recover pumping costs
12/3/2018	9	Economic loss due to inability to recover pumping costs
12/3/2018	10	Economic loss due to inability to recover pumping costs
12/3/2018	11	Economic loss due to inability to recover pumping costs
12/3/2018	12	Economic loss due to inability to recover pumping costs
12/3/2018	13	Economic loss due to inability to recover pumping costs
12/3/2018	14	Economic loss due to inability to recover pumping costs
12/3/2018	15	Economic loss due to inability to recover pumping costs
12/3/2018	16	Economic loss due to inability to recover pumping costs
12/3/2018	17	Economic loss due to inability to recover pumping costs
12/3/2018	18	Economic loss due to inability to recover pumping costs
12/3/2018	19	Economic loss due to inability to recover pumping costs
12/3/2018	20	Economic loss due to inability to recover pumping costs
12/3/2018	22	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/3/2018	24	Economic loss due to inability to economically generate
12/4/2018	3	Economic loss due to inability to economically generate
12/4/2018	4	Economic loss due to inability to economically generate
12/4/2018	5	Economic loss due to inability to economically generate
12/4/2018	6	Economic loss due to inability to economically generate
12/4/2018	7	Economic loss due to inability to economically generate
12/4/2018	12	Economic loss due to inability to recover pumping costs
12/4/2018	13	Economic loss due to inability to recover pumping costs
12/6/2018	11	Economic loss due to inability to recover pumping costs
12/6/2018	12	Economic loss due to inability to recover pumping costs
12/6/2018	13	Economic loss due to inability to recover pumping costs
12/6/2018	14	Economic loss due to inability to recover pumping costs
12/6/2018	15	Economic loss due to inability to recover pumping costs
12/9/2018	12	Economic loss due to inability to recover pumping costs
12/11/2018	4	Economic loss due to inability to economically generate
12/11/2018	7	Economic loss due to inability to recover pumping costs
12/14/2018	24	Economic loss due to inability to recover pumping costs
12/15/2018	21	Economic loss due to inability to recover pumping costs
12/15/2018	22	Economic loss due to inability to recover pumping costs
12/16/2018	12	Economic loss due to inability to recover pumping costs
12/16/2018	13	Economic loss due to inability to recover pumping costs
12/16/2018	14	Economic loss due to inability to recover pumping costs
12/16/2018	22	Economic loss due to inability to recover pumping costs
12/17/2018	8	Economic loss due to inability to recover pumping costs
12/17/2018	9	Economic loss due to inability to recover pumping costs
12/17/2018	11	Economic loss due to inability to recover pumping costs
12/17/2018	12	Economic loss due to inability to recover pumping costs
12/18/2018	24	Economic loss due to inability to recover pumping costs
12/19/2018	8	Economic loss due to inability to recover pumping costs
12/19/2018	9	Economic loss due to inability to recover pumping costs
12/19/2018	10	Economic loss due to inability to recover pumping costs
12/19/2018	11	Economic loss due to inability to recover pumping costs
12/19/2018	13	Economic loss due to inability to recover pumping costs
12/21/2018	12	Economic loss due to inability to recover pumping costs
12/21/2018	13	Economic loss due to inability to recover pumping costs
12/21/2018	14	Economic loss due to inability to recover pumping costs
12/21/2018	15	Economic loss due to inability to recover pumping costs
12/21/2018	16	Economic loss due to inability to recover pumping costs
12/21/2018	17	Economic loss due to inability to recover pumping costs
12/21/2018	19	Economic loss due to inability to recover pumping costs
12/21/2018	20	Economic loss due to inability to recover pumping costs
12/21/2018	21	Economic loss due to inability to recover pumping costs
12/21/2018	22	Economic loss due to inability to recover pumping costs
12/21/2018	23	Economic loss due to inability to recover pumping costs
12/22/2018	5	Economic loss due to inability to economically generate
12/22/2018	6	Economic loss due to inability to economically generate
12/22/2018	7	Economic loss due to inability to economically generate
12/22/2018	8	Economic loss due to inability to economically generate
12/22/2018	9	Economic loss due to inability to economically generate
12/22/2018	10	Economic loss due to inability to economically generate
12/23/2018	21	Economic loss due to inability to recover pumping costs
12/24/2018	2	Economic loss due to inability to recover pumping costs
12/24/2018	7	Economic loss due to inability to recover pumping costs
12/24/2018	8	Economic loss due to inability to recover pumping costs
12/24/2018	9	Economic loss due to inability to recover pumping costs
12/24/2018	10	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/24/2018	11	Economic loss due to inability to recover pumping costs
12/24/2018	12	Economic loss due to inability to recover pumping costs
12/24/2018	13	Economic loss due to inability to recover pumping costs
12/24/2018	14	Economic loss due to inability to recover pumping costs
12/24/2018	15	Economic loss due to inability to recover pumping costs
12/24/2018	16	Economic loss due to inability to recover pumping costs
12/24/2018	17	Economic loss due to inability to recover pumping costs
12/24/2018	18	Economic loss due to inability to recover pumping costs
12/24/2018	19	Economic loss due to inability to recover pumping costs
12/24/2018	20	Economic loss due to inability to recover pumping costs
12/25/2018	10	Economic loss due to inability to recover pumping costs
12/25/2018	11	Economic loss due to inability to recover pumping costs
12/25/2018	12	Economic loss due to inability to recover pumping costs
12/25/2018	13	Economic loss due to inability to recover pumping costs
12/25/2018	14	Economic loss due to inability to economically generate
12/25/2018	18	Economic loss due to inability to recover pumping costs
12/25/2018	19	Economic loss due to inability to recover pumping costs
12/26/2018	7	Economic loss due to inability to recover pumping costs
12/26/2018	8	Economic loss due to inability to recover pumping costs
12/26/2018	17	Economic loss due to inability to recover pumping costs
12/26/2018	21	Economic loss due to inability to recover pumping costs
12/26/2018	24	Economic loss due to inability to recover pumping costs
12/29/2018	4	Economic loss due to inability to economically generate
12/29/2018	5	Economic loss due to inability to economically generate
12/29/2018	6	Economic loss due to inability to economically generate
12/29/2018	7	Economic loss due to inability to economically generate
12/29/2018	8	Economic loss due to inability to economically generate
12/29/2018	9	Economic loss due to inability to recover pumping costs
12/29/2018	10	Economic loss due to inability to economically generate
12/29/2018	11	Economic loss due to inability to economically generate
12/29/2018	12	Economic loss due to inability to recover pumping costs
12/29/2018	13	Economic loss due to inability to economically generate
12/29/2018	14	Economic loss due to inability to economically generate
12/29/2018	15	Economic loss due to inability to economically generate
12/29/2018	16	Economic loss due to inability to recover pumping costs
12/29/2018	17	Economic loss due to inability to recover pumping costs
12/29/2018	18	Economic loss due to inability to recover pumping costs
12/29/2018	19	Economic loss due to inability to recover pumping costs
12/29/2018	20	Economic loss due to inability to recover pumping costs
12/29/2018	21	Economic loss due to inability to recover pumping costs
12/29/2018	22	Economic loss due to inability to recover pumping costs
12/29/2018	23	Economic loss due to inability to recover pumping costs
12/30/2018	6	Economic loss due to inability to economically generate
12/30/2018	7	Economic loss due to inability to economically generate
12/30/2018	8	Economic loss due to inability to economically generate
12/30/2018	9	Economic loss due to inability to economically generate
12/30/2018	13	Economic loss due to inability to economically generate
12/30/2018	14	Economic loss due to inability to economically generate
12/30/2018	15	Economic loss due to inability to economically generate
12/30/2018	16	Economic loss due to inability to recover pumping costs
12/30/2018	17	Economic loss due to inability to recover pumping costs
12/30/2018	18	Economic loss due to inability to recover pumping costs
12/30/2018	19	Economic loss due to inability to recover pumping costs
12/30/2018	20	Economic loss due to inability to recover pumping costs
12/30/2018	21	Economic loss due to inability to recover pumping costs
12/30/2018	22	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/30/2018	23	Economic loss due to inability to recover pumping costs
12/30/2018	24	Economic loss due to inability to recover pumping costs
12/31/2018	6	Economic loss due to inability to recover pumping costs
12/31/2018	7	Economic loss due to inability to recover pumping costs
12/31/2018	8	Economic loss due to inability to recover pumping costs
12/31/2018	9	Economic loss due to inability to recover pumping costs
12/31/2018	10	Economic loss due to inability to recover pumping costs
12/31/2018	11	Economic loss due to inability to recover pumping costs
12/31/2018	12	Economic loss due to inability to recover pumping costs
12/31/2018	13	Economic loss due to inability to recover pumping costs
12/31/2018	14	Economic loss due to inability to recover pumping costs
12/31/2018	15	Economic loss due to inability to recover pumping costs
12/31/2018	16	Economic loss due to inability to recover pumping costs
12/31/2018	17	Economic loss due to inability to recover pumping costs
12/31/2018	18	Economic loss due to inability to recover pumping costs
12/31/2018	19	Economic loss due to inability to recover pumping costs
12/31/2018	20	Economic loss due to inability to economically generate
12/31/2018	21	Economic loss due to inability to economically generate
12/31/2018	22	Economic loss due to inability to economically generate
12/31/2018	23	Economic loss due to inability to economically generate
12/31/2018	24	Economic loss due to inability to economically generate
1/2/2019	6	Economic loss due to inability to recover pumping costs
1/2/2019	7	Economic loss due to inability to recover pumping costs
1/2/2019	9	Economic loss due to inability to recover pumping costs
1/2/2019	14	Economic loss due to inability to recover pumping costs
1/2/2019	15	Economic loss due to inability to recover pumping costs
1/2/2019	16	Economic loss due to inability to recover pumping costs
1/2/2019	23	Economic loss due to inability to recover pumping costs
1/3/2019	8	Economic loss due to inability to recover pumping costs
1/3/2019	9	Economic loss due to inability to recover pumping costs
1/3/2019	10	Economic loss due to inability to recover pumping costs
1/3/2019	11	Economic loss due to inability to recover pumping costs
1/3/2019	12	Economic loss due to inability to recover pumping costs
1/3/2019	13	Economic loss due to inability to recover pumping costs
1/3/2019	14	Economic loss due to inability to recover pumping costs
1/3/2019	15	Economic loss due to inability to recover pumping costs
1/3/2019	16	Economic loss due to inability to recover pumping costs
1/3/2019	17	Economic loss due to inability to recover pumping costs
1/3/2019	18	Economic loss due to inability to recover pumping costs
1/3/2019	19	Economic loss due to inability to recover pumping costs
1/3/2019	20	Economic loss due to inability to recover pumping costs
1/3/2019	21	Economic loss due to inability to recover pumping costs
1/4/2019	8	Economic loss due to inability to recover pumping costs
1/4/2019	9	Economic loss due to inability to recover pumping costs
1/4/2019	10	Economic loss due to inability to recover pumping costs
1/4/2019	11	Economic loss due to inability to recover pumping costs
1/4/2019	12	Economic loss due to inability to recover pumping costs
1/4/2019	13	Economic loss due to inability to recover pumping costs
1/4/2019	14	Economic loss due to inability to recover pumping costs
1/4/2019	15	Economic loss due to inability to recover pumping costs
1/4/2019	16	Economic loss due to inability to recover pumping costs
1/4/2019	17	Economic loss due to inability to recover pumping costs
1/4/2019	18	Economic loss due to inability to recover pumping costs
1/4/2019	19	Economic loss due to inability to recover pumping costs
1/4/2019	20	Economic loss due to inability to recover pumping costs
1/4/2019	21	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/4/2019	22	Economic loss due to inability to recover pumping costs
1/4/2019	23	Economic loss due to inability to recover pumping costs
1/4/2019	24	Economic loss due to inability to recover pumping costs
1/6/2019	10	Economic loss due to inability economically generate
1/6/2019	11	Economic loss due to inability economically generate
1/6/2019	12	Economic loss due to inability economically generate
1/6/2019	13	Economic loss due to inability economically generate
1/6/2019	14	Economic loss due to inability economically generate
1/6/2019	15	Economic loss due to inability economically generate
1/6/2019	16	Economic loss due to inability to recover pumping costs
1/6/2019	18	Economic loss due to inability to recover pumping costs
1/6/2019	19	Economic loss due to inability to recover pumping costs
1/9/2019	8	Economic loss due to inability to recover pumping costs
1/9/2019	9	Economic loss due to inability to recover pumping costs
1/9/2019	10	Economic loss due to inability to recover pumping costs
1/9/2019	11	Economic loss due to inability to recover pumping costs
1/9/2019	12	Economic loss due to inability to recover pumping costs
1/9/2019	13	Economic loss due to inability to recover pumping costs
1/9/2019	14	Economic loss due to inability to recover pumping costs
1/9/2019	15	Economic loss due to inability to recover pumping costs
1/9/2019	16	Economic loss due to inability to recover pumping costs
1/9/2019	17	Economic loss due to inability to recover pumping costs
1/9/2019	18	Economic loss due to inability to recover pumping costs
1/9/2019	19	Economic loss due to inability to recover pumping costs
1/9/2019	20	Economic loss due to inability to recover pumping costs
1/9/2019	21	Economic loss due to inability economically generate
1/9/2019	22	Economic loss due to inability economically generate
1/9/2019	23	Economic loss due to inability economically generate
1/9/2019	24	Economic loss due to inability economically generate
1/10/2019	1	Economic loss due to inability economically generate
1/10/2019	2	Economic loss due to inability economically generate
1/10/2019	3	Economic loss due to inability economically generate
1/10/2019	4	Economic loss due to inability economically generate
1/10/2019	5	Economic loss due to inability economically generate
1/10/2019	6	Economic loss due to inability economically generate
1/10/2019	7	Economic loss due to inability economically generate
1/10/2019	8	Economic loss due to inability to recover pumping costs
1/10/2019	9	Economic loss due to inability to recover pumping costs
1/10/2019	10	Economic loss due to inability to recover pumping costs
1/10/2019	11	Economic loss due to inability to recover pumping costs
1/10/2019	12	Economic loss due to inability to recover pumping costs
1/10/2019	13	Economic loss due to inability to recover pumping costs
1/10/2019	14	Economic loss due to inability to recover pumping costs
1/10/2019	15	Economic loss due to inability to recover pumping costs
1/10/2019	16	Economic loss due to inability to recover pumping costs
1/10/2019	17	Economic loss due to inability to recover pumping costs
1/10/2019	18	Economic loss due to inability to recover pumping costs
1/10/2019	19	Economic loss due to inability to recover pumping costs
1/10/2019	20	Economic loss due to inability to recover pumping costs
1/10/2019	21	Economic loss due to inability to recover pumping costs
1/10/2019	22	Economic loss due to inability to recover pumping costs
1/11/2019	5	Economic loss due to inability economically generate
1/12/2019	5	Economic loss due to inability to recover pumping costs
1/12/2019	7	Economic loss due to inability to recover pumping costs
1/12/2019	10	Economic loss due to inability to recover pumping costs
1/13/2019	1	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/13/2019	8	Economic loss due to inability economically generate
1/13/2019	9	Economic loss due to inability economically generate
1/13/2019	10	Economic loss due to inability economically generate
1/13/2019	11	Economic loss due to inability economically generate
1/13/2019	12	Economic loss due to inability economically generate
1/13/2019	13	Economic loss due to inability economically generate
1/13/2019	14	Economic loss due to inability economically generate
1/16/2019	8	Economic loss due to inability to recover pumping costs
1/16/2019	9	Economic loss due to inability to recover pumping costs
1/16/2019	12	Economic loss due to inability to recover pumping costs
1/16/2019	13	Economic loss due to inability to recover pumping costs
1/16/2019	14	Economic loss due to inability to recover pumping costs
1/16/2019	15	Economic loss due to inability to recover pumping costs
1/16/2019	16	Economic loss due to inability to recover pumping costs
1/16/2019	17	Economic loss due to inability to recover pumping costs
1/16/2019	18	Economic loss due to inability to recover pumping costs
1/18/2019	6	Economic loss due to inability to recover pumping costs
1/20/2019	9	Economic loss due to inability economically generate
1/20/2019	11	Economic loss due to inability economically generate
1/20/2019	12	Economic loss due to inability economically generate
1/20/2019	13	Economic loss due to inability economically generate
1/25/2019	2	Economic loss due to inability economically generate
1/25/2019	3	Economic loss due to inability economically generate
1/25/2019	4	Economic loss due to inability economically generate
1/25/2019	5	Economic loss due to inability economically generate
1/25/2019	6	Economic loss due to inability economically generate
1/25/2019	7	Economic loss due to inability economically generate
1/25/2019	8	Economic loss due to inability to recover pumping costs
1/25/2019	9	Economic loss due to inability to recover pumping costs
1/25/2019	10	Economic loss due to inability to recover pumping costs
1/25/2019	11	Economic loss due to inability to recover pumping costs
1/25/2019	12	Economic loss due to inability to recover pumping costs
1/25/2019	13	Economic loss due to inability to recover pumping costs
1/25/2019	14	Economic loss due to inability to recover pumping costs
1/25/2019	16	Economic loss due to inability to recover pumping costs
1/25/2019	21	Economic loss due to inability to recover pumping costs
1/25/2019	23	Economic loss due to inability to recover pumping costs
1/29/2019	2	Economic loss due to inability economically generate
1/29/2019	16	Economic loss due to inability to recover pumping costs
1/29/2019	24	Economic loss due to inability economically generate
2/4/2019	6	Economic loss due to inability to recover pumping costs
2/4/2019	10	Economic loss due to inability to recover pumping costs
2/4/2019	12	Economic loss due to inability to recover pumping costs
2/4/2019	13	Economic loss due to inability to recover pumping costs
2/4/2019	16	Economic loss due to inability to recover pumping costs
2/4/2019	17	Economic loss due to inability to recover pumping costs
2/4/2019	24	Economic loss due to inability economically generate
2/5/2019	1	Economic loss due to inability economically generate
2/5/2019	2	Economic loss due to inability economically generate
2/5/2019	3	Economic loss due to inability economically generate
2/5/2019	4	Economic loss due to inability economically generate
2/5/2019	5	Economic loss due to inability economically generate
2/5/2019	6	Economic loss due to inability economically generate
2/5/2019	7	Economic loss due to inability to recover pumping costs
2/5/2019	8	Economic loss due to inability to recover pumping costs
2/5/2019	9	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/5/2019	10	Economic loss due to inability to recover pumping costs
2/5/2019	11	Economic loss due to inability to recover pumping costs
2/9/2019	2	Economic loss due to inability economically generate
2/9/2019	3	Economic loss due to inability economically generate
2/9/2019	4	Economic loss due to inability economically generate
2/9/2019	5	Economic loss due to inability economically generate
2/9/2019	6	Economic loss due to inability economically generate
2/12/2019	1	Economic loss due to inability economically generate
2/12/2019	2	Economic loss due to inability economically generate
2/12/2019	5	Economic loss due to inability economically generate
2/12/2019	6	Economic loss due to inability to recover pumping costs
2/12/2019	24	Economic loss due to inability to recover pumping costs
2/14/2019	1	Economic loss due to inability to recover pumping costs
2/14/2019	7	Economic loss due to inability to recover pumping costs
2/14/2019	9	Economic loss due to inability to recover pumping costs
2/15/2019	1	Economic loss due to inability to recover pumping costs
2/15/2019	7	Economic loss due to inability to recover pumping costs
2/15/2019	8	Economic loss due to inability to recover pumping costs
2/15/2019	9	Economic loss due to inability to recover pumping costs
2/15/2019	13	Economic loss due to inability to recover pumping costs
2/15/2019	14	Economic loss due to inability to recover pumping costs
2/15/2019	15	Economic loss due to inability to recover pumping costs
2/15/2019	17	Economic loss due to inability to recover pumping costs
2/15/2019	18	Economic loss due to inability to recover pumping costs
2/15/2019	19	Economic loss due to inability to recover pumping costs
2/15/2019	20	Economic loss due to inability to recover pumping costs
2/15/2019	21	Economic loss due to inability to recover pumping costs
2/15/2019	22	Economic loss due to inability to recover pumping costs
2/15/2019	23	Economic loss due to inability to recover pumping costs
2/16/2019	2	Economic loss due to inability economically generate
2/18/2019	2	Economic loss due to inability economically generate
2/18/2019	3	Economic loss due to inability economically generate
2/18/2019	4	Economic loss due to inability economically generate
2/18/2019	7	Economic loss due to inability to recover pumping costs
2/18/2019	8	Economic loss due to inability to recover pumping costs
2/18/2019	9	Economic loss due to inability to recover pumping costs
2/18/2019	10	Economic loss due to inability to recover pumping costs
2/18/2019	11	Economic loss due to inability to recover pumping costs
2/18/2019	13	Economic loss due to inability to recover pumping costs
2/18/2019	14	Economic loss due to inability to recover pumping costs
2/21/2019	7	Economic loss due to inability to recover pumping costs
2/21/2019	8	Economic loss due to inability to recover pumping costs
2/21/2019	15	Economic loss due to inability to recover pumping costs
2/21/2019	21	Economic loss due to inability to recover pumping costs
2/21/2019	22	Economic loss due to inability to recover pumping costs
2/23/2019	14	Economic loss due to inability to recover pumping costs
2/23/2019	15	Economic loss due to inability to recover pumping costs
2/23/2019	16	Economic loss due to inability to recover pumping costs
2/23/2019	19	Economic loss due to inability to recover pumping costs
2/23/2019	20	Economic loss due to inability to recover pumping costs
2/23/2019	21	Economic loss due to inability to recover pumping costs
2/23/2019	24	Economic loss due to inability economically generate
3/3/2019	11	Economic loss due to inability to recover pumping costs
3/4/2019	14	Economic loss due to inability to recover pumping costs
3/10/2019	5	Economic loss due to inability economically generate
3/10/2019	6	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/10/2019	8	Economic loss due to inability economically generate
3/10/2019	19	Economic loss due to inability to recover pumping costs
3/10/2019	20	Economic loss due to inability to recover pumping costs
3/10/2019	21	Economic loss due to inability to recover pumping costs
3/10/2019	23	Economic loss due to inability economically generate
3/16/2019	2	Economic loss due to inability economically generate
3/16/2019	3	Economic loss due to inability economically generate
3/16/2019	4	Economic loss due to inability to recover pumping costs
3/16/2019	5	Economic loss due to inability economically generate
3/16/2019	6	Economic loss due to inability economically generate
3/16/2019	10	Economic loss due to inability economically generate
3/16/2019	11	Economic loss due to inability economically generate
3/16/2019	12	Economic loss due to inability economically generate
3/16/2019	13	Economic loss due to inability to recover pumping costs
3/16/2019	14	Economic loss due to inability to recover pumping costs
3/16/2019	17	Economic loss due to inability economically generate
3/16/2019	18	Economic loss due to inability economically generate
3/16/2019	20	Economic loss due to inability to recover pumping costs
3/16/2019	21	Economic loss due to inability to recover pumping costs
3/16/2019	22	Economic loss due to inability to recover pumping costs
3/17/2019	13	Economic loss due to inability to recover pumping costs
3/23/2019	9	Economic loss due to inability to recover pumping costs
3/23/2019	10	Economic loss due to inability to recover pumping costs
3/23/2019	11	Economic loss due to inability to recover pumping costs
3/23/2019	14	Economic loss due to inability to recover pumping costs
3/23/2019	15	Economic loss due to inability to recover pumping costs
3/23/2019	16	Economic loss due to inability to recover pumping costs
3/23/2019	18	Economic loss due to inability to recover pumping costs
3/23/2019	19	Economic loss due to inability to recover pumping costs
3/23/2019	20	Economic loss due to inability to recover pumping costs
3/23/2019	21	Economic loss due to inability to recover pumping costs
3/23/2019	22	Economic loss due to inability to recover pumping costs
3/24/2019	4	Economic loss due to inability economically generate
3/24/2019	7	Economic loss due to inability economically generate
3/24/2019	8	Economic loss due to inability to recover pumping costs
3/24/2019	9	Economic loss due to inability to recover pumping costs
3/24/2019	12	Economic loss due to inability to recover pumping costs
3/24/2019	13	Economic loss due to inability to recover pumping costs
3/24/2019	18	Economic loss due to inability to recover pumping costs
3/24/2019	24	Economic loss due to inability economically generate
3/25/2019	5	Economic loss due to inability to recover pumping costs
3/25/2019	16	Economic loss due to inability to recover pumping costs
3/25/2019	24	Economic loss due to inability economically generate
4/5/2019	2	Economic loss due to inability economically generate
4/5/2019	5	Economic loss due to inability economically generate
4/5/2019	6	Economic loss due to inability to recover pumping costs
4/5/2019	20	Economic loss due to inability to recover pumping costs
4/5/2019	21	Economic loss due to inability to recover pumping costs
4/8/2019	7	Economic loss due to inability to recover pumping costs
4/8/2019	8	Economic loss due to inability to recover pumping costs
4/8/2019	9	Economic loss due to inability to recover pumping costs
4/8/2019	11	Economic loss due to inability to recover pumping costs
4/8/2019	12	Economic loss due to inability to recover pumping costs
4/8/2019	13	Economic loss due to inability to recover pumping costs
4/8/2019	14	Economic loss due to inability to recover pumping costs
4/8/2019	15	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
4/16/2019	1	Economic loss due to inability to recover pumping costs
4/16/2019	2	Economic loss due to inability economically generate
4/16/2019	3	Economic loss due to inability to recover pumping costs
4/16/2019	4	Economic loss due to inability to recover pumping costs
4/16/2019	9	Economic loss due to inability to recover pumping costs
4/16/2019	10	Economic loss due to inability to recover pumping costs
4/16/2019	11	Economic loss due to inability to recover pumping costs
4/16/2019	12	Economic loss due to inability to recover pumping costs
4/16/2019	13	Economic loss due to inability to recover pumping costs
4/16/2019	14	Economic loss due to inability to recover pumping costs
4/16/2019	15	Economic loss due to inability to recover pumping costs
4/16/2019	16	Economic loss due to inability to recover pumping costs
4/16/2019	17	Economic loss due to inability to recover pumping costs
4/16/2019	18	Economic loss due to inability to recover pumping costs
4/16/2019	19	Economic loss due to inability to recover pumping costs
4/16/2019	20	Economic loss due to inability to recover pumping costs
4/16/2019	21	Economic loss due to inability to recover pumping costs
11/11/2019	3	Economic loss due to inability economically generate
11/11/2019	5	Economic loss due to inability economically generate
11/11/2019	6	Economic loss due to inability economically generate
11/11/2019	7	Economic loss due to inability economically generate
11/11/2019	8	Economic loss due to inability to recover pumping costs
11/11/2019	9	Economic loss due to inability to recover pumping costs
11/11/2019	10	Economic loss due to inability to recover pumping costs
11/11/2019	22	Economic loss due to inability economically generate
11/11/2019	23	Economic loss due to inability economically generate
11/11/2019	24	Economic loss due to inability economically generate
11/12/2019	1	Economic loss due to inability economically generate
11/12/2019	2	Economic loss due to inability economically generate
11/12/2019	6	Economic loss due to inability economically generate
11/12/2019	8	Economic loss due to inability to recover pumping costs
11/12/2019	14	Economic loss due to inability to recover pumping costs
11/12/2019	15	Economic loss due to inability to recover pumping costs
11/12/2019	17	Economic loss due to inability to recover pumping costs
11/12/2019	18	Economic loss due to inability to recover pumping costs
11/12/2019	19	Economic loss due to inability to recover pumping costs
11/14/2019	15	Economic loss due to inability to recover pumping costs
11/14/2019	16	Economic loss due to inability to recover pumping costs
11/14/2019	23	Economic loss due to inability economically generate
11/14/2019	24	Economic loss due to inability economically generate
11/15/2019	1	Economic loss due to inability economically generate
11/15/2019	2	Economic loss due to inability economically generate
11/15/2019	3	Economic loss due to inability economically generate
11/15/2019	4	Economic loss due to inability economically generate
11/15/2019	5	Economic loss due to inability economically generate
11/15/2019	8	Economic loss due to inability to recover pumping costs
11/15/2019	15	Economic loss due to inability to recover pumping costs
11/15/2019	16	Economic loss due to inability to recover pumping costs
11/15/2019	17	Economic loss due to inability to recover pumping costs
11/16/2019	5	Economic loss due to inability to recover pumping costs
11/17/2019	3	Economic loss due to inability to recover pumping costs
11/17/2019	6	Economic loss due to inability economically generate
11/17/2019	8	Economic loss due to inability economically generate
11/18/2019	4	Economic loss due to inability economically generate
11/24/2019	11	Economic loss due to inability to recover pumping costs
11/24/2019	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
11/24/2019	13	Economic loss due to inability to recover pumping costs
11/24/2019	14	Economic loss due to inability economically generate
11/24/2019	15	Economic loss due to inability to recover pumping costs
11/24/2019	16	Economic loss due to inability to recover pumping costs
11/24/2019	17	Economic loss due to inability to recover pumping costs
11/24/2019	18	Economic loss due to inability to recover pumping costs
11/24/2019	19	Economic loss due to inability to recover pumping costs
11/24/2019	20	Economic loss due to inability to recover pumping costs
11/25/2019	8	Economic loss due to inability to recover pumping costs
11/25/2019	9	Economic loss due to inability to recover pumping costs
11/25/2019	10	Economic loss due to inability to recover pumping costs
11/25/2019	11	Economic loss due to inability to recover pumping costs
11/25/2019	12	Economic loss due to inability to recover pumping costs
11/25/2019	13	Economic loss due to inability to recover pumping costs
11/25/2019	14	Economic loss due to inability to recover pumping costs
11/25/2019	15	Economic loss due to inability to recover pumping costs
12/2/2019	1	Economic loss due to inability economically generate
12/2/2019	2	Economic loss due to inability economically generate
12/2/2019	3	Economic loss due to inability economically generate
12/2/2019	4	Economic loss due to inability economically generate
12/2/2019	5	Economic loss due to inability economically generate
12/2/2019	6	Economic loss due to inability economically generate
12/2/2019	7	Economic loss due to inability economically generate
12/2/2019	8	Economic loss due to inability to recover pumping costs
12/2/2019	9	Economic loss due to inability to recover pumping costs
12/2/2019	10	Economic loss due to inability to recover pumping costs
12/2/2019	11	Economic loss due to inability to recover pumping costs
12/2/2019	14	Economic loss due to inability to recover pumping costs
12/2/2019	15	Economic loss due to inability to recover pumping costs
12/2/2019	16	Economic loss due to inability to recover pumping costs
12/2/2019	17	Economic loss due to inability to recover pumping costs
12/3/2019	6	Economic loss due to inability economically generate
12/3/2019	7	Economic loss due to inability economically generate
12/3/2019	8	Economic loss due to inability to recover pumping costs
12/3/2019	11	Economic loss due to inability to recover pumping costs
12/3/2019	16	Economic loss due to inability to recover pumping costs
12/5/2019	1	Economic loss due to inability economically generate
12/5/2019	2	Economic loss due to inability economically generate
12/5/2019	3	Economic loss due to inability economically generate
12/5/2019	7	Economic loss due to inability economically generate
12/5/2019	8	Economic loss due to inability to recover pumping costs
12/5/2019	9	Economic loss due to inability to recover pumping costs
12/5/2019	10	Economic loss due to inability to recover pumping costs
12/5/2019	14	Economic loss due to inability to recover pumping costs
12/6/2019	7	Economic loss due to inability economically generate
12/6/2019	9	Economic loss due to inability to recover pumping costs
12/6/2019	15	Economic loss due to inability to recover pumping costs
12/6/2019	16	Economic loss due to inability to recover pumping costs
12/6/2019	17	Economic loss due to inability to recover pumping costs
12/6/2019	20	Economic loss due to inability to recover pumping costs
12/9/2019	7	Economic loss due to inability to recover pumping costs
12/9/2019	8	Economic loss due to inability to recover pumping costs
12/9/2019	9	Economic loss due to inability to recover pumping costs
12/9/2019	10	Economic loss due to inability to recover pumping costs
12/9/2019	11	Economic loss due to inability to recover pumping costs
12/9/2019	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/9/2019	13	Economic loss due to inability to recover pumping costs
12/9/2019	14	Economic loss due to inability to recover pumping costs
12/9/2019	15	Economic loss due to inability to recover pumping costs
12/9/2019	16	Economic loss due to inability to recover pumping costs
12/9/2019	17	Economic loss due to inability to recover pumping costs
12/9/2019	18	Economic loss due to inability to recover pumping costs
12/9/2019	19	Economic loss due to inability to recover pumping costs
12/9/2019	21	Economic loss due to inability economically generate
12/9/2019	22	Economic loss due to inability economically generate
12/9/2019	23	Economic loss due to inability economically generate
12/9/2019	24	Economic loss due to inability economically generate
12/10/2019	1	Economic loss due to inability economically generate
12/10/2019	2	Economic loss due to inability economically generate
12/10/2019	3	Economic loss due to inability economically generate
12/10/2019	4	Economic loss due to inability economically generate
12/10/2019	5	Economic loss due to inability economically generate
12/10/2019	6	Economic loss due to inability economically generate
12/10/2019	7	Economic loss due to inability economically generate
12/10/2019	8	Economic loss due to inability to recover pumping costs
12/10/2019	9	Economic loss due to inability to recover pumping costs
12/10/2019	10	Economic loss due to inability to recover pumping costs
12/10/2019	11	Economic loss due to inability to recover pumping costs
12/10/2019	12	Economic loss due to inability to recover pumping costs
12/10/2019	13	Economic loss due to inability to recover pumping costs
12/10/2019	14	Economic loss due to inability to recover pumping costs
12/10/2019	15	Economic loss due to inability to recover pumping costs
12/10/2019	16	Economic loss due to inability to recover pumping costs
12/10/2019	19	Economic loss due to inability to recover pumping costs
12/10/2019	23	Economic loss due to inability economically generate
12/10/2019	24	Economic loss due to inability economically generate
12/12/2019	15	Economic loss due to inability to recover pumping costs
12/13/2019	7	Economic loss due to inability economically generate
12/13/2019	8	Economic loss due to inability to recover pumping costs
12/13/2019	9	Economic loss due to inability to recover pumping costs
12/13/2019	10	Economic loss due to inability to recover pumping costs
12/13/2019	11	Economic loss due to inability to recover pumping costs
12/13/2019	12	Economic loss due to inability to recover pumping costs
12/14/2019	7	Economic loss due to inability to recover pumping costs
12/14/2019	20	Economic loss due to inability to recover pumping costs
12/14/2019	21	Economic loss due to inability to recover pumping costs
12/14/2019	23	Economic loss due to inability to recover pumping costs
12/15/2019	7	Economic loss due to inability economically generate
12/15/2019	8	Economic loss due to inability economically generate
12/15/2019	9	Economic loss due to inability economically generate
12/15/2019	10	Economic loss due to inability economically generate
12/15/2019	11	Economic loss due to inability economically generate
12/15/2019	12	Economic loss due to inability economically generate
12/15/2019	13	Economic loss due to inability to recover pumping costs
12/15/2019	15	Economic loss due to inability economically generate
12/15/2019	20	Economic loss due to inability to recover pumping costs
12/17/2019	24	Economic loss due to inability to recover pumping costs
12/18/2019	1	Economic loss due to inability economically generate
12/18/2019	2	Economic loss due to inability economically generate
12/18/2019	4	Economic loss due to inability economically generate
12/18/2019	5	Economic loss due to inability economically generate
12/18/2019	6	Economic loss due to inability economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/18/2019	7	Economic loss due to inability to recover pumping costs
12/18/2019	8	Economic loss due to inability to recover pumping costs
12/18/2019	9	Economic loss due to inability to recover pumping costs
12/18/2019	10	Economic loss due to inability to recover pumping costs
12/18/2019	12	Economic loss due to inability to recover pumping costs
12/18/2019	13	Economic loss due to inability to recover pumping costs
12/18/2019	14	Economic loss due to inability to recover pumping costs
12/18/2019	15	Economic loss due to inability to recover pumping costs
12/18/2019	16	Economic loss due to inability to recover pumping costs
12/21/2019	20	Economic loss due to inability to recover pumping costs
12/21/2019	21	Economic loss due to inability to recover pumping costs
12/21/2019	22	Economic loss due to inability to recover pumping costs
12/21/2019	23	Economic loss due to inability to recover pumping costs
12/21/2019	24	Economic loss due to inability to recover pumping costs
12/23/2019	5	Economic loss due to inability economically generate
12/23/2019	6	Economic loss due to inability economically generate
12/23/2019	7	Economic loss due to inability to recover pumping costs
12/23/2019	8	Economic loss due to inability to recover pumping costs
12/23/2019	9	Economic loss due to inability to recover pumping costs
12/23/2019	10	Economic loss due to inability to recover pumping costs
12/23/2019	11	Economic loss due to inability to recover pumping costs
12/23/2019	12	Economic loss due to inability to recover pumping costs
12/23/2019	13	Economic loss due to inability to recover pumping costs
12/23/2019	14	Economic loss due to inability to recover pumping costs
12/23/2019	15	Economic loss due to inability to recover pumping costs
12/23/2019	16	Economic loss due to inability to recover pumping costs
12/23/2019	17	Economic loss due to inability to recover pumping costs
12/23/2019	18	Economic loss due to inability to recover pumping costs
12/23/2019	19	Economic loss due to inability to recover pumping costs
12/23/2019	20	Economic loss due to inability to recover pumping costs
12/23/2019	21	Economic loss due to inability to recover pumping costs
12/24/2019	7	Economic loss due to inability to recover pumping costs
12/24/2019	8	Economic loss due to inability to recover pumping costs
12/24/2019	10	Economic loss due to inability to recover pumping costs
12/24/2019	14	Economic loss due to inability to recover pumping costs
12/24/2019	19	Economic loss due to inability to recover pumping costs
12/24/2019	21	Economic loss due to inability to recover pumping costs
12/24/2019	22	Economic loss due to inability to recover pumping costs
1/3/2020	2	Economic loss due to inability to economically generate
1/3/2020	3	Economic loss due to inability to economically generate
1/3/2020	4	Economic loss due to inability to economically generate
1/3/2020	5	Economic loss due to inability to economically generate
1/3/2020	6	Economic loss due to inability to economically generate
1/3/2020	7	Economic loss due to inability to economically generate
1/3/2020	8	Economic loss due to inability to recover pumping costs
1/3/2020	9	Economic loss due to inability to recover pumping costs
1/3/2020	10	Economic loss due to inability to recover pumping costs
1/3/2020	11	Economic loss due to inability to recover pumping costs
1/3/2020	12	Economic loss due to inability to recover pumping costs
1/3/2020	13	Economic loss due to inability to recover pumping costs
1/3/2020	14	Economic loss due to inability to recover pumping costs
1/3/2020	15	Economic loss due to inability to recover pumping costs
1/3/2020	16	Economic loss due to inability to recover pumping costs
1/3/2020	17	Economic loss due to inability to recover pumping costs
1/3/2020	18	Economic loss due to inability to recover pumping costs
1/3/2020	19	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/3/2020	24	Economic loss due to inability to recover pumping costs
1/13/2020	1	Economic loss due to inability to economically generate
1/13/2020	2	Economic loss due to inability to economically generate
1/13/2020	5	Economic loss due to inability to economically generate
1/13/2020	6	Economic loss due to inability to economically generate
1/13/2020	24	Economic loss due to inability to recover pumping costs
1/14/2020	7	Economic loss due to inability to recover pumping costs
1/14/2020	9	Economic loss due to inability to recover pumping costs
1/14/2020	11	Economic loss due to inability to recover pumping costs
1/14/2020	12	Economic loss due to inability to recover pumping costs
1/14/2020	21	Economic loss due to inability to recover pumping costs
1/15/2020	7	Economic loss due to inability to recover pumping costs
1/15/2020	8	Economic loss due to inability to recover pumping costs
1/15/2020	9	Economic loss due to inability to recover pumping costs
1/15/2020	10	Economic loss due to inability to recover pumping costs
1/15/2020	11	Economic loss due to inability to recover pumping costs
1/15/2020	12	Economic loss due to inability to recover pumping costs
1/15/2020	16	Economic loss due to inability to recover pumping costs
1/15/2020	17	Economic loss due to inability to recover pumping costs
1/15/2020	19	Economic loss due to inability to recover pumping costs
1/15/2020	20	Economic loss due to inability to recover pumping costs
1/15/2020	21	Economic loss due to inability to recover pumping costs
1/15/2020	24	Economic loss due to inability to recover pumping costs
1/16/2020	1	Economic loss due to inability to recover pumping costs
1/16/2020	4	Economic loss due to inability to economically generate
1/16/2020	5	Economic loss due to inability to economically generate
1/16/2020	6	Economic loss due to inability to economically generate
1/16/2020	7	Economic loss due to inability to recover pumping costs
1/16/2020	8	Economic loss due to inability to recover pumping costs
1/16/2020	9	Economic loss due to inability to recover pumping costs
1/16/2020	10	Economic loss due to inability to recover pumping costs
1/16/2020	11	Economic loss due to inability to recover pumping costs
1/16/2020	12	Economic loss due to inability to recover pumping costs
1/16/2020	13	Economic loss due to inability to recover pumping costs
1/16/2020	14	Economic loss due to inability to recover pumping costs
1/16/2020	15	Economic loss due to inability to recover pumping costs
1/16/2020	16	Economic loss due to inability to recover pumping costs
1/16/2020	17	Economic loss due to inability to recover pumping costs
1/16/2020	18	Economic loss due to inability to recover pumping costs
1/16/2020	19	Economic loss due to inability to recover pumping costs
1/16/2020	20	Economic loss due to inability to recover pumping costs
1/16/2020	21	Economic loss due to inability to recover pumping costs
1/16/2020	23	Economic loss due to inability to recover pumping costs
1/17/2020	24	Economic loss due to inability to recover pumping costs
1/19/2020	1	Economic loss due to inability to economically generate
1/19/2020	2	Economic loss due to inability to economically generate
1/19/2020	3	Economic loss due to inability to economically generate
1/19/2020	4	Economic loss due to inability to economically generate
1/19/2020	5	Economic loss due to inability to economically generate
1/19/2020	6	Economic loss due to inability to economically generate
1/19/2020	7	Economic loss due to inability to economically generate
1/19/2020	8	Economic loss due to inability to economically generate
1/19/2020	9	Economic loss due to inability to economically generate
1/19/2020	10	Economic loss due to inability to economically generate
1/19/2020	11	Economic loss due to inability to recover pumping costs
1/19/2020	12	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/19/2020	13	Economic loss due to inability to economically generate
1/19/2020	14	Economic loss due to inability to recover pumping costs
1/19/2020	15	Economic loss due to inability to economically generate
1/19/2020	16	Economic loss due to inability to recover pumping costs
1/19/2020	17	Economic loss due to inability to recover pumping costs
1/19/2020	18	Economic loss due to inability to recover pumping costs
1/19/2020	19	Economic loss due to inability to recover pumping costs
1/19/2020	20	Economic loss due to inability to recover pumping costs
1/19/2020	21	Economic loss due to inability to recover pumping costs
1/19/2020	22	Economic loss due to inability to recover pumping costs
1/19/2020	23	Economic loss due to inability to recover pumping costs
1/19/2020	24	Economic loss due to inability to recover pumping costs
1/20/2020	14	Economic loss due to inability to recover pumping costs
1/20/2020	15	Economic loss due to inability to recover pumping costs
1/20/2020	16	Economic loss due to inability to recover pumping costs
1/20/2020	20	Economic loss due to inability to recover pumping costs
1/21/2020	5	Economic loss due to inability to recover pumping costs
1/21/2020	17	Economic loss due to inability to recover pumping costs
1/21/2020	18	Economic loss due to inability to recover pumping costs
1/21/2020	19	Economic loss due to inability to recover pumping costs
1/21/2020	20	Economic loss due to inability to recover pumping costs
1/21/2020	21	Economic loss due to inability to recover pumping costs
1/22/2020	7	Economic loss due to inability to recover pumping costs
1/22/2020	8	Economic loss due to inability to recover pumping costs
1/22/2020	9	Economic loss due to inability to recover pumping costs
1/22/2020	10	Economic loss due to inability to recover pumping costs
1/22/2020	11	Economic loss due to inability to recover pumping costs
1/22/2020	12	Economic loss due to inability to recover pumping costs
1/22/2020	13	Economic loss due to inability to recover pumping costs
1/22/2020	14	Economic loss due to inability to recover pumping costs
1/22/2020	16	Economic loss due to inability to recover pumping costs
1/22/2020	17	Economic loss due to inability to recover pumping costs
1/22/2020	18	Economic loss due to inability to recover pumping costs
1/22/2020	19	Economic loss due to inability to recover pumping costs
1/22/2020	20	Economic loss due to inability to recover pumping costs
1/22/2020	21	Economic loss due to inability to recover pumping costs
1/22/2020	22	Economic loss due to inability to recover pumping costs
1/22/2020	23	Economic loss due to inability to recover pumping costs
1/27/2020	1	Economic loss due to inability to economically generate
1/27/2020	2	Economic loss due to inability to economically generate
1/27/2020	3	Economic loss due to inability to economically generate
1/27/2020	4	Economic loss due to inability to economically generate
1/27/2020	5	Economic loss due to inability to economically generate
1/27/2020	6	Economic loss due to inability to economically generate
1/27/2020	7	Economic loss due to inability to recover pumping costs
1/27/2020	8	Economic loss due to inability to recover pumping costs
1/27/2020	9	Economic loss due to inability to recover pumping costs
1/27/2020	10	Economic loss due to inability to recover pumping costs
1/27/2020	11	Economic loss due to inability to recover pumping costs
1/27/2020	12	Economic loss due to inability to recover pumping costs
1/27/2020	13	Economic loss due to inability to recover pumping costs
1/27/2020	14	Economic loss due to inability to recover pumping costs
1/27/2020	15	Economic loss due to inability to recover pumping costs
1/27/2020	16	Economic loss due to inability to recover pumping costs
1/27/2020	17	Economic loss due to inability to recover pumping costs
1/27/2020	18	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/27/2020	19	Economic loss due to inability to recover pumping costs
1/27/2020	20	Economic loss due to inability to recover pumping costs
1/27/2020	21	Economic loss due to inability to recover pumping costs
1/27/2020	22	Economic loss due to inability to recover pumping costs
1/27/2020	23	Economic loss due to inability to recover pumping costs
1/28/2020	3	Economic loss due to inability to economically generate
1/28/2020	4	Economic loss due to inability to economically generate
1/28/2020	5	Economic loss due to inability to economically generate
1/28/2020	6	Economic loss due to inability to economically generate
1/28/2020	7	Economic loss due to inability to recover pumping costs
1/28/2020	8	Economic loss due to inability to recover pumping costs
1/28/2020	9	Economic loss due to inability to recover pumping costs
1/28/2020	10	Economic loss due to inability to recover pumping costs
1/28/2020	11	Economic loss due to inability to recover pumping costs
1/28/2020	13	Economic loss due to inability to recover pumping costs
1/28/2020	14	Economic loss due to inability to recover pumping costs
1/28/2020	15	Economic loss due to inability to recover pumping costs
1/28/2020	17	Economic loss due to inability to recover pumping costs
1/28/2020	18	Economic loss due to inability to recover pumping costs
1/28/2020	19	Economic loss due to inability to recover pumping costs
1/28/2020	20	Economic loss due to inability to recover pumping costs
1/28/2020	21	Economic loss due to inability to recover pumping costs
1/28/2020	22	Economic loss due to inability to recover pumping costs
1/28/2020	23	Economic loss due to inability to recover pumping costs
1/28/2020	24	Economic loss due to inability to recover pumping costs
1/29/2020	2	Economic loss due to inability to recover pumping costs
1/29/2020	3	Economic loss due to inability to economically generate
1/29/2020	4	Economic loss due to inability to economically generate
1/29/2020	5	Economic loss due to inability to recover pumping costs
1/29/2020	7	Economic loss due to inability to recover pumping costs
1/29/2020	15	Economic loss due to inability to recover pumping costs
1/30/2020	4	Economic loss due to inability to recover pumping costs
1/31/2020	2	Economic loss due to inability to recover pumping costs
1/31/2020	3	Economic loss due to inability to recover pumping costs
1/31/2020	4	Economic loss due to inability to economically generate
1/31/2020	5	Economic loss due to inability to recover pumping costs
2/1/2020	2	Economic loss due to inability to recover pumping costs
2/1/2020	3	Economic loss due to inability to recover pumping costs
2/1/2020	4	Economic loss due to inability to recover pumping costs
2/1/2020	7	Economic loss due to inability to recover pumping costs
2/1/2020	8	Economic loss due to inability to recover pumping costs
2/1/2020	9	Economic loss due to inability to recover pumping costs
2/1/2020	12	Economic loss due to inability to recover pumping costs
2/1/2020	13	Economic loss due to inability to recover pumping costs
2/1/2020	14	Economic loss due to inability to recover pumping costs
2/1/2020	15	Economic loss due to inability to recover pumping costs
2/1/2020	16	Economic loss due to inability to recover pumping costs
2/1/2020	21	Economic loss due to inability to recover pumping costs
2/1/2020	22	Economic loss due to inability to recover pumping costs
2/1/2020	23	Economic loss due to inability to recover pumping costs
2/1/2020	24	Economic loss due to inability to recover pumping costs
2/3/2020	1	Economic loss due to inability to economically generate
2/3/2020	2	Economic loss due to inability to economically generate
2/3/2020	3	Economic loss due to inability to economically generate
2/3/2020	4	Economic loss due to inability to economically generate
2/3/2020	5	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/3/2020	6	Economic loss due to inability to economically generate
2/3/2020	7	Economic loss due to inability to recover pumping costs
2/3/2020	8	Economic loss due to inability to recover pumping costs
2/3/2020	9	Economic loss due to inability to recover pumping costs
2/3/2020	10	Economic loss due to inability to recover pumping costs
2/3/2020	11	Economic loss due to inability to recover pumping costs
2/3/2020	12	Economic loss due to inability to recover pumping costs
2/3/2020	14	Economic loss due to inability to recover pumping costs
2/3/2020	16	Economic loss due to inability to recover pumping costs
2/3/2020	17	Economic loss due to inability to recover pumping costs
2/4/2020	2	Economic loss due to inability to economically generate
2/4/2020	3	Economic loss due to inability to economically generate
2/4/2020	4	Economic loss due to inability to economically generate
2/4/2020	5	Economic loss due to inability to economically generate
2/4/2020	6	Economic loss due to inability to recover pumping costs
2/4/2020	7	Economic loss due to inability to recover pumping costs
2/4/2020	8	Economic loss due to inability to recover pumping costs
2/4/2020	9	Economic loss due to inability to recover pumping costs
2/4/2020	10	Economic loss due to inability to recover pumping costs
2/4/2020	11	Economic loss due to inability to recover pumping costs
2/4/2020	12	Economic loss due to inability to recover pumping costs
2/4/2020	13	Economic loss due to inability to recover pumping costs
2/4/2020	16	Economic loss due to inability to recover pumping costs
2/4/2020	18	Economic loss due to inability to recover pumping costs
2/4/2020	19	Economic loss due to inability to recover pumping costs
2/4/2020	20	Economic loss due to inability to recover pumping costs
2/4/2020	22	Economic loss due to inability to economically generate
2/4/2020	23	Economic loss due to inability to economically generate
2/4/2020	24	Economic loss due to inability to economically generate
2/5/2020	1	Economic loss due to inability to economically generate
2/5/2020	2	Economic loss due to inability to economically generate
2/5/2020	3	Economic loss due to inability to economically generate
2/5/2020	4	Economic loss due to inability to economically generate
2/5/2020	5	Economic loss due to inability to economically generate
2/5/2020	6	Economic loss due to inability to recover pumping costs
2/5/2020	7	Economic loss due to inability to recover pumping costs
2/5/2020	8	Economic loss due to inability to recover pumping costs
2/5/2020	9	Economic loss due to inability to recover pumping costs
2/5/2020	10	Economic loss due to inability to recover pumping costs
2/5/2020	11	Economic loss due to inability to recover pumping costs
2/5/2020	12	Economic loss due to inability to recover pumping costs
2/5/2020	13	Economic loss due to inability to recover pumping costs
2/5/2020	14	Economic loss due to inability to recover pumping costs
2/5/2020	15	Economic loss due to inability to recover pumping costs
2/5/2020	16	Economic loss due to inability to recover pumping costs
2/6/2020	2	Economic loss due to inability to recover pumping costs
2/6/2020	3	Economic loss due to inability to recover pumping costs
2/6/2020	5	Economic loss due to inability to recover pumping costs
2/6/2020	6	Economic loss due to inability to recover pumping costs
2/6/2020	7	Economic loss due to inability to recover pumping costs
2/6/2020	8	Economic loss due to inability to recover pumping costs
2/6/2020	9	Economic loss due to inability to recover pumping costs
2/6/2020	10	Economic loss due to inability to recover pumping costs
2/6/2020	11	Economic loss due to inability to recover pumping costs
2/6/2020	12	Economic loss due to inability to recover pumping costs
2/6/2020	13	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/6/2020	14	Economic loss due to inability to recover pumping costs
2/6/2020	23	Economic loss due to inability to recover pumping costs
2/7/2020	2	Economic loss due to inability to recover pumping costs
2/7/2020	5	Economic loss due to inability to economically generate
2/7/2020	6	Economic loss due to inability to economically generate
2/7/2020	7	Economic loss due to inability to recover pumping costs
2/7/2020	8	Economic loss due to inability to recover pumping costs
2/7/2020	9	Economic loss due to inability to recover pumping costs
2/7/2020	10	Economic loss due to inability to recover pumping costs
2/7/2020	11	Economic loss due to inability to recover pumping costs
2/7/2020	12	Economic loss due to inability to recover pumping costs
2/7/2020	13	Economic loss due to inability to recover pumping costs
2/7/2020	14	Economic loss due to inability to recover pumping costs
2/7/2020	15	Economic loss due to inability to recover pumping costs
2/7/2020	16	Economic loss due to inability to recover pumping costs
2/7/2020	17	Economic loss due to inability to recover pumping costs
2/7/2020	18	Economic loss due to inability to recover pumping costs
2/7/2020	19	Economic loss due to inability to recover pumping costs
2/7/2020	20	Economic loss due to inability to economically generate
2/7/2020	21	Economic loss due to inability to recover pumping costs
2/7/2020	22	Economic loss due to inability to recover pumping costs
2/8/2020	2	Economic loss due to inability to economically generate
2/8/2020	3	Economic loss due to inability to economically generate
2/8/2020	4	Economic loss due to inability to economically generate
2/8/2020	5	Economic loss due to inability to economically generate
2/8/2020	6	Economic loss due to inability to economically generate
2/9/2020	3	Economic loss due to inability to recover pumping costs
2/9/2020	4	Economic loss due to inability to recover pumping costs
2/9/2020	14	Economic loss due to inability to recover pumping costs
2/9/2020	15	Economic loss due to inability to recover pumping costs
2/9/2020	17	Economic loss due to inability to recover pumping costs
2/9/2020	18	Economic loss due to inability to recover pumping costs
2/9/2020	19	Economic loss due to inability to recover pumping costs
2/9/2020	20	Economic loss due to inability to recover pumping costs
2/9/2020	21	Economic loss due to inability to recover pumping costs
2/9/2020	22	Economic loss due to inability to recover pumping costs
2/9/2020	23	Economic loss due to inability to economically generate
2/9/2020	24	Economic loss due to inability to economically generate
2/10/2020	1	Economic loss due to inability to economically generate
2/10/2020	6	Economic loss due to inability to recover pumping costs
2/10/2020	7	Economic loss due to inability to recover pumping costs
2/10/2020	8	Economic loss due to inability to recover pumping costs
2/10/2020	9	Economic loss due to inability to recover pumping costs
2/10/2020	10	Economic loss due to inability to recover pumping costs
2/10/2020	11	Economic loss due to inability to recover pumping costs
2/10/2020	12	Economic loss due to inability to recover pumping costs
2/10/2020	13	Economic loss due to inability to recover pumping costs
2/10/2020	14	Economic loss due to inability to recover pumping costs
2/10/2020	15	Economic loss due to inability to recover pumping costs
2/12/2020	3	Economic loss due to inability to economically generate
2/12/2020	4	Economic loss due to inability to economically generate
2/12/2020	5	Economic loss due to inability to economically generate
2/12/2020	6	Economic loss due to inability to recover pumping costs
2/12/2020	7	Economic loss due to inability to recover pumping costs
2/12/2020	8	Economic loss due to inability to recover pumping costs
2/12/2020	9	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/12/2020	10	Economic loss due to inability to recover pumping costs
2/12/2020	11	Economic loss due to inability to recover pumping costs
2/12/2020	12	Economic loss due to inability to recover pumping costs
2/12/2020	13	Economic loss due to inability to recover pumping costs
2/12/2020	14	Economic loss due to inability to recover pumping costs
2/12/2020	15	Economic loss due to inability to recover pumping costs
2/12/2020	16	Economic loss due to inability to recover pumping costs
2/12/2020	17	Economic loss due to inability to recover pumping costs
2/12/2020	18	Economic loss due to inability to recover pumping costs
2/12/2020	19	Economic loss due to inability to recover pumping costs
2/12/2020	20	Economic loss due to inability to recover pumping costs
2/12/2020	21	Economic loss due to inability to recover pumping costs
2/12/2020	22	Economic loss due to inability to recover pumping costs
2/13/2020	2	Economic loss due to inability to economically generate
2/13/2020	3	Economic loss due to inability to economically generate
2/13/2020	4	Economic loss due to inability to economically generate
2/13/2020	6	Economic loss due to inability to recover pumping costs
2/13/2020	7	Economic loss due to inability to recover pumping costs
2/13/2020	8	Economic loss due to inability to recover pumping costs
2/13/2020	9	Economic loss due to inability to recover pumping costs
2/13/2020	10	Economic loss due to inability to recover pumping costs
2/13/2020	24	Economic loss due to inability to economically generate
2/16/2020	1	Economic loss due to inability to economically generate
2/16/2020	2	Economic loss due to inability to economically generate
2/16/2020	5	Economic loss due to inability to economically generate
2/16/2020	6	Economic loss due to inability to economically generate
2/16/2020	8	Economic loss due to inability to economically generate
2/16/2020	9	Economic loss due to inability to recover pumping costs
2/16/2020	11	Economic loss due to inability to recover pumping costs
2/16/2020	12	Economic loss due to inability to recover pumping costs
2/16/2020	13	Economic loss due to inability to recover pumping costs
2/16/2020	14	Economic loss due to inability to recover pumping costs
2/16/2020	15	Economic loss due to inability to recover pumping costs
2/16/2020	16	Economic loss due to inability to recover pumping costs
2/16/2020	17	Economic loss due to inability to recover pumping costs
2/16/2020	18	Economic loss due to inability to recover pumping costs
2/16/2020	19	Economic loss due to inability to recover pumping costs
2/16/2020	20	Economic loss due to inability to recover pumping costs
2/16/2020	21	Economic loss due to inability to recover pumping costs
2/16/2020	22	Economic loss due to inability to recover pumping costs
2/16/2020	23	Economic loss due to inability to recover pumping costs
2/17/2020	2	Economic loss due to inability to recover pumping costs
2/17/2020	4	Economic loss due to inability to recover pumping costs
2/17/2020	5	Economic loss due to inability to recover pumping costs
2/17/2020	6	Economic loss due to inability to recover pumping costs
2/17/2020	7	Economic loss due to inability to recover pumping costs
2/17/2020	9	Economic loss due to inability to recover pumping costs
2/17/2020	15	Economic loss due to inability to recover pumping costs
2/17/2020	16	Economic loss due to inability to recover pumping costs
2/17/2020	17	Economic loss due to inability to recover pumping costs
2/17/2020	19	Economic loss due to inability to recover pumping costs
2/17/2020	20	Economic loss due to inability to recover pumping costs
2/17/2020	21	Economic loss due to inability to recover pumping costs
2/17/2020	22	Economic loss due to inability to recover pumping costs
2/17/2020	23	Economic loss due to inability to recover pumping costs
2/18/2020	6	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/18/2020	7	Economic loss due to inability to recover pumping costs
2/18/2020	8	Economic loss due to inability to recover pumping costs
2/18/2020	9	Economic loss due to inability to recover pumping costs
2/18/2020	10	Economic loss due to inability to recover pumping costs
2/18/2020	11	Economic loss due to inability to recover pumping costs
2/18/2020	12	Economic loss due to inability to recover pumping costs
2/18/2020	13	Economic loss due to inability to recover pumping costs
2/18/2020	14	Economic loss due to inability to recover pumping costs
2/18/2020	15	Economic loss due to inability to recover pumping costs
2/18/2020	18	Economic loss due to inability to recover pumping costs
2/18/2020	19	Economic loss due to inability to recover pumping costs
2/18/2020	21	Economic loss due to inability to economically generate
2/18/2020	22	Economic loss due to inability to economically generate
2/18/2020	23	Economic loss due to inability to economically generate
2/18/2020	24	Economic loss due to inability to economically generate
2/19/2020	1	Economic loss due to inability to economically generate
2/19/2020	4	Economic loss due to inability to economically generate
2/19/2020	5	Economic loss due to inability to economically generate
2/19/2020	6	Economic loss due to inability to economically generate
2/19/2020	7	Economic loss due to inability to recover pumping costs
2/19/2020	8	Economic loss due to inability to recover pumping costs
2/19/2020	13	Economic loss due to inability to recover pumping costs
2/19/2020	14	Economic loss due to inability to recover pumping costs
2/19/2020	15	Economic loss due to inability to recover pumping costs
2/19/2020	16	Economic loss due to inability to recover pumping costs
2/19/2020	18	Economic loss due to inability to recover pumping costs
2/19/2020	19	Economic loss due to inability to recover pumping costs
2/19/2020	20	Economic loss due to inability to economically generate
2/19/2020	21	Economic loss due to inability to economically generate
2/19/2020	22	Economic loss due to inability to economically generate
2/19/2020	23	Economic loss due to inability to economically generate
2/19/2020	24	Economic loss due to inability to economically generate
2/20/2020	2	Economic loss due to inability to recover pumping costs
2/20/2020	3	Economic loss due to inability to economically generate
2/20/2020	5	Economic loss due to inability to economically generate
2/24/2020	1	Economic loss due to inability to economically generate
2/24/2020	2	Economic loss due to inability to economically generate
2/24/2020	3	Economic loss due to inability to economically generate
2/24/2020	4	Economic loss due to inability to economically generate
2/24/2020	5	Economic loss due to inability to economically generate
2/24/2020	6	Economic loss due to inability to economically generate
2/24/2020	7	Economic loss due to inability to recover pumping costs
2/24/2020	8	Economic loss due to inability to recover pumping costs
2/24/2020	9	Economic loss due to inability to recover pumping costs
2/24/2020	10	Economic loss due to inability to recover pumping costs
2/24/2020	11	Economic loss due to inability to recover pumping costs
2/24/2020	12	Economic loss due to inability to recover pumping costs
2/24/2020	13	Economic loss due to inability to recover pumping costs
2/24/2020	14	Economic loss due to inability to recover pumping costs
2/24/2020	15	Economic loss due to inability to recover pumping costs
2/24/2020	16	Economic loss due to inability to recover pumping costs
2/24/2020	17	Economic loss due to inability to recover pumping costs
2/24/2020	18	Economic loss due to inability to recover pumping costs
2/24/2020	19	Economic loss due to inability to recover pumping costs
2/25/2020	1	Economic loss due to inability to recover pumping costs
2/25/2020	2	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/25/2020	6	Economic loss due to inability to recover pumping costs
2/25/2020	7	Economic loss due to inability to recover pumping costs
2/25/2020	8	Economic loss due to inability to recover pumping costs
2/25/2020	9	Economic loss due to inability to recover pumping costs
2/25/2020	10	Economic loss due to inability to recover pumping costs
2/25/2020	11	Economic loss due to inability to recover pumping costs
2/25/2020	12	Economic loss due to inability to recover pumping costs
2/25/2020	13	Economic loss due to inability to recover pumping costs
2/25/2020	14	Economic loss due to inability to recover pumping costs
2/25/2020	15	Economic loss due to inability to recover pumping costs
2/25/2020	16	Economic loss due to inability to recover pumping costs
2/25/2020	17	Economic loss due to inability to recover pumping costs
2/25/2020	18	Economic loss due to inability to recover pumping costs
2/25/2020	19	Economic loss due to inability to recover pumping costs
2/25/2020	20	Economic loss due to inability to recover pumping costs
2/26/2020	7	Economic loss due to inability to recover pumping costs
2/26/2020	8	Economic loss due to inability to recover pumping costs
2/26/2020	9	Economic loss due to inability to recover pumping costs
2/26/2020	10	Economic loss due to inability to recover pumping costs
2/26/2020	11	Economic loss due to inability to recover pumping costs
2/26/2020	12	Economic loss due to inability to recover pumping costs
2/26/2020	13	Economic loss due to inability to recover pumping costs
2/26/2020	14	Economic loss due to inability to recover pumping costs
2/26/2020	15	Economic loss due to inability to recover pumping costs
2/26/2020	16	Economic loss due to inability to recover pumping costs
2/26/2020	17	Economic loss due to inability to recover pumping costs
2/26/2020	18	Economic loss due to inability to recover pumping costs
2/26/2020	19	Economic loss due to inability to recover pumping costs
2/26/2020	20	Economic loss due to inability to recover pumping costs
2/26/2020	21	Economic loss due to inability to recover pumping costs
2/26/2020	22	Economic loss due to inability to recover pumping costs
2/26/2020	23	Economic loss due to inability to recover pumping costs
2/26/2020	24	Economic loss due to inability to recover pumping costs
2/29/2020	15	Economic loss due to inability to economically generate
2/29/2020	16	Economic loss due to inability to recover pumping costs
3/2/2020	7	Economic loss due to inability to economically generate
3/2/2020	8	Economic loss due to inability to recover pumping costs
3/2/2020	9	Economic loss due to inability to recover pumping costs
3/2/2020	10	Economic loss due to inability to recover pumping costs
3/2/2020	11	Economic loss due to inability to recover pumping costs
3/2/2020	12	Economic loss due to inability to recover pumping costs
3/2/2020	13	Economic loss due to inability to recover pumping costs
3/2/2020	14	Economic loss due to inability to recover pumping costs
3/2/2020	15	Economic loss due to inability to recover pumping costs
3/2/2020	16	Economic loss due to inability to recover pumping costs
3/2/2020	17	Economic loss due to inability to recover pumping costs
3/2/2020	18	Economic loss due to inability to recover pumping costs
3/2/2020	19	Economic loss due to inability to recover pumping costs
3/2/2020	20	Economic loss due to inability to recover pumping costs
3/2/2020	21	Economic loss due to inability to recover pumping costs
3/2/2020	22	Economic loss due to inability to recover pumping costs
3/2/2020	23	Economic loss due to inability to recover pumping costs
3/2/2020	24	Economic loss due to inability to recover pumping costs
3/5/2020	10	Economic loss due to inability to recover pumping costs
3/5/2020	15	Economic loss due to inability to recover pumping costs
3/6/2020	3	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/6/2020	4	Economic loss due to inability to economically generate
3/6/2020	6	Economic loss due to inability to recover pumping costs
3/6/2020	7	Economic loss due to inability to recover pumping costs
3/6/2020	13	Economic loss due to inability to recover pumping costs
3/6/2020	14	Economic loss due to inability to recover pumping costs
3/6/2020	15	Economic loss due to inability to recover pumping costs
3/6/2020	17	Economic loss due to inability to recover pumping costs
3/6/2020	18	Economic loss due to inability to recover pumping costs
3/6/2020	19	Economic loss due to inability to recover pumping costs
3/6/2020	20	Economic loss due to inability to recover pumping costs
3/6/2020	22	Economic loss due to inability to recover pumping costs
3/6/2020	24	Economic loss due to inability to recover pumping costs
3/11/2020	3	Economic loss due to inability to recover pumping costs
3/14/2020	6	Economic loss due to inability to economically generate
3/14/2020	7	Economic loss due to inability to recover pumping costs
3/14/2020	8	Economic loss due to inability to recover pumping costs
3/14/2020	9	Economic loss due to inability to recover pumping costs
3/14/2020	10	Economic loss due to inability to recover pumping costs
3/14/2020	11	Economic loss due to inability to recover pumping costs
3/14/2020	20	Economic loss due to inability to recover pumping costs
3/14/2020	21	Economic loss due to inability to recover pumping costs
3/14/2020	24	Economic loss due to inability to recover pumping costs
3/15/2020	1	Economic loss due to inability to recover pumping costs
3/15/2020	2	Economic loss due to inability to recover pumping costs
3/15/2020	3	Economic loss due to inability to economically generate
3/15/2020	4	Economic loss due to inability to recover pumping costs
3/15/2020	5	Economic loss due to inability to recover pumping costs
3/15/2020	6	Economic loss due to inability to recover pumping costs
3/15/2020	7	Economic loss due to inability to recover pumping costs
3/15/2020	9	Economic loss due to inability to recover pumping costs
3/15/2020	10	Economic loss due to inability to recover pumping costs
3/15/2020	11	Economic loss due to inability to recover pumping costs
3/15/2020	13	Economic loss due to inability to recover pumping costs
3/15/2020	14	Economic loss due to inability to economically generate
3/15/2020	15	Economic loss due to inability to economically generate
3/15/2020	16	Economic loss due to inability to recover pumping costs
3/15/2020	17	Economic loss due to inability to recover pumping costs
3/15/2020	18	Economic loss due to inability to recover pumping costs
3/16/2020	5	Economic loss due to inability to recover pumping costs
3/17/2020	2	Economic loss due to inability to economically generate
3/17/2020	3	Economic loss due to inability to economically generate
3/17/2020	4	Economic loss due to inability to economically generate
3/17/2020	5	Economic loss due to inability to economically generate
3/17/2020	6	Economic loss due to inability to recover pumping costs
3/17/2020	7	Economic loss due to inability to recover pumping costs
3/17/2020	8	Economic loss due to inability to recover pumping costs
3/17/2020	9	Economic loss due to inability to recover pumping costs
3/17/2020	10	Economic loss due to inability to recover pumping costs
3/17/2020	11	Economic loss due to inability to recover pumping costs
3/17/2020	12	Economic loss due to inability to recover pumping costs
3/17/2020	13	Economic loss due to inability to recover pumping costs
3/17/2020	15	Economic loss due to inability to recover pumping costs
3/17/2020	17	Economic loss due to inability to recover pumping costs
3/17/2020	19	Economic loss due to inability to recover pumping costs
3/17/2020	20	Economic loss due to inability to recover pumping costs
3/17/2020	21	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/17/2020	22	Economic loss due to inability to recover pumping costs
3/17/2020	23	Economic loss due to inability to recover pumping costs
3/17/2020	24	Economic loss due to inability to recover pumping costs
3/18/2020	4	Economic loss due to inability to economically generate
3/18/2020	5	Economic loss due to inability to recover pumping costs
3/18/2020	9	Economic loss due to inability to recover pumping costs
3/18/2020	10	Economic loss due to inability to recover pumping costs
3/18/2020	11	Economic loss due to inability to recover pumping costs
3/18/2020	12	Economic loss due to inability to recover pumping costs
3/18/2020	13	Economic loss due to inability to recover pumping costs
3/18/2020	14	Economic loss due to inability to recover pumping costs
3/18/2020	15	Economic loss due to inability to recover pumping costs
3/18/2020	17	Economic loss due to inability to recover pumping costs
3/18/2020	20	Economic loss due to inability to recover pumping costs
3/18/2020	24	Economic loss due to inability to recover pumping costs
3/23/2020	2	Economic loss due to inability to economically generate
3/23/2020	4	Economic loss due to inability to economically generate
3/23/2020	5	Economic loss due to inability to recover pumping costs
3/23/2020	21	Economic loss due to inability to recover pumping costs
3/23/2020	22	Economic loss due to inability to recover pumping costs
3/23/2020	24	Economic loss due to inability to recover pumping costs
3/24/2020	23	Economic loss due to inability to recover pumping costs
3/31/2020	5	Economic loss due to inability to recover pumping costs
3/31/2020	6	Economic loss due to inability to recover pumping costs
3/31/2020	7	Economic loss due to inability to recover pumping costs
3/31/2020	8	Economic loss due to inability to recover pumping costs
3/31/2020	9	Economic loss due to inability to recover pumping costs
3/31/2020	10	Economic loss due to inability to recover pumping costs
3/31/2020	11	Economic loss due to inability to recover pumping costs
3/31/2020	12	Economic loss due to inability to recover pumping costs
3/31/2020	13	Economic loss due to inability to recover pumping costs
3/31/2020	14	Economic loss due to inability to recover pumping costs
3/31/2020	15	Economic loss due to inability to recover pumping costs
3/31/2020	16	Economic loss due to inability to recover pumping costs
3/31/2020	17	Economic loss due to inability to recover pumping costs
3/31/2020	18	Economic loss due to inability to recover pumping costs
3/31/2020	19	Economic loss due to inability to recover pumping costs
3/31/2020	20	Economic loss due to inability to recover pumping costs
3/31/2020	21	Economic loss due to inability to recover pumping costs
3/31/2020	22	Economic loss due to inability to recover pumping costs
3/31/2020	23	Economic loss due to inability to recover pumping costs
5/25/2020	1	Economic loss due to inability to economically generate
5/25/2020	2	Economic loss due to inability to economically generate
5/25/2020	6	Economic loss due to inability to economically generate
5/25/2020	7	Economic loss due to inability to economically generate
5/25/2020	8	Economic loss due to inability to recover pumping costs
5/25/2020	9	Economic loss due to inability to recover pumping costs
5/25/2020	10	Economic loss due to inability to recover pumping costs
5/25/2020	11	Economic loss due to inability to recover pumping costs
5/25/2020	12	Economic loss due to inability to recover pumping costs
5/25/2020	13	Economic loss due to inability to recover pumping costs
5/25/2020	14	Economic loss due to inability to recover pumping costs
5/25/2020	15	Economic loss due to inability to recover pumping costs
5/25/2020	16	Economic loss due to inability to recover pumping costs
5/25/2020	17	Economic loss due to inability to recover pumping costs
5/25/2020	18	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
5/25/2020	19	Economic loss due to inability to recover pumping costs
5/25/2020	20	Economic loss due to inability to recover pumping costs
5/25/2020	21	Economic loss due to inability to recover pumping costs
5/25/2020	22	Economic loss due to inability to recover pumping costs
5/26/2020	6	Economic loss due to inability to recover pumping costs
5/26/2020	7	Economic loss due to inability to recover pumping costs
5/26/2020	10	Economic loss due to inability to recover pumping costs
5/27/2020	7	Economic loss due to inability to recover pumping costs
5/27/2020	8	Economic loss due to inability to recover pumping costs
5/27/2020	9	Economic loss due to inability to recover pumping costs
5/27/2020	10	Economic loss due to inability to recover pumping costs
5/27/2020	11	Economic loss due to inability to recover pumping costs
5/27/2020	12	Economic loss due to inability to recover pumping costs
5/27/2020	13	Economic loss due to inability to recover pumping costs
5/27/2020	14	Economic loss due to inability to recover pumping costs
5/27/2020	15	Economic loss due to inability to recover pumping costs
5/27/2020	16	Economic loss due to inability to recover pumping costs
5/27/2020	17	Economic loss due to inability to recover pumping costs
5/27/2020	18	Economic loss due to inability to recover pumping costs
5/27/2020	19	Economic loss due to inability to recover pumping costs
5/27/2020	20	Economic loss due to inability to recover pumping costs
5/27/2020	21	Economic loss due to inability to recover pumping costs
5/27/2020	22	Economic loss due to inability to recover pumping costs
5/27/2020	23	Economic loss due to inability to recover pumping costs
5/27/2020	24	Economic loss due to inability to recover pumping costs
6/3/2020	7	Economic loss due to inability to recover pumping costs
6/3/2020	8	Economic loss due to inability to recover pumping costs
6/3/2020	9	Economic loss due to inability to recover pumping costs
6/3/2020	10	Economic loss due to inability to recover pumping costs
6/3/2020	11	Economic loss due to inability to recover pumping costs
6/3/2020	12	Economic loss due to inability to recover pumping costs
6/3/2020	13	Economic loss due to inability to recover pumping costs
6/3/2020	14	Economic loss due to inability to recover pumping costs
6/3/2020	15	Economic loss due to inability to recover pumping costs
6/3/2020	16	Economic loss due to inability to recover pumping costs
6/3/2020	17	Economic loss due to inability to recover pumping costs
6/3/2020	18	Economic loss due to inability to recover pumping costs
6/3/2020	19	Economic loss due to inability to recover pumping costs
6/3/2020	20	Economic loss due to inability to recover pumping costs
6/3/2020	21	Economic loss due to inability to recover pumping costs
6/3/2020	22	Economic loss due to inability to recover pumping costs
6/3/2020	23	Economic loss due to inability to recover pumping costs
6/4/2020	7	Economic loss due to inability to recover pumping costs
6/4/2020	8	Economic loss due to inability to recover pumping costs
6/4/2020	9	Economic loss due to inability to recover pumping costs
6/4/2020	10	Economic loss due to inability to recover pumping costs
6/4/2020	11	Economic loss due to inability to recover pumping costs
6/4/2020	12	Economic loss due to inability to recover pumping costs
6/4/2020	13	Economic loss due to inability to recover pumping costs
6/4/2020	14	Economic loss due to inability to recover pumping costs
6/4/2020	15	Economic loss due to inability to recover pumping costs
6/4/2020	16	Economic loss due to inability to recover pumping costs
6/4/2020	17	Economic loss due to inability to recover pumping costs
6/4/2020	18	Economic loss due to inability to recover pumping costs
6/4/2020	19	Economic loss due to inability to recover pumping costs
6/4/2020	20	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
6/4/2020	21	Economic loss due to inability to recover pumping costs
6/4/2020	22	Economic loss due to inability to recover pumping costs
6/4/2020	23	Economic loss due to inability to recover pumping costs
6/4/2020	24	Economic loss due to inability to recover pumping costs
6/9/2020	7	Economic loss due to inability to recover pumping costs
6/9/2020	8	Economic loss due to inability to recover pumping costs
6/9/2020	9	Economic loss due to inability to recover pumping costs
6/9/2020	10	Economic loss due to inability to recover pumping costs
6/9/2020	11	Economic loss due to inability to recover pumping costs
6/9/2020	12	Economic loss due to inability to recover pumping costs
6/9/2020	13	Economic loss due to inability to recover pumping costs
6/9/2020	14	Economic loss due to inability to recover pumping costs
6/9/2020	15	Economic loss due to inability to recover pumping costs
6/9/2020	16	Economic loss due to inability to recover pumping costs
6/9/2020	17	Economic loss due to inability to recover pumping costs
6/9/2020	18	Economic loss due to inability to recover pumping costs
6/9/2020	19	Economic loss due to inability to recover pumping costs
6/9/2020	20	Economic loss due to inability to recover pumping costs
6/9/2020	21	Economic loss due to inability to recover pumping costs
6/9/2020	22	Economic loss due to inability to recover pumping costs
6/9/2020	23	Economic loss due to inability to recover pumping costs
6/18/2020	7	Economic loss due to inability to recover pumping costs
6/18/2020	8	Economic loss due to inability to recover pumping costs
6/18/2020	9	Economic loss due to inability to recover pumping costs
6/18/2020	10	Economic loss due to inability to recover pumping costs
6/18/2020	11	Economic loss due to inability to recover pumping costs
6/18/2020	12	Economic loss due to inability to recover pumping costs
6/18/2020	13	Economic loss due to inability to recover pumping costs
6/18/2020	14	Economic loss due to inability to recover pumping costs
6/18/2020	15	Economic loss due to inability to recover pumping costs
6/18/2020	16	Economic loss due to inability to recover pumping costs
6/18/2020	17	Economic loss due to inability to recover pumping costs
6/18/2020	18	Economic loss due to inability to recover pumping costs
6/18/2020	21	Economic loss due to inability to recover pumping costs
6/18/2020	22	Economic loss due to inability to recover pumping costs
6/18/2020	23	Economic loss due to inability to recover pumping costs
6/19/2020	5	Economic loss due to inability to economically generate
6/19/2020	6	Economic loss due to inability to economically generate
6/19/2020	7	Economic loss due to inability to recover pumping costs
6/19/2020	8	Economic loss due to inability to recover pumping costs
6/19/2020	9	Economic loss due to inability to recover pumping costs
6/19/2020	10	Economic loss due to inability to recover pumping costs
6/19/2020	11	Economic loss due to inability to recover pumping costs
6/19/2020	12	Economic loss due to inability to recover pumping costs
6/19/2020	13	Economic loss due to inability to recover pumping costs
6/19/2020	15	Economic loss due to inability to recover pumping costs
6/19/2020	16	Economic loss due to inability to recover pumping costs
6/19/2020	20	Economic loss due to inability to recover pumping costs
6/19/2020	21	Economic loss due to inability to recover pumping costs
6/20/2020	1	Economic loss due to inability to recover pumping costs
6/20/2020	8	Economic loss due to inability to recover pumping costs
6/20/2020	9	Economic loss due to inability to recover pumping costs
6/20/2020	10	Economic loss due to inability to recover pumping costs
6/20/2020	11	Economic loss due to inability to recover pumping costs
6/20/2020	12	Economic loss due to inability to recover pumping costs
6/20/2020	16	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
6/20/2020	17	Economic loss due to inability to recover pumping costs
6/20/2020	18	Economic loss due to inability to recover pumping costs
6/20/2020	19	Economic loss due to inability to recover pumping costs
6/20/2020	20	Economic loss due to inability to recover pumping costs
6/20/2020	21	Economic loss due to inability to recover pumping costs
6/20/2020	22	Economic loss due to inability to recover pumping costs
6/21/2020	4	Economic loss due to inability to economically generate
6/21/2020	5	Economic loss due to inability to economically generate
6/21/2020	6	Economic loss due to inability to economically generate
6/21/2020	7	Economic loss due to inability to economically generate
6/21/2020	8	Economic loss due to inability to economically generate
6/21/2020	9	Economic loss due to inability to recover pumping costs
6/21/2020	10	Economic loss due to inability to recover pumping costs
6/21/2020	11	Economic loss due to inability to recover pumping costs
6/21/2020	12	Economic loss due to inability to recover pumping costs
6/21/2020	13	Economic loss due to inability to recover pumping costs
6/21/2020	14	Economic loss due to inability to recover pumping costs
6/21/2020	15	Economic loss due to inability to recover pumping costs
6/21/2020	16	Economic loss due to inability to recover pumping costs
6/21/2020	17	Economic loss due to inability to recover pumping costs
6/21/2020	18	Economic loss due to inability to recover pumping costs
6/21/2020	19	Economic loss due to inability to recover pumping costs
6/21/2020	20	Economic loss due to inability to recover pumping costs
6/22/2020	2	Economic loss due to inability to economically generate
6/22/2020	4	Economic loss due to inability to economically generate
6/22/2020	5	Economic loss due to inability to economically generate
6/22/2020	6	Economic loss due to inability to economically generate
6/26/2020	7	Economic loss due to inability to recover pumping costs
6/26/2020	8	Economic loss due to inability to recover pumping costs
6/26/2020	9	Economic loss due to inability to recover pumping costs
6/26/2020	10	Economic loss due to inability to recover pumping costs
6/26/2020	11	Economic loss due to inability to recover pumping costs
6/26/2020	12	Economic loss due to inability to recover pumping costs
6/26/2020	13	Economic loss due to inability to recover pumping costs
6/26/2020	14	Economic loss due to inability to recover pumping costs
6/26/2020	15	Economic loss due to inability to recover pumping costs
6/26/2020	16	Economic loss due to inability to recover pumping costs
6/26/2020	17	Economic loss due to inability to recover pumping costs
6/26/2020	18	Economic loss due to inability to recover pumping costs
6/26/2020	19	Economic loss due to inability to recover pumping costs
6/26/2020	20	Economic loss due to inability to recover pumping costs
6/26/2020	21	Economic loss due to inability to recover pumping costs
6/26/2020	22	Economic loss due to inability to recover pumping costs
6/26/2020	23	Economic loss due to inability to recover pumping costs
6/26/2020	24	Economic loss due to inability to recover pumping costs
6/28/2020	8	Economic loss due to inability to economically generate
6/28/2020	9	Economic loss due to inability to economically generate
6/28/2020	10	Economic loss due to inability to economically generate
6/28/2020	11	Economic loss due to inability to recover pumping costs
6/28/2020	12	Economic loss due to inability to recover pumping costs
6/28/2020	13	Economic loss due to inability to recover pumping costs
6/28/2020	14	Economic loss due to inability to recover pumping costs
6/28/2020	15	Economic loss due to inability to recover pumping costs
6/28/2020	16	Economic loss due to inability to recover pumping costs
6/28/2020	17	Economic loss due to inability to recover pumping costs
6/28/2020	18	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
6/28/2020	19	Economic loss due to inability to recover pumping costs
6/28/2020	20	Economic loss due to inability to recover pumping costs
6/28/2020	21	Economic loss due to inability to recover pumping costs
6/29/2020	5	Economic loss due to inability to economically generate
6/29/2020	6	Economic loss due to inability to economically generate
6/29/2020	7	Economic loss due to inability to recover pumping costs
6/29/2020	8	Economic loss due to inability to recover pumping costs
6/29/2020	9	Economic loss due to inability to recover pumping costs
6/29/2020	10	Economic loss due to inability to recover pumping costs
6/29/2020	11	Economic loss due to inability to recover pumping costs
6/29/2020	12	Economic loss due to inability to recover pumping costs
6/29/2020	13	Economic loss due to inability to recover pumping costs
6/29/2020	14	Economic loss due to inability to recover pumping costs
6/29/2020	15	Economic loss due to inability to recover pumping costs
6/29/2020	16	Economic loss due to inability to recover pumping costs
6/29/2020	17	Economic loss due to inability to recover pumping costs
6/29/2020	18	Economic loss due to inability to recover pumping costs
6/29/2020	19	Economic loss due to inability to recover pumping costs
6/29/2020	20	Economic loss due to inability to recover pumping costs
6/29/2020	21	Economic loss due to inability to recover pumping costs
6/29/2020	22	Economic loss due to inability to recover pumping costs
6/30/2020	7	Economic loss due to inability to recover pumping costs
6/30/2020	8	Economic loss due to inability to recover pumping costs
6/30/2020	9	Economic loss due to inability to recover pumping costs
6/30/2020	10	Economic loss due to inability to recover pumping costs
6/30/2020	11	Economic loss due to inability to recover pumping costs
6/30/2020	14	Economic loss due to inability to recover pumping costs
6/30/2020	15	Economic loss due to inability to recover pumping costs
6/30/2020	16	Economic loss due to inability to recover pumping costs
6/30/2020	17	Economic loss due to inability to recover pumping costs
6/30/2020	18	Economic loss due to inability to recover pumping costs
6/30/2020	19	Economic loss due to inability to recover pumping costs
6/30/2020	20	Economic loss due to inability to recover pumping costs
6/30/2020	21	Economic loss due to inability to recover pumping costs
6/30/2020	22	Economic loss due to inability to recover pumping costs
6/30/2020	24	Economic loss due to inability to recover pumping costs
7/1/2020	10	Economic loss due to inability to recover pumping costs
7/1/2020	11	Economic loss due to inability to recover pumping costs
7/1/2020	12	Economic loss due to inability to recover pumping costs
7/1/2020	13	Economic loss due to inability to recover pumping costs
7/1/2020	14	Economic loss due to inability to recover pumping costs
7/1/2020	15	Economic loss due to inability to recover pumping costs
7/1/2020	16	Economic loss due to inability to recover pumping costs
7/1/2020	17	Economic loss due to inability to recover pumping costs
7/3/2020	7	Economic loss due to inability to recover pumping costs
7/3/2020	8	Economic loss due to inability to recover pumping costs
7/3/2020	9	Economic loss due to inability to recover pumping costs
7/3/2020	10	Economic loss due to inability to recover pumping costs
7/3/2020	11	Economic loss due to inability to recover pumping costs
7/3/2020	12	Economic loss due to inability to recover pumping costs
7/3/2020	13	Economic loss due to inability to recover pumping costs
7/3/2020	14	Economic loss due to inability to recover pumping costs
7/3/2020	15	Economic loss due to inability to recover pumping costs
7/3/2020	16	Economic loss due to inability to recover pumping costs
7/3/2020	17	Economic loss due to inability to recover pumping costs
7/3/2020	18	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/3/2020	19	Economic loss due to inability to recover pumping costs
7/3/2020	20	Economic loss due to inability to recover pumping costs
7/3/2020	21	Economic loss due to inability to recover pumping costs
7/3/2020	22	Economic loss due to inability to recover pumping costs
7/3/2020	23	Economic loss due to inability to recover pumping costs
7/3/2020	24	Economic loss due to inability to recover pumping costs
7/4/2020	8	Economic loss due to inability to recover pumping costs
7/4/2020	9	Economic loss due to inability to recover pumping costs
7/4/2020	10	Economic loss due to inability to recover pumping costs
7/4/2020	11	Economic loss due to inability to recover pumping costs
7/4/2020	12	Economic loss due to inability to recover pumping costs
7/4/2020	13	Economic loss due to inability to recover pumping costs
7/4/2020	14	Economic loss due to inability to recover pumping costs
7/4/2020	15	Economic loss due to inability to recover pumping costs
7/4/2020	16	Economic loss due to inability to recover pumping costs
7/4/2020	17	Economic loss due to inability to recover pumping costs
7/4/2020	18	Economic loss due to inability to recover pumping costs
7/4/2020	19	Economic loss due to inability to recover pumping costs
7/4/2020	20	Economic loss due to inability to recover pumping costs
7/4/2020	21	Economic loss due to inability to recover pumping costs
7/4/2020	22	Economic loss due to inability to recover pumping costs
7/4/2020	23	Economic loss due to inability to recover pumping costs
7/5/2020	8	Economic loss due to inability to recover pumping costs
7/5/2020	9	Economic loss due to inability to recover pumping costs
7/5/2020	10	Economic loss due to inability to recover pumping costs
7/5/2020	13	Economic loss due to inability to recover pumping costs
7/5/2020	14	Economic loss due to inability to recover pumping costs
7/5/2020	15	Economic loss due to inability to recover pumping costs
7/5/2020	16	Economic loss due to inability to recover pumping costs
7/5/2020	17	Economic loss due to inability to recover pumping costs
7/5/2020	18	Economic loss due to inability to recover pumping costs
7/5/2020	19	Economic loss due to inability to recover pumping costs
7/5/2020	20	Economic loss due to inability to recover pumping costs
7/7/2020	2	Economic loss due to inability to economically generate
7/7/2020	3	Economic loss due to inability to economically generate
7/7/2020	4	Economic loss due to inability to economically generate
7/7/2020	6	Economic loss due to inability to economically generate
7/7/2020	7	Economic loss due to inability to recover pumping costs
7/7/2020	8	Economic loss due to inability to recover pumping costs
7/7/2020	9	Economic loss due to inability to recover pumping costs
7/7/2020	10	Economic loss due to inability to recover pumping costs
7/7/2020	11	Economic loss due to inability to recover pumping costs
7/7/2020	12	Economic loss due to inability to recover pumping costs
7/7/2020	13	Economic loss due to inability to recover pumping costs
7/7/2020	14	Economic loss due to inability to recover pumping costs
7/7/2020	15	Economic loss due to inability to recover pumping costs
7/7/2020	16	Economic loss due to inability to recover pumping costs
7/7/2020	17	Economic loss due to inability to recover pumping costs
7/9/2020	5	Economic loss due to inability to economically generate
7/9/2020	6	Economic loss due to inability to economically generate
7/13/2020	7	Economic loss due to inability to recover pumping costs
7/13/2020	8	Economic loss due to inability to recover pumping costs
7/13/2020	9	Economic loss due to inability to recover pumping costs
7/13/2020	10	Economic loss due to inability to recover pumping costs
7/13/2020	11	Economic loss due to inability to recover pumping costs
7/13/2020	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/13/2020	13	Economic loss due to inability to recover pumping costs
7/13/2020	14	Economic loss due to inability to recover pumping costs
7/13/2020	16	Economic loss due to inability to recover pumping costs
7/13/2020	17	Economic loss due to inability to recover pumping costs
7/13/2020	18	Economic loss due to inability to recover pumping costs
7/13/2020	19	Economic loss due to inability to recover pumping costs
7/13/2020	20	Economic loss due to inability to recover pumping costs
7/13/2020	21	Economic loss due to inability to recover pumping costs
7/13/2020	22	Economic loss due to inability to recover pumping costs
7/13/2020	23	Economic loss due to inability to recover pumping costs
7/15/2020	7	Economic loss due to inability to recover pumping costs
7/15/2020	8	Economic loss due to inability to recover pumping costs
7/15/2020	9	Economic loss due to inability to recover pumping costs
7/15/2020	10	Economic loss due to inability to recover pumping costs
7/15/2020	11	Economic loss due to inability to recover pumping costs
7/15/2020	12	Economic loss due to inability to recover pumping costs
7/15/2020	13	Economic loss due to inability to recover pumping costs
7/15/2020	14	Economic loss due to inability to recover pumping costs
7/15/2020	22	Economic loss due to inability to recover pumping costs
7/15/2020	23	Economic loss due to inability to recover pumping costs
7/17/2020	7	Economic loss due to inability to recover pumping costs
7/17/2020	8	Economic loss due to inability to recover pumping costs
7/17/2020	9	Economic loss due to inability to recover pumping costs
7/17/2020	10	Economic loss due to inability to recover pumping costs
7/17/2020	11	Economic loss due to inability to recover pumping costs
7/17/2020	12	Economic loss due to inability to recover pumping costs
7/17/2020	13	Economic loss due to inability to recover pumping costs
7/17/2020	14	Economic loss due to inability to recover pumping costs
7/17/2020	15	Economic loss due to inability to recover pumping costs
7/17/2020	16	Economic loss due to inability to recover pumping costs
7/17/2020	17	Economic loss due to inability to recover pumping costs
7/17/2020	18	Economic loss due to inability to recover pumping costs
7/17/2020	19	Economic loss due to inability to recover pumping costs
7/17/2020	20	Economic loss due to inability to recover pumping costs
7/17/2020	21	Economic loss due to inability to recover pumping costs
7/17/2020	22	Economic loss due to inability to recover pumping costs
7/17/2020	23	Economic loss due to inability to recover pumping costs
7/17/2020	24	Economic loss due to inability to recover pumping costs
7/18/2020	9	Economic loss due to inability to recover pumping costs
7/18/2020	10	Economic loss due to inability to recover pumping costs
7/18/2020	11	Economic loss due to inability to recover pumping costs
7/18/2020	12	Economic loss due to inability to recover pumping costs
7/18/2020	13	Economic loss due to inability to recover pumping costs
7/18/2020	14	Economic loss due to inability to recover pumping costs
7/18/2020	15	Economic loss due to inability to recover pumping costs
7/18/2020	16	Economic loss due to inability to recover pumping costs
7/18/2020	17	Economic loss due to inability to recover pumping costs
7/18/2020	18	Economic loss due to inability to recover pumping costs
7/18/2020	19	Economic loss due to inability to recover pumping costs
7/18/2020	20	Economic loss due to inability to recover pumping costs
7/18/2020	21	Economic loss due to inability to recover pumping costs
7/21/2020	7	Economic loss due to inability to recover pumping costs
7/21/2020	8	Economic loss due to inability to recover pumping costs
7/21/2020	9	Economic loss due to inability to recover pumping costs
7/22/2020	7	Economic loss due to inability to recover pumping costs
7/22/2020	8	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/22/2020	9	Economic loss due to inability to recover pumping costs
7/22/2020	10	Economic loss due to inability to recover pumping costs
7/22/2020	11	Economic loss due to inability to recover pumping costs
7/22/2020	12	Economic loss due to inability to recover pumping costs
7/23/2020	7	Economic loss due to inability to recover pumping costs
7/24/2020	7	Economic loss due to inability to recover pumping costs
7/24/2020	8	Economic loss due to inability to recover pumping costs
7/24/2020	9	Economic loss due to inability to recover pumping costs
7/24/2020	10	Economic loss due to inability to recover pumping costs
7/24/2020	11	Economic loss due to inability to recover pumping costs
7/25/2020	15	Economic loss due to inability to recover pumping costs
7/25/2020	16	Economic loss due to inability to recover pumping costs
7/25/2020	24	Economic loss due to inability to recover pumping costs
7/26/2020	9	Economic loss due to inability to economically generate
7/26/2020	10	Economic loss due to inability to recover pumping costs
7/26/2020	11	Economic loss due to inability to recover pumping costs
7/27/2020	7	Economic loss due to inability to recover pumping costs
7/27/2020	8	Economic loss due to inability to recover pumping costs
7/27/2020	9	Economic loss due to inability to recover pumping costs
7/27/2020	10	Economic loss due to inability to recover pumping costs
7/27/2020	11	Economic loss due to inability to recover pumping costs
7/27/2020	12	Economic loss due to inability to recover pumping costs
7/27/2020	13	Economic loss due to inability to recover pumping costs
7/28/2020	7	Economic loss due to inability to recover pumping costs
7/28/2020	11	Economic loss due to inability to recover pumping costs
7/28/2020	12	Economic loss due to inability to recover pumping costs
7/28/2020	13	Economic loss due to inability to recover pumping costs
7/28/2020	15	Economic loss due to inability to recover pumping costs
7/28/2020	16	Economic loss due to inability to recover pumping costs
7/28/2020	17	Economic loss due to inability to recover pumping costs
7/28/2020	18	Economic loss due to inability to recover pumping costs
7/29/2020	6	Economic loss due to inability to economically generate
7/29/2020	7	Economic loss due to inability to recover pumping costs
7/29/2020	8	Economic loss due to inability to recover pumping costs
7/29/2020	9	Economic loss due to inability to recover pumping costs
7/29/2020	10	Economic loss due to inability to recover pumping costs
7/29/2020	11	Economic loss due to inability to recover pumping costs
7/29/2020	12	Economic loss due to inability to recover pumping costs
7/29/2020	13	Economic loss due to inability to recover pumping costs
7/29/2020	14	Economic loss due to inability to recover pumping costs
7/29/2020	15	Economic loss due to inability to recover pumping costs
7/29/2020	16	Economic loss due to inability to recover pumping costs
7/29/2020	17	Economic loss due to inability to recover pumping costs
7/29/2020	18	Economic loss due to inability to recover pumping costs
7/29/2020	19	Economic loss due to inability to recover pumping costs
7/29/2020	20	Economic loss due to inability to recover pumping costs
7/29/2020	21	Economic loss due to inability to recover pumping costs
7/29/2020	22	Economic loss due to inability to recover pumping costs
7/29/2020	23	Economic loss due to inability to recover pumping costs
7/30/2020	7	Economic loss due to inability to recover pumping costs
7/30/2020	8	Economic loss due to inability to recover pumping costs
7/30/2020	9	Economic loss due to inability to recover pumping costs
7/30/2020	10	Economic loss due to inability to recover pumping costs
7/30/2020	11	Economic loss due to inability to recover pumping costs
7/30/2020	24	Economic loss due to inability to recover pumping costs
7/31/2020	7	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/31/2020	8	Economic loss due to inability to recover pumping costs
7/31/2020	9	Economic loss due to inability to recover pumping costs
7/31/2020	10	Economic loss due to inability to recover pumping costs
7/31/2020	11	Economic loss due to inability to recover pumping costs
7/31/2020	12	Economic loss due to inability to recover pumping costs
7/31/2020	13	Economic loss due to inability to recover pumping costs
7/31/2020	14	Economic loss due to inability to recover pumping costs
7/31/2020	15	Economic loss due to inability to recover pumping costs
7/31/2020	16	Economic loss due to inability to recover pumping costs
7/31/2020	17	Economic loss due to inability to recover pumping costs
7/31/2020	18	Economic loss due to inability to recover pumping costs
7/31/2020	19	Economic loss due to inability to recover pumping costs
7/31/2020	20	Economic loss due to inability to recover pumping costs
7/31/2020	21	Economic loss due to inability to recover pumping costs
7/31/2020	24	Economic loss due to inability to recover pumping costs
8/1/2020	8	Economic loss due to inability to recover pumping costs
8/1/2020	9	Economic loss due to inability to recover pumping costs
8/1/2020	10	Economic loss due to inability to recover pumping costs
8/1/2020	11	Economic loss due to inability to recover pumping costs
8/1/2020	12	Economic loss due to inability to recover pumping costs
8/1/2020	13	Economic loss due to inability to recover pumping costs
8/1/2020	14	Economic loss due to inability to recover pumping costs
8/1/2020	15	Economic loss due to inability to recover pumping costs
8/1/2020	16	Economic loss due to inability to recover pumping costs
8/1/2020	17	Economic loss due to inability to recover pumping costs
8/1/2020	19	Economic loss due to inability to recover pumping costs
8/1/2020	20	Economic loss due to inability to recover pumping costs
8/1/2020	21	Economic loss due to inability to recover pumping costs
8/1/2020	22	Economic loss due to inability to recover pumping costs
8/1/2020	23	Economic loss due to inability to recover pumping costs
8/1/2020	24	Economic loss due to inability to recover pumping costs
8/4/2020	18	Economic loss due to inability to recover pumping costs
8/4/2020	19	Economic loss due to inability to recover pumping costs
8/4/2020	23	Economic loss due to inability to recover pumping costs
8/6/2020	7	Economic loss due to inability to recover pumping costs
8/6/2020	8	Economic loss due to inability to recover pumping costs
8/6/2020	9	Economic loss due to inability to recover pumping costs
8/6/2020	10	Economic loss due to inability to recover pumping costs
8/6/2020	11	Economic loss due to inability to recover pumping costs
8/6/2020	12	Economic loss due to inability to recover pumping costs
8/6/2020	13	Economic loss due to inability to recover pumping costs
8/6/2020	14	Economic loss due to inability to recover pumping costs
8/6/2020	15	Economic loss due to inability to recover pumping costs
8/6/2020	16	Economic loss due to inability to recover pumping costs
8/6/2020	17	Economic loss due to inability to recover pumping costs
8/6/2020	18	Economic loss due to inability to recover pumping costs
8/6/2020	19	Economic loss due to inability to recover pumping costs
8/6/2020	20	Economic loss due to inability to recover pumping costs
8/6/2020	21	Economic loss due to inability to recover pumping costs
8/6/2020	22	Economic loss due to inability to recover pumping costs
8/7/2020	7	Economic loss due to inability to recover pumping costs
8/7/2020	8	Economic loss due to inability to recover pumping costs
8/7/2020	9	Economic loss due to inability to recover pumping costs
8/7/2020	10	Economic loss due to inability to recover pumping costs
8/7/2020	11	Economic loss due to inability to recover pumping costs
8/7/2020	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
8/7/2020	13	Economic loss due to inability to recover pumping costs
8/7/2020	14	Economic loss due to inability to recover pumping costs
8/7/2020	15	Economic loss due to inability to recover pumping costs
8/7/2020	16	Economic loss due to inability to recover pumping costs
8/7/2020	17	Economic loss due to inability to recover pumping costs
8/7/2020	18	Economic loss due to inability to recover pumping costs
8/7/2020	19	Economic loss due to inability to recover pumping costs
8/7/2020	20	Economic loss due to inability to recover pumping costs
8/7/2020	21	Economic loss due to inability to recover pumping costs
8/8/2020	9	Economic loss due to inability to recover pumping costs
8/8/2020	10	Economic loss due to inability to recover pumping costs
8/8/2020	11	Economic loss due to inability to recover pumping costs
8/8/2020	12	Economic loss due to inability to recover pumping costs
8/8/2020	13	Economic loss due to inability to recover pumping costs
8/8/2020	14	Economic loss due to inability to recover pumping costs
8/8/2020	15	Economic loss due to inability to recover pumping costs
8/8/2020	16	Economic loss due to inability to recover pumping costs
8/8/2020	17	Economic loss due to inability to recover pumping costs
8/8/2020	18	Economic loss due to inability to recover pumping costs
8/9/2020	8	Economic loss due to inability to economically generate
8/9/2020	9	Economic loss due to inability to economically generate
8/9/2020	10	Economic loss due to inability to recover pumping costs
8/9/2020	23	Economic loss due to inability to economically generate
8/9/2020	24	Economic loss due to inability to economically generate
8/21/2020	7	Economic loss due to inability to recover pumping costs
8/21/2020	8	Economic loss due to inability to recover pumping costs
8/21/2020	9	Economic loss due to inability to recover pumping costs
8/21/2020	10	Economic loss due to inability to recover pumping costs
8/21/2020	11	Economic loss due to inability to recover pumping costs
8/26/2020	1	Economic loss due to inability to recover pumping costs
8/26/2020	3	Economic loss due to inability to recover pumping costs
8/27/2020	7	Economic loss due to inability to recover pumping costs
8/27/2020	8	Economic loss due to inability to recover pumping costs
8/27/2020	9	Economic loss due to inability to recover pumping costs
8/27/2020	10	Economic loss due to inability to recover pumping costs
8/27/2020	11	Economic loss due to inability to recover pumping costs
8/27/2020	12	Economic loss due to inability to recover pumping costs
8/27/2020	13	Economic loss due to inability to recover pumping costs
8/27/2020	14	Economic loss due to inability to recover pumping costs
9/1/2020	6	Economic loss due to inability to recover pumping costs
9/1/2020	7	Economic loss due to inability to recover pumping costs
9/1/2020	8	Economic loss due to inability to recover pumping costs
9/1/2020	9	Economic loss due to inability to recover pumping costs
9/2/2020	7	Economic loss due to inability to recover pumping costs
9/2/2020	15	Economic loss due to inability to recover pumping costs
9/4/2020	8	Economic loss due to inability to recover pumping costs
9/4/2020	9	Economic loss due to inability to recover pumping costs
9/4/2020	10	Economic loss due to inability to recover pumping costs
9/4/2020	11	Economic loss due to inability to recover pumping costs
9/4/2020	12	Economic loss due to inability to recover pumping costs
9/4/2020	13	Economic loss due to inability to recover pumping costs
9/4/2020	14	Economic loss due to inability to recover pumping costs
9/4/2020	15	Economic loss due to inability to recover pumping costs
9/4/2020	16	Economic loss due to inability to recover pumping costs
9/4/2020	17	Economic loss due to inability to recover pumping costs
9/4/2020	18	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
9/4/2020	19	Economic loss due to inability to recover pumping costs
9/4/2020	20	Economic loss due to inability to recover pumping costs
9/4/2020	21	Economic loss due to inability to recover pumping costs
9/4/2020	22	Economic loss due to inability to recover pumping costs
9/4/2020	23	Economic loss due to inability to recover pumping costs
9/7/2020	12	Economic loss due to inability to economically generate
9/7/2020	13	Economic loss due to inability to economically generate
9/7/2020	14	Economic loss due to inability to recover pumping costs
9/8/2020	5	Economic loss due to inability to economically generate
9/9/2020	4	Economic loss due to inability to economically generate
9/9/2020	5	Economic loss due to inability to recover pumping costs
9/9/2020	6	Economic loss due to inability to recover pumping costs
9/11/2020	5	Economic loss due to inability to recover pumping costs
9/11/2020	6	Economic loss due to inability to recover pumping costs
9/11/2020	23	Economic loss due to inability to recover pumping costs
9/11/2020	24	Economic loss due to inability to recover pumping costs
9/23/2020	2	Economic loss due to inability to economically generate
9/23/2020	3	Economic loss due to inability to economically generate
9/23/2020	4	Economic loss due to inability to economically generate
9/23/2020	5	Economic loss due to inability to economically generate
9/23/2020	6	Economic loss due to inability to recover pumping costs
9/23/2020	7	Economic loss due to inability to recover pumping costs
9/23/2020	8	Economic loss due to inability to recover pumping costs
9/23/2020	9	Economic loss due to inability to recover pumping costs
9/23/2020	10	Economic loss due to inability to recover pumping costs
9/23/2020	11	Economic loss due to inability to recover pumping costs
9/23/2020	12	Economic loss due to inability to recover pumping costs
9/23/2020	13	Economic loss due to inability to recover pumping costs
9/23/2020	14	Economic loss due to inability to recover pumping costs
9/23/2020	15	Economic loss due to inability to recover pumping costs
9/23/2020	16	Economic loss due to inability to recover pumping costs
9/23/2020	17	Economic loss due to inability to recover pumping costs
9/23/2020	18	Economic loss due to inability to recover pumping costs
9/23/2020	19	Economic loss due to inability to recover pumping costs
9/23/2020	20	Economic loss due to inability to recover pumping costs
9/23/2020	21	Economic loss due to inability to recover pumping costs
9/23/2020	22	Economic loss due to inability to recover pumping costs
9/23/2020	23	Economic loss due to inability to recover pumping costs
9/23/2020	24	Economic loss due to inability to recover pumping costs
9/24/2020	1	Economic loss due to inability to recover pumping costs
9/24/2020	3	Economic loss due to inability to economically generate
9/24/2020	4	Economic loss due to inability to economically generate
9/24/2020	5	Economic loss due to inability to recover pumping costs
9/24/2020	6	Economic loss due to inability to recover pumping costs
9/24/2020	7	Economic loss due to inability to recover pumping costs
9/24/2020	8	Economic loss due to inability to recover pumping costs
9/24/2020	9	Economic loss due to inability to recover pumping costs
9/24/2020	10	Economic loss due to inability to recover pumping costs
9/24/2020	11	Economic loss due to inability to recover pumping costs
9/25/2020	5	Economic loss due to inability to recover pumping costs
9/25/2020	14	Economic loss due to inability to recover pumping costs
9/25/2020	15	Economic loss due to inability to recover pumping costs
9/25/2020	16	Economic loss due to inability to recover pumping costs
9/25/2020	17	Economic loss due to inability to recover pumping costs
9/25/2020	20	Economic loss due to inability to recover pumping costs
9/25/2020	21	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
9/25/2020	22	Economic loss due to inability to recover pumping costs
9/25/2020	23	Economic loss due to inability to recover pumping costs
9/25/2020	24	Economic loss due to inability to recover pumping costs
9/27/2020	10	Economic loss due to inability to economically generate
9/27/2020	11	Economic loss due to inability to recover pumping costs
9/27/2020	12	Economic loss due to inability to recover pumping costs
9/27/2020	13	Economic loss due to inability to recover pumping costs
9/27/2020	14	Economic loss due to inability to recover pumping costs
9/27/2020	15	Economic loss due to inability to recover pumping costs
9/27/2020	16	Economic loss due to inability to recover pumping costs
9/27/2020	17	Economic loss due to inability to recover pumping costs
9/27/2020	18	Economic loss due to inability to recover pumping costs
9/27/2020	19	Economic loss due to inability to recover pumping costs
9/27/2020	20	Economic loss due to inability to recover pumping costs
9/27/2020	22	Economic loss due to inability to recover pumping costs
9/27/2020	23	Economic loss due to inability to recover pumping costs
9/28/2020	1	Economic loss due to inability to recover pumping costs
9/28/2020	4	Economic loss due to inability to economically generate
9/28/2020	24	Economic loss due to inability to recover pumping costs
11/12/2020	1	Economic loss due to inability to economically generate
11/12/2020	2	Economic loss due to inability to economically generate
11/12/2020	3	Economic loss due to inability to economically generate
11/12/2020	4	Economic loss due to inability to economically generate
11/12/2020	5	Economic loss due to inability to economically generate
11/12/2020	6	Economic loss due to inability to recover pumping costs
11/12/2020	7	Economic loss due to inability to recover pumping costs
11/12/2020	8	Economic loss due to inability to recover pumping costs
11/12/2020	9	Economic loss due to inability to recover pumping costs
11/12/2020	10	Economic loss due to inability to recover pumping costs
11/12/2020	11	Economic loss due to inability to recover pumping costs
11/12/2020	12	Economic loss due to inability to recover pumping costs
11/12/2020	13	Economic loss due to inability to recover pumping costs
11/12/2020	14	Economic loss due to inability to recover pumping costs
11/12/2020	15	Economic loss due to inability to recover pumping costs
11/12/2020	16	Economic loss due to inability to recover pumping costs
11/12/2020	17	Economic loss due to inability to recover pumping costs
11/12/2020	18	Economic loss due to inability to recover pumping costs
11/12/2020	19	Economic loss due to inability to recover pumping costs
11/12/2020	20	Economic loss due to inability to recover pumping costs
11/12/2020	21	Economic loss due to inability to recover pumping costs
11/12/2020	22	Economic loss due to inability to recover pumping costs
11/12/2020	23	Economic loss due to inability to recover pumping costs
11/13/2020	2	Economic loss due to inability to recover pumping costs
11/13/2020	5	Economic loss due to inability to recover pumping costs
11/13/2020	6	Economic loss due to inability to recover pumping costs
11/13/2020	7	Economic loss due to inability to recover pumping costs
11/13/2020	8	Economic loss due to inability to recover pumping costs
11/13/2020	9	Economic loss due to inability to recover pumping costs
11/13/2020	12	Economic loss due to inability to recover pumping costs
11/13/2020	13	Economic loss due to inability to recover pumping costs
11/13/2020	14	Economic loss due to inability to recover pumping costs
11/13/2020	15	Economic loss due to inability to recover pumping costs
11/13/2020	16	Economic loss due to inability to recover pumping costs
11/13/2020	17	Economic loss due to inability to recover pumping costs
11/13/2020	18	Economic loss due to inability to recover pumping costs
11/13/2020	19	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
11/13/2020	20	Economic loss due to inability to recover pumping costs
11/13/2020	21	Economic loss due to inability to recover pumping costs
11/13/2020	22	Economic loss due to inability to recover pumping costs
11/13/2020	23	Economic loss due to inability to recover pumping costs
11/17/2020	5	Economic loss due to inability to economically generate
11/17/2020	6	Economic loss due to inability to economically generate
11/17/2020	7	Economic loss due to inability to recover pumping costs
11/17/2020	8	Economic loss due to inability to recover pumping costs
11/17/2020	9	Economic loss due to inability to recover pumping costs
11/17/2020	10	Economic loss due to inability to recover pumping costs
11/17/2020	11	Economic loss due to inability to recover pumping costs
11/17/2020	12	Economic loss due to inability to recover pumping costs
11/17/2020	13	Economic loss due to inability to recover pumping costs
11/17/2020	14	Economic loss due to inability to recover pumping costs
11/17/2020	15	Economic loss due to inability to recover pumping costs
11/17/2020	16	Economic loss due to inability to recover pumping costs
11/17/2020	17	Economic loss due to inability to recover pumping costs
11/17/2020	18	Economic loss due to inability to recover pumping costs
11/17/2020	19	Economic loss due to inability to recover pumping costs
11/21/2020	1	Economic loss due to inability to economically generate
11/21/2020	2	Economic loss due to inability to economically generate
11/21/2020	3	Economic loss due to inability to economically generate
11/21/2020	4	Economic loss due to inability to economically generate
11/21/2020	5	Economic loss due to inability to economically generate
11/21/2020	6	Economic loss due to inability to economically generate
11/21/2020	7	Economic loss due to inability to economically generate
11/21/2020	8	Economic loss due to inability to recover pumping costs
11/21/2020	9	Economic loss due to inability to recover pumping costs
11/21/2020	10	Economic loss due to inability to economically generate
11/21/2020	11	Economic loss due to inability to recover pumping costs
11/21/2020	12	Economic loss due to inability to economically generate
11/21/2020	13	Economic loss due to inability to economically generate
11/21/2020	14	Economic loss due to inability to economically generate
11/21/2020	15	Economic loss due to inability to economically generate
11/21/2020	16	Economic loss due to inability to recover pumping costs
11/21/2020	17	Economic loss due to inability to recover pumping costs
11/21/2020	18	Economic loss due to inability to recover pumping costs
11/21/2020	19	Economic loss due to inability to recover pumping costs
11/21/2020	20	Economic loss due to inability to recover pumping costs
11/21/2020	21	Economic loss due to inability to recover pumping costs
11/21/2020	22	Economic loss due to inability to recover pumping costs
11/23/2020	3	Economic loss due to inability to economically generate
11/23/2020	4	Economic loss due to inability to economically generate
11/23/2020	5	Economic loss due to inability to economically generate
11/23/2020	6	Economic loss due to inability to economically generate
11/23/2020	7	Economic loss due to inability to recover pumping costs
11/23/2020	8	Economic loss due to inability to recover pumping costs
11/23/2020	9	Economic loss due to inability to recover pumping costs
11/23/2020	10	Economic loss due to inability to recover pumping costs
11/23/2020	11	Economic loss due to inability to recover pumping costs
11/23/2020	12	Economic loss due to inability to recover pumping costs
11/23/2020	13	Economic loss due to inability to recover pumping costs
11/23/2020	14	Economic loss due to inability to recover pumping costs
11/23/2020	15	Economic loss due to inability to recover pumping costs
11/23/2020	16	Economic loss due to inability to recover pumping costs
11/23/2020	17	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
11/23/2020	18	Economic loss due to inability to recover pumping costs
11/23/2020	20	Economic loss due to inability to recover pumping costs
11/23/2020	21	Economic loss due to inability to recover pumping costs
11/24/2020	7	Economic loss due to inability to recover pumping costs
11/24/2020	8	Economic loss due to inability to recover pumping costs
11/24/2020	9	Economic loss due to inability to recover pumping costs
11/24/2020	10	Economic loss due to inability to recover pumping costs
11/24/2020	11	Economic loss due to inability to recover pumping costs
11/24/2020	12	Economic loss due to inability to recover pumping costs
11/24/2020	13	Economic loss due to inability to recover pumping costs
11/24/2020	14	Economic loss due to inability to recover pumping costs
11/24/2020	15	Economic loss due to inability to recover pumping costs
11/24/2020	17	Economic loss due to inability to recover pumping costs
11/24/2020	18	Economic loss due to inability to recover pumping costs
11/24/2020	19	Economic loss due to inability to recover pumping costs
11/24/2020	22	Economic loss due to inability to recover pumping costs
11/25/2020	4	Economic loss due to inability to economically generate
11/25/2020	5	Economic loss due to inability to economically generate
11/25/2020	6	Economic loss due to inability to economically generate
11/25/2020	7	Economic loss due to inability to economically generate
11/25/2020	8	Economic loss due to inability to recover pumping costs
11/25/2020	9	Economic loss due to inability to recover pumping costs
11/25/2020	10	Economic loss due to inability to recover pumping costs
11/25/2020	11	Economic loss due to inability to recover pumping costs
11/25/2020	12	Economic loss due to inability to recover pumping costs
11/25/2020	13	Economic loss due to inability to recover pumping costs
11/25/2020	14	Economic loss due to inability to recover pumping costs
11/25/2020	15	Economic loss due to inability to recover pumping costs
11/25/2020	16	Economic loss due to inability to recover pumping costs
11/25/2020	17	Economic loss due to inability to recover pumping costs
11/25/2020	18	Economic loss due to inability to recover pumping costs
11/25/2020	19	Economic loss due to inability to recover pumping costs
11/25/2020	20	Economic loss due to inability to recover pumping costs
11/25/2020	21	Economic loss due to inability to recover pumping costs
11/25/2020	22	Economic loss due to inability to recover pumping costs
11/25/2020	23	Economic loss due to inability to recover pumping costs
11/26/2020	5	Economic loss due to inability to economically generate
11/26/2020	6	Economic loss due to inability to economically generate
11/26/2020	7	Economic loss due to inability to recover pumping costs
11/26/2020	8	Economic loss due to inability to recover pumping costs
11/26/2020	9	Economic loss due to inability to recover pumping costs
11/26/2020	10	Economic loss due to inability to recover pumping costs
11/26/2020	11	Economic loss due to inability to recover pumping costs
11/26/2020	12	Economic loss due to inability to recover pumping costs
11/26/2020	13	Economic loss due to inability to recover pumping costs
11/26/2020	14	Economic loss due to inability to recover pumping costs
11/26/2020	15	Economic loss due to inability to recover pumping costs
11/26/2020	16	Economic loss due to inability to recover pumping costs
11/26/2020	17	Economic loss due to inability to recover pumping costs
11/26/2020	18	Economic loss due to inability to recover pumping costs
11/26/2020	19	Economic loss due to inability to recover pumping costs
11/26/2020	20	Economic loss due to inability to recover pumping costs
11/26/2020	21	Economic loss due to inability to recover pumping costs
12/4/2020	4	Economic loss due to inability to economically generate
12/4/2020	5	Economic loss due to inability to economically generate
12/4/2020	6	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/4/2020	7	Economic loss due to inability to economically generate
12/4/2020	8	Economic loss due to inability to recover pumping costs
12/4/2020	9	Economic loss due to inability to recover pumping costs
12/4/2020	10	Economic loss due to inability to recover pumping costs
12/4/2020	11	Economic loss due to inability to recover pumping costs
12/4/2020	12	Economic loss due to inability to recover pumping costs
12/4/2020	13	Economic loss due to inability to recover pumping costs
12/4/2020	14	Economic loss due to inability to recover pumping costs
12/4/2020	15	Economic loss due to inability to recover pumping costs
12/4/2020	16	Economic loss due to inability to recover pumping costs
12/4/2020	17	Economic loss due to inability to recover pumping costs
12/4/2020	18	Economic loss due to inability to recover pumping costs
12/4/2020	19	Economic loss due to inability to recover pumping costs
12/4/2020	20	Economic loss due to inability to recover pumping costs
12/4/2020	21	Economic loss due to inability to recover pumping costs
12/4/2020	22	Economic loss due to inability to recover pumping costs
12/4/2020	23	Economic loss due to inability to recover pumping costs
12/4/2020	24	Economic loss due to inability to recover pumping costs
12/5/2020	4	Economic loss due to inability to economically generate
12/5/2020	5	Economic loss due to inability to economically generate
12/5/2020	6	Economic loss due to inability to economically generate
12/5/2020	7	Economic loss due to inability to economically generate
12/5/2020	8	Economic loss due to inability to recover pumping costs
12/5/2020	9	Economic loss due to inability to economically generate
12/5/2020	10	Economic loss due to inability to recover pumping costs
12/5/2020	11	Economic loss due to inability to recover pumping costs
12/5/2020	12	Economic loss due to inability to recover pumping costs
12/5/2020	13	Economic loss due to inability to economically generate
12/5/2020	14	Economic loss due to inability to economically generate
12/5/2020	15	Economic loss due to inability to economically generate
12/5/2020	17	Economic loss due to inability to recover pumping costs
12/5/2020	18	Economic loss due to inability to recover pumping costs
12/5/2020	19	Economic loss due to inability to recover pumping costs
12/5/2020	20	Economic loss due to inability to recover pumping costs
12/5/2020	21	Economic loss due to inability to recover pumping costs
12/5/2020	23	Economic loss due to inability to economically generate
12/5/2020	24	Economic loss due to inability to economically generate
12/6/2020	2	Economic loss due to inability to economically generate
12/6/2020	4	Economic loss due to inability to economically generate
12/6/2020	5	Economic loss due to inability to economically generate
12/7/2020	3	Economic loss due to inability to economically generate
12/7/2020	4	Economic loss due to inability to economically generate
12/7/2020	5	Economic loss due to inability to economically generate
12/7/2020	6	Economic loss due to inability to economically generate
12/7/2020	8	Economic loss due to inability to recover pumping costs
12/7/2020	9	Economic loss due to inability to recover pumping costs
12/7/2020	10	Economic loss due to inability to recover pumping costs
12/7/2020	18	Economic loss due to inability to recover pumping costs
12/7/2020	19	Economic loss due to inability to recover pumping costs
12/7/2020	20	Economic loss due to inability to recover pumping costs
12/13/2020	1	Economic loss due to inability to economically generate
12/13/2020	2	Economic loss due to inability to economically generate
12/13/2020	3	Economic loss due to inability to economically generate
12/13/2020	4	Economic loss due to inability to economically generate
12/13/2020	5	Economic loss due to inability to economically generate
12/13/2020	6	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/13/2020	7	Economic loss due to inability to economically generate
12/13/2020	8	Economic loss due to inability to economically generate
12/13/2020	9	Economic loss due to inability to economically generate
12/13/2020	10	Economic loss due to inability to economically generate
12/13/2020	11	Economic loss due to inability to economically generate
12/13/2020	12	Economic loss due to inability to economically generate
12/13/2020	13	Economic loss due to inability to economically generate
12/13/2020	14	Economic loss due to inability to economically generate
12/13/2020	15	Economic loss due to inability to economically generate
12/13/2020	17	Economic loss due to inability to economically generate
12/13/2020	18	Economic loss due to inability to economically generate
12/13/2020	19	Economic loss due to inability to economically generate
12/13/2020	23	Economic loss due to inability to economically generate
12/13/2020	24	Economic loss due to inability to economically generate
12/15/2020	1	Economic loss due to inability to economically generate
12/15/2020	2	Economic loss due to inability to economically generate
12/15/2020	4	Economic loss due to inability to economically generate
12/15/2020	5	Economic loss due to inability to economically generate
12/15/2020	6	Economic loss due to inability to economically generate
12/16/2020	2	Economic loss due to inability to economically generate
12/16/2020	3	Economic loss due to inability to economically generate
12/16/2020	4	Economic loss due to inability to economically generate
12/16/2020	5	Economic loss due to inability to economically generate
12/16/2020	6	Economic loss due to inability to economically generate
12/16/2020	8	Economic loss due to inability to recover pumping costs
12/19/2020	1	Economic loss due to inability to recover pumping costs
12/19/2020	2	Economic loss due to inability to economically generate
12/19/2020	3	Economic loss due to inability to economically generate
12/19/2020	7	Economic loss due to inability to economically generate
12/19/2020	8	Economic loss due to inability to recover pumping costs
12/19/2020	9	Economic loss due to inability to recover pumping costs
12/19/2020	19	Economic loss due to inability to recover pumping costs
12/19/2020	20	Economic loss due to inability to recover pumping costs
12/19/2020	21	Economic loss due to inability to recover pumping costs
12/19/2020	22	Economic loss due to inability to recover pumping costs
12/20/2020	1	Economic loss due to inability to recover pumping costs
12/20/2020	2	Economic loss due to inability to economically generate
12/20/2020	3	Economic loss due to inability to economically generate
12/20/2020	4	Economic loss due to inability to economically generate
12/20/2020	5	Economic loss due to inability to economically generate
12/20/2020	6	Economic loss due to inability to economically generate
12/20/2020	7	Economic loss due to inability to economically generate
12/20/2020	8	Economic loss due to inability to recover pumping costs
12/20/2020	9	Economic loss due to inability to recover pumping costs
12/20/2020	10	Economic loss due to inability to recover pumping costs
12/20/2020	11	Economic loss due to inability to recover pumping costs
12/20/2020	15	Economic loss due to inability to recover pumping costs
12/20/2020	16	Economic loss due to inability to recover pumping costs
12/20/2020	20	Economic loss due to inability to recover pumping costs
12/20/2020	21	Economic loss due to inability to recover pumping costs
12/20/2020	24	Economic loss due to inability to economically generate
12/21/2020	1	Economic loss due to inability to economically generate
12/21/2020	2	Economic loss due to inability to economically generate
12/21/2020	3	Economic loss due to inability to economically generate
12/21/2020	4	Economic loss due to inability to economically generate
12/21/2020	5	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/21/2020	6	Economic loss due to inability to economically generate
1/1/2021	3	Economic loss due to inability to recover pumping costs
1/1/2021	4	Economic loss due to inability to economically generate
1/1/2021	5	Economic loss due to inability to economically generate
1/1/2021	6	Economic loss due to inability to economically generate
1/1/2021	7	Economic loss due to inability to economically generate
1/1/2021	8	Economic loss due to inability to economically generate
1/1/2021	9	Economic loss due to inability to economically generate
1/1/2021	10	Economic loss due to inability to economically generate
1/1/2021	11	Economic loss due to inability to recover pumping costs
1/1/2021	12	Economic loss due to inability to economically generate
1/1/2021	13	Economic loss due to inability to recover pumping costs
1/1/2021	14	Economic loss due to inability to economically generate
1/1/2021	15	Economic loss due to inability to recover pumping costs
1/1/2021	16	Economic loss due to inability to economically generate
1/1/2021	17	Economic loss due to inability to economically generate
1/1/2021	18	Economic loss due to inability to recover pumping costs
1/1/2021	19	Economic loss due to inability to recover pumping costs
1/1/2021	20	Economic loss due to inability to recover pumping costs
1/1/2021	21	Economic loss due to inability to recover pumping costs
1/1/2021	22	Economic loss due to inability to recover pumping costs
1/1/2021	23	Economic loss due to inability to recover pumping costs
1/1/2021	24	Economic loss due to inability to recover pumping costs
1/2/2021	2	Economic loss due to inability to economically generate
1/2/2021	3	Economic loss due to inability to economically generate
1/2/2021	5	Economic loss due to inability to economically generate
1/2/2021	6	Economic loss due to inability to economically generate
1/2/2021	7	Economic loss due to inability to economically generate
1/2/2021	8	Economic loss due to inability to economically generate
1/2/2021	9	Economic loss due to inability to recover pumping costs
1/3/2021	1	Economic loss due to inability to economically generate
1/3/2021	2	Economic loss due to inability to economically generate
1/3/2021	3	Economic loss due to inability to economically generate
1/3/2021	4	Economic loss due to inability to economically generate
1/3/2021	5	Economic loss due to inability to economically generate
1/3/2021	6	Economic loss due to inability to economically generate
1/3/2021	7	Economic loss due to inability to economically generate
1/3/2021	8	Economic loss due to inability to economically generate
1/3/2021	9	Economic loss due to inability to recover pumping costs
1/3/2021	10	Economic loss due to inability to recover pumping costs
1/4/2021	1	Economic loss due to inability to economically generate
1/4/2021	2	Economic loss due to inability to economically generate
1/4/2021	3	Economic loss due to inability to economically generate
1/4/2021	4	Economic loss due to inability to economically generate
1/4/2021	5	Economic loss due to inability to economically generate
1/4/2021	13	Economic loss due to inability to recover pumping costs
1/5/2021	1	Economic loss due to inability to economically generate
1/6/2021	1	Economic loss due to inability to economically generate
1/6/2021	2	Economic loss due to inability to economically generate
1/6/2021	3	Economic loss due to inability to economically generate
1/6/2021	4	Economic loss due to inability to economically generate
1/7/2021	2	Economic loss due to inability to economically generate
1/7/2021	3	Economic loss due to inability to economically generate
1/7/2021	6	Economic loss due to inability to economically generate
1/7/2021	7	Economic loss due to inability to economically generate
1/7/2021	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/7/2021	13	Economic loss due to inability to recover pumping costs
1/7/2021	14	Economic loss due to inability to recover pumping costs
1/7/2021	15	Economic loss due to inability to recover pumping costs
1/7/2021	16	Economic loss due to inability to recover pumping costs
1/7/2021	17	Economic loss due to inability to recover pumping costs
1/9/2021	2	Economic loss due to inability to economically generate
1/9/2021	4	Economic loss due to inability to economically generate
1/9/2021	5	Economic loss due to inability to economically generate
1/9/2021	6	Economic loss due to inability to economically generate
1/9/2021	7	Economic loss due to inability to economically generate
1/10/2021	1	Economic loss due to inability to economically generate
1/10/2021	2	Economic loss due to inability to economically generate
1/10/2021	3	Economic loss due to inability to economically generate
1/10/2021	4	Economic loss due to inability to economically generate
1/10/2021	5	Economic loss due to inability to economically generate
1/10/2021	6	Economic loss due to inability to recover pumping costs
1/10/2021	9	Economic loss due to inability to economically generate
1/11/2021	2	Economic loss due to inability to economically generate
1/11/2021	3	Economic loss due to inability to economically generate
1/11/2021	4	Economic loss due to inability to economically generate
1/11/2021	5	Economic loss due to inability to economically generate
1/11/2021	6	Economic loss due to inability to economically generate
1/11/2021	7	Economic loss due to inability to recover pumping costs
1/11/2021	8	Economic loss due to inability to recover pumping costs
1/11/2021	16	Economic loss due to inability to recover pumping costs
1/11/2021	20	Economic loss due to inability to recover pumping costs
1/11/2021	21	Economic loss due to inability to recover pumping costs
1/11/2021	23	Economic loss due to inability to recover pumping costs
1/11/2021	24	Economic loss due to inability to economically generate
1/12/2021	1	Economic loss due to inability to economically generate
1/12/2021	2	Economic loss due to inability to economically generate
1/12/2021	3	Economic loss due to inability to economically generate
1/12/2021	4	Economic loss due to inability to economically generate
1/12/2021	5	Economic loss due to inability to economically generate
1/12/2021	6	Economic loss due to inability to recover pumping costs
1/12/2021	7	Economic loss due to inability to recover pumping costs
1/12/2021	24	Economic loss due to inability to recover pumping costs
1/13/2021	1	Economic loss due to inability to economically generate
1/13/2021	2	Economic loss due to inability to economically generate
1/13/2021	3	Economic loss due to inability to economically generate
1/13/2021	4	Economic loss due to inability to economically generate
1/13/2021	5	Economic loss due to inability to economically generate
1/13/2021	6	Economic loss due to inability to recover pumping costs
1/13/2021	7	Economic loss due to inability to recover pumping costs
1/13/2021	8	Economic loss due to inability to recover pumping costs
1/13/2021	9	Economic loss due to inability to recover pumping costs
1/13/2021	10	Economic loss due to inability to recover pumping costs
1/13/2021	12	Economic loss due to inability to recover pumping costs
1/13/2021	13	Economic loss due to inability to recover pumping costs
1/13/2021	14	Economic loss due to inability to recover pumping costs
1/13/2021	15	Economic loss due to inability to recover pumping costs
1/13/2021	16	Economic loss due to inability to recover pumping costs
1/13/2021	17	Economic loss due to inability to recover pumping costs
1/13/2021	18	Economic loss due to inability to recover pumping costs
1/13/2021	19	Economic loss due to inability to recover pumping costs
1/13/2021	20	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/13/2021	21	Economic loss due to inability to economically generate
1/13/2021	22	Economic loss due to inability to economically generate
1/13/2021	23	Economic loss due to inability to economically generate
1/13/2021	24	Economic loss due to inability to economically generate
1/17/2021	1	Economic loss due to inability to economically generate
1/17/2021	7	Economic loss due to inability to economically generate
1/17/2021	8	Economic loss due to inability to economically generate
1/17/2021	9	Economic loss due to inability to economically generate
1/17/2021	10	Economic loss due to inability to economically generate
1/17/2021	11	Economic loss due to inability to recover pumping costs
1/17/2021	12	Economic loss due to inability to recover pumping costs
1/17/2021	13	Economic loss due to inability to recover pumping costs
1/17/2021	14	Economic loss due to inability to recover pumping costs
1/17/2021	15	Economic loss due to inability to recover pumping costs
1/17/2021	16	Economic loss due to inability to recover pumping costs
1/17/2021	17	Economic loss due to inability to recover pumping costs
1/17/2021	18	Economic loss due to inability to recover pumping costs
1/17/2021	19	Economic loss due to inability to recover pumping costs
1/17/2021	20	Economic loss due to inability to recover pumping costs
1/17/2021	21	Economic loss due to inability to recover pumping costs
1/17/2021	22	Economic loss due to inability to recover pumping costs
1/17/2021	23	Economic loss due to inability to recover pumping costs
1/17/2021	24	Economic loss due to inability to economically generate
1/18/2021	2	Economic loss due to inability to economically generate
1/18/2021	3	Economic loss due to inability to economically generate
1/18/2021	4	Economic loss due to inability to economically generate
1/18/2021	5	Economic loss due to inability to economically generate
1/18/2021	23	Economic loss due to inability to recover pumping costs
1/18/2021	24	Economic loss due to inability to economically generate
1/19/2021	1	Economic loss due to inability to economically generate
1/19/2021	2	Economic loss due to inability to economically generate
1/19/2021	3	Economic loss due to inability to economically generate
1/19/2021	4	Economic loss due to inability to economically generate
1/19/2021	5	Economic loss due to inability to economically generate
1/19/2021	6	Economic loss due to inability to economically generate
1/19/2021	7	Economic loss due to inability to economically generate
1/19/2021	8	Economic loss due to inability to recover pumping costs
1/19/2021	9	Economic loss due to inability to recover pumping costs
1/19/2021	10	Economic loss due to inability to recover pumping costs
1/19/2021	11	Economic loss due to inability to recover pumping costs
1/19/2021	12	Economic loss due to inability to recover pumping costs
1/19/2021	13	Economic loss due to inability to recover pumping costs
1/19/2021	14	Economic loss due to inability to recover pumping costs
1/19/2021	15	Economic loss due to inability to recover pumping costs
1/19/2021	16	Economic loss due to inability to recover pumping costs
1/19/2021	17	Economic loss due to inability to recover pumping costs
1/19/2021	18	Economic loss due to inability to recover pumping costs
1/19/2021	19	Economic loss due to inability to recover pumping costs
1/19/2021	20	Economic loss due to inability to recover pumping costs
1/19/2021	21	Economic loss due to inability to recover pumping costs
1/19/2021	22	Economic loss due to inability to economically generate
1/19/2021	23	Economic loss due to inability to economically generate
1/19/2021	24	Economic loss due to inability to economically generate
1/22/2021	1	Economic loss due to inability to economically generate
1/22/2021	2	Economic loss due to inability to economically generate
1/22/2021	3	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/22/2021	4	Economic loss due to inability to economically generate
1/22/2021	5	Economic loss due to inability to economically generate
1/22/2021	6	Economic loss due to inability to economically generate
1/22/2021	7	Economic loss due to inability to economically generate
1/22/2021	8	Economic loss due to inability to recover pumping costs
1/22/2021	9	Economic loss due to inability to recover pumping costs
1/22/2021	10	Economic loss due to inability to recover pumping costs
1/22/2021	11	Economic loss due to inability to recover pumping costs
1/22/2021	12	Economic loss due to inability to recover pumping costs
1/22/2021	13	Economic loss due to inability to recover pumping costs
1/22/2021	14	Economic loss due to inability to recover pumping costs
1/22/2021	15	Economic loss due to inability to recover pumping costs
1/22/2021	16	Economic loss due to inability to recover pumping costs
1/22/2021	17	Economic loss due to inability to recover pumping costs
1/22/2021	19	Economic loss due to inability to recover pumping costs
1/22/2021	20	Economic loss due to inability to recover pumping costs
1/22/2021	21	Economic loss due to inability to recover pumping costs
1/22/2021	22	Economic loss due to inability to recover pumping costs
1/22/2021	23	Economic loss due to inability to economically generate
1/22/2021	24	Economic loss due to inability to economically generate
1/23/2021	1	Economic loss due to inability to economically generate
1/23/2021	2	Economic loss due to inability to economically generate
1/23/2021	3	Economic loss due to inability to economically generate
1/23/2021	4	Economic loss due to inability to economically generate
1/23/2021	5	Economic loss due to inability to economically generate
1/23/2021	6	Economic loss due to inability to economically generate
1/23/2021	7	Economic loss due to inability to economically generate
1/23/2021	8	Economic loss due to inability to economically generate
1/23/2021	9	Economic loss due to inability to economically generate
1/23/2021	10	Economic loss due to inability to economically generate
1/23/2021	11	Economic loss due to inability to recover pumping costs
1/23/2021	12	Economic loss due to inability to recover pumping costs
1/23/2021	13	Economic loss due to inability to recover pumping costs
1/23/2021	14	Economic loss due to inability to recover pumping costs
1/23/2021	15	Economic loss due to inability to recover pumping costs
1/23/2021	16	Economic loss due to inability to recover pumping costs
1/23/2021	17	Economic loss due to inability to recover pumping costs
1/23/2021	18	Economic loss due to inability to recover pumping costs
1/23/2021	19	Economic loss due to inability to recover pumping costs
1/23/2021	20	Economic loss due to inability to recover pumping costs
1/23/2021	21	Economic loss due to inability to recover pumping costs
1/23/2021	22	Economic loss due to inability to recover pumping costs
1/23/2021	23	Economic loss due to inability to recover pumping costs
1/23/2021	24	Economic loss due to inability to recover pumping costs
1/25/2021	24	Economic loss due to inability to recover pumping costs
1/27/2021	2	Economic loss due to inability to economically generate
1/27/2021	3	Economic loss due to inability to economically generate
1/27/2021	4	Economic loss due to inability to economically generate
1/27/2021	5	Economic loss due to inability to economically generate
1/28/2021	1	Economic loss due to inability to recover pumping costs
1/28/2021	2	Economic loss due to inability to recover pumping costs
1/28/2021	3	Economic loss due to inability to economically generate
1/28/2021	4	Economic loss due to inability to economically generate
1/28/2021	5	Economic loss due to inability to economically generate
1/28/2021	6	Economic loss due to inability to economically generate
1/28/2021	7	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
1/28/2021	8	Economic loss due to inability to recover pumping costs
1/28/2021	9	Economic loss due to inability to recover pumping costs
1/28/2021	10	Economic loss due to inability to recover pumping costs
1/28/2021	11	Economic loss due to inability to recover pumping costs
1/28/2021	12	Economic loss due to inability to recover pumping costs
1/28/2021	13	Economic loss due to inability to recover pumping costs
1/28/2021	14	Economic loss due to inability to recover pumping costs
1/28/2021	15	Economic loss due to inability to recover pumping costs
1/28/2021	16	Economic loss due to inability to recover pumping costs
1/28/2021	17	Economic loss due to inability to recover pumping costs
1/28/2021	18	Economic loss due to inability to recover pumping costs
1/28/2021	19	Economic loss due to inability to recover pumping costs
1/28/2021	20	Economic loss due to inability to recover pumping costs
1/28/2021	21	Economic loss due to inability to economically generate
1/28/2021	22	Economic loss due to inability to economically generate
1/28/2021	24	Economic loss due to inability to economically generate
1/29/2021	4	Economic loss due to inability to economically generate
1/29/2021	5	Economic loss due to inability to economically generate
1/29/2021	6	Economic loss due to inability to recover pumping costs
1/29/2021	7	Economic loss due to inability to recover pumping costs
1/29/2021	8	Economic loss due to inability to recover pumping costs
1/29/2021	9	Economic loss due to inability to recover pumping costs
1/31/2021	1	Economic loss due to inability to recover pumping costs
1/31/2021	2	Economic loss due to inability to recover pumping costs
1/31/2021	7	Economic loss due to inability to recover pumping costs
1/31/2021	8	Economic loss due to inability to recover pumping costs
1/31/2021	10	Economic loss due to inability to recover pumping costs
1/31/2021	15	Economic loss due to inability to recover pumping costs
1/31/2021	16	Economic loss due to inability to recover pumping costs
1/31/2021	17	Economic loss due to inability to recover pumping costs
1/31/2021	18	Economic loss due to inability to recover pumping costs
1/31/2021	19	Economic loss due to inability to recover pumping costs
1/31/2021	20	Economic loss due to inability to recover pumping costs
1/31/2021	21	Economic loss due to inability to recover pumping costs
1/31/2021	22	Economic loss due to inability to recover pumping costs
1/31/2021	23	Economic loss due to inability to recover pumping costs
1/31/2021	24	Economic loss due to inability to recover pumping costs
2/1/2021	1	Economic loss due to inability to recover pumping costs
2/1/2021	2	Economic loss due to inability to economically generate
2/1/2021	3	Economic loss due to inability to economically generate
2/1/2021	4	Economic loss due to inability to economically generate
2/1/2021	5	Economic loss due to inability to economically generate
2/1/2021	7	Economic loss due to inability to recover pumping costs
2/1/2021	8	Economic loss due to inability to recover pumping costs
2/1/2021	9	Economic loss due to inability to recover pumping costs
2/1/2021	10	Economic loss due to inability to recover pumping costs
2/1/2021	11	Economic loss due to inability to recover pumping costs
2/1/2021	12	Economic loss due to inability to recover pumping costs
2/2/2021	1	Economic loss due to inability to recover pumping costs
2/2/2021	2	Economic loss due to inability to recover pumping costs
2/2/2021	3	Economic loss due to inability to economically generate
2/2/2021	4	Economic loss due to inability to economically generate
2/2/2021	5	Economic loss due to inability to economically generate
2/2/2021	6	Economic loss due to inability to recover pumping costs
2/2/2021	11	Economic loss due to inability to recover pumping costs
2/2/2021	14	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/2/2021	15	Economic loss due to inability to recover pumping costs
2/2/2021	16	Economic loss due to inability to recover pumping costs
2/2/2021	17	Economic loss due to inability to recover pumping costs
2/2/2021	20	Economic loss due to inability to recover pumping costs
2/2/2021	21	Economic loss due to inability to recover pumping costs
2/2/2021	22	Economic loss due to inability to economically generate
2/2/2021	23	Economic loss due to inability to economically generate
2/2/2021	24	Economic loss due to inability to economically generate
2/3/2021	1	Economic loss due to inability to economically generate
2/3/2021	2	Economic loss due to inability to economically generate
2/3/2021	6	Economic loss due to inability to economically generate
2/3/2021	7	Economic loss due to inability to economically generate
2/3/2021	8	Economic loss due to inability to recover pumping costs
2/3/2021	9	Economic loss due to inability to recover pumping costs
2/3/2021	10	Economic loss due to inability to recover pumping costs
2/3/2021	11	Economic loss due to inability to recover pumping costs
2/3/2021	12	Economic loss due to inability to recover pumping costs
2/3/2021	13	Economic loss due to inability to recover pumping costs
2/3/2021	14	Economic loss due to inability to recover pumping costs
2/3/2021	15	Economic loss due to inability to recover pumping costs
2/3/2021	16	Economic loss due to inability to recover pumping costs
2/3/2021	17	Economic loss due to inability to recover pumping costs
2/3/2021	18	Economic loss due to inability to recover pumping costs
2/3/2021	19	Economic loss due to inability to recover pumping costs
2/3/2021	20	Economic loss due to inability to recover pumping costs
2/3/2021	21	Economic loss due to inability to recover pumping costs
2/3/2021	22	Economic loss due to inability to recover pumping costs
2/3/2021	23	Economic loss due to inability to recover pumping costs
2/3/2021	24	Economic loss due to inability to recover pumping costs
2/4/2021	2	Economic loss due to inability to recover pumping costs
2/4/2021	3	Economic loss due to inability to recover pumping costs
2/4/2021	4	Economic loss due to inability to economically generate
2/4/2021	5	Economic loss due to inability to recover pumping costs
2/4/2021	6	Economic loss due to inability to recover pumping costs
2/4/2021	8	Economic loss due to inability to recover pumping costs
2/4/2021	9	Economic loss due to inability to recover pumping costs
2/4/2021	10	Economic loss due to inability to recover pumping costs
2/4/2021	16	Economic loss due to inability to recover pumping costs
2/4/2021	17	Economic loss due to inability to recover pumping costs
2/4/2021	20	Economic loss due to inability to recover pumping costs
2/4/2021	21	Economic loss due to inability to recover pumping costs
2/4/2021	22	Economic loss due to inability to economically generate
2/4/2021	23	Economic loss due to inability to recover pumping costs
2/4/2021	24	Economic loss due to inability to recover pumping costs
2/6/2021	1	Economic loss due to inability to economically generate
2/6/2021	2	Economic loss due to inability to economically generate
2/6/2021	3	Economic loss due to inability to economically generate
2/6/2021	4	Economic loss due to inability to economically generate
2/6/2021	5	Economic loss due to inability to economically generate
2/6/2021	6	Economic loss due to inability to economically generate
2/6/2021	7	Economic loss due to inability to economically generate
2/6/2021	8	Economic loss due to inability to economically generate
2/6/2021	9	Economic loss due to inability to economically generate
2/6/2021	10	Economic loss due to inability to economically generate
2/6/2021	11	Economic loss due to inability to economically generate
2/6/2021	12	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/6/2021	13	Economic loss due to inability to economically generate
2/6/2021	14	Economic loss due to inability to economically generate
2/6/2021	15	Economic loss due to inability to economically generate
2/6/2021	16	Economic loss due to inability to economically generate
2/6/2021	17	Economic loss due to inability to recover pumping costs
2/6/2021	18	Economic loss due to inability to recover pumping costs
2/6/2021	19	Economic loss due to inability to recover pumping costs
2/6/2021	20	Economic loss due to inability to recover pumping costs
2/6/2021	21	Economic loss due to inability to recover pumping costs
2/6/2021	22	Economic loss due to inability to recover pumping costs
2/6/2021	23	Economic loss due to inability to recover pumping costs
2/6/2021	24	Economic loss due to inability to recover pumping costs
2/7/2021	4	Economic loss due to inability to economically generate
2/7/2021	5	Economic loss due to inability to economically generate
2/7/2021	6	Economic loss due to inability to economically generate
2/7/2021	7	Economic loss due to inability to economically generate
2/7/2021	8	Economic loss due to inability to economically generate
2/7/2021	9	Economic loss due to inability to economically generate
2/7/2021	10	Economic loss due to inability to economically generate
2/7/2021	11	Economic loss due to inability to economically generate
2/7/2021	12	Economic loss due to inability to economically generate
2/7/2021	13	Economic loss due to inability to economically generate
2/7/2021	14	Economic loss due to inability to economically generate
2/7/2021	15	Economic loss due to inability to economically generate
2/7/2021	20	Economic loss due to inability to recover pumping costs
2/7/2021	21	Economic loss due to inability to recover pumping costs
2/7/2021	23	Economic loss due to inability to economically generate
2/7/2021	24	Economic loss due to inability to economically generate
2/8/2021	1	Economic loss due to inability to economically generate
2/11/2021	5	Economic loss due to inability to economically generate
2/12/2021	2	Economic loss due to inability to economically generate
2/12/2021	3	Economic loss due to inability to economically generate
2/12/2021	4	Economic loss due to inability to economically generate
2/16/2021	7	Economic loss due to inability to recover pumping costs
2/16/2021	11	Economic loss due to inability to recover pumping costs
2/16/2021	12	Economic loss due to inability to recover pumping costs
2/16/2021	13	Economic loss due to inability to recover pumping costs
2/16/2021	14	Economic loss due to inability to recover pumping costs
2/16/2021	15	Economic loss due to inability to recover pumping costs
2/16/2021	16	Economic loss due to inability to recover pumping costs
2/16/2021	17	Economic loss due to inability to recover pumping costs
2/21/2021	10	Economic loss due to inability to recover pumping costs
2/21/2021	12	Economic loss due to inability to recover pumping costs
2/21/2021	22	Economic loss due to inability to recover pumping costs
2/21/2021	23	Economic loss due to inability to recover pumping costs
2/21/2021	24	Economic loss due to inability to economically generate
2/23/2021	1	Economic loss due to inability to economically generate
2/23/2021	2	Economic loss due to inability to economically generate
2/23/2021	7	Economic loss due to inability to recover pumping costs
2/23/2021	8	Economic loss due to inability to recover pumping costs
2/23/2021	9	Economic loss due to inability to recover pumping costs
2/23/2021	10	Economic loss due to inability to recover pumping costs
2/23/2021	11	Economic loss due to inability to recover pumping costs
2/23/2021	12	Economic loss due to inability to recover pumping costs
2/23/2021	13	Economic loss due to inability to recover pumping costs
2/23/2021	14	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/23/2021	15	Economic loss due to inability to recover pumping costs
2/23/2021	16	Economic loss due to inability to recover pumping costs
2/23/2021	17	Economic loss due to inability to recover pumping costs
2/23/2021	18	Economic loss due to inability to recover pumping costs
2/23/2021	19	Economic loss due to inability to recover pumping costs
2/23/2021	20	Economic loss due to inability to recover pumping costs
2/23/2021	21	Economic loss due to inability to recover pumping costs
2/23/2021	22	Economic loss due to inability to recover pumping costs
2/23/2021	23	Economic loss due to inability to recover pumping costs
2/23/2021	24	Economic loss due to inability to recover pumping costs
2/24/2021	4	Economic loss due to inability to economically generate
2/24/2021	6	Economic loss due to inability to recover pumping costs
2/24/2021	7	Economic loss due to inability to recover pumping costs
2/24/2021	8	Economic loss due to inability to recover pumping costs
2/24/2021	9	Economic loss due to inability to recover pumping costs
2/24/2021	10	Economic loss due to inability to recover pumping costs
2/24/2021	11	Economic loss due to inability to recover pumping costs
2/24/2021	12	Economic loss due to inability to recover pumping costs
2/24/2021	13	Economic loss due to inability to recover pumping costs
2/24/2021	14	Economic loss due to inability to recover pumping costs
2/24/2021	15	Economic loss due to inability to recover pumping costs
2/24/2021	16	Economic loss due to inability to recover pumping costs
2/24/2021	17	Economic loss due to inability to recover pumping costs
2/24/2021	18	Economic loss due to inability to recover pumping costs
2/24/2021	21	Economic loss due to inability to economically generate
2/24/2021	22	Economic loss due to inability to economically generate
2/24/2021	23	Economic loss due to inability to economically generate
2/24/2021	24	Economic loss due to inability to economically generate
2/25/2021	1	Economic loss due to inability to economically generate
2/25/2021	2	Economic loss due to inability to economically generate
2/25/2021	3	Economic loss due to inability to economically generate
2/25/2021	4	Economic loss due to inability to economically generate
2/25/2021	5	Economic loss due to inability to economically generate
2/25/2021	6	Economic loss due to inability to economically generate
2/26/2021	10	Economic loss due to inability to recover pumping costs
2/26/2021	11	Economic loss due to inability to recover pumping costs
2/26/2021	12	Economic loss due to inability to recover pumping costs
2/26/2021	14	Economic loss due to inability to recover pumping costs
2/26/2021	15	Economic loss due to inability to recover pumping costs
2/26/2021	16	Economic loss due to inability to recover pumping costs
2/26/2021	17	Economic loss due to inability to recover pumping costs
2/26/2021	18	Economic loss due to inability to recover pumping costs
2/26/2021	19	Economic loss due to inability to recover pumping costs
2/26/2021	20	Economic loss due to inability to recover pumping costs
2/26/2021	21	Economic loss due to inability to recover pumping costs
2/26/2021	22	Economic loss due to inability to economically generate
2/26/2021	23	Economic loss due to inability to economically generate
2/26/2021	24	Economic loss due to inability to economically generate
2/27/2021	1	Economic loss due to inability to economically generate
2/27/2021	2	Economic loss due to inability to economically generate
2/27/2021	6	Economic loss due to inability to economically generate
2/27/2021	7	Economic loss due to inability to economically generate
2/27/2021	8	Economic loss due to inability to economically generate
2/27/2021	9	Economic loss due to inability to economically generate
2/27/2021	10	Economic loss due to inability to economically generate
2/27/2021	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
2/27/2021	13	Economic loss due to inability to recover pumping costs
2/27/2021	14	Economic loss due to inability to recover pumping costs
2/27/2021	15	Economic loss due to inability to recover pumping costs
2/27/2021	16	Economic loss due to inability to economically generate
2/27/2021	17	Economic loss due to inability to recover pumping costs
2/27/2021	23	Economic loss due to inability to recover pumping costs
3/1/2021	7	Economic loss due to inability to economically generate
3/1/2021	8	Economic loss due to inability to recover pumping costs
3/1/2021	9	Economic loss due to inability to recover pumping costs
3/1/2021	10	Economic loss due to inability to recover pumping costs
3/1/2021	11	Economic loss due to inability to recover pumping costs
3/1/2021	12	Economic loss due to inability to recover pumping costs
3/1/2021	13	Economic loss due to inability to recover pumping costs
3/1/2021	14	Economic loss due to inability to recover pumping costs
3/1/2021	15	Economic loss due to inability to recover pumping costs
3/1/2021	16	Economic loss due to inability to recover pumping costs
3/1/2021	17	Economic loss due to inability to recover pumping costs
3/1/2021	19	Economic loss due to inability to recover pumping costs
3/1/2021	20	Economic loss due to inability to recover pumping costs
3/1/2021	22	Economic loss due to inability to economically generate
3/1/2021	23	Economic loss due to inability to economically generate
3/1/2021	24	Economic loss due to inability to economically generate
3/2/2021	1	Economic loss due to inability to economically generate
3/2/2021	2	Economic loss due to inability to economically generate
3/2/2021	23	Economic loss due to inability to recover pumping costs
3/2/2021	24	Economic loss due to inability to economically generate
3/3/2021	1	Economic loss due to inability to economically generate
3/3/2021	2	Economic loss due to inability to economically generate
3/3/2021	3	Economic loss due to inability to economically generate
3/3/2021	4	Economic loss due to inability to economically generate
3/3/2021	5	Economic loss due to inability to economically generate
3/3/2021	6	Economic loss due to inability to economically generate
3/3/2021	24	Economic loss due to inability to recover pumping costs
3/4/2021	1	Economic loss due to inability to recover pumping costs
3/4/2021	2	Economic loss due to inability to recover pumping costs
3/4/2021	3	Economic loss due to inability to economically generate
3/4/2021	4	Economic loss due to inability to economically generate
3/4/2021	5	Economic loss due to inability to economically generate
3/4/2021	6	Economic loss due to inability to recover pumping costs
3/4/2021	7	Economic loss due to inability to recover pumping costs
3/4/2021	8	Economic loss due to inability to recover pumping costs
3/4/2021	9	Economic loss due to inability to recover pumping costs
3/4/2021	10	Economic loss due to inability to recover pumping costs
3/4/2021	11	Economic loss due to inability to recover pumping costs
3/4/2021	12	Economic loss due to inability to recover pumping costs
3/4/2021	13	Economic loss due to inability to recover pumping costs
3/4/2021	14	Economic loss due to inability to recover pumping costs
3/4/2021	15	Economic loss due to inability to recover pumping costs
3/4/2021	16	Economic loss due to inability to recover pumping costs
3/4/2021	17	Economic loss due to inability to recover pumping costs
3/7/2021	2	Economic loss due to inability to recover pumping costs
3/7/2021	10	Economic loss due to inability to recover pumping costs
3/7/2021	14	Economic loss due to inability to recover pumping costs
3/7/2021	15	Economic loss due to inability to recover pumping costs
3/7/2021	16	Economic loss due to inability to recover pumping costs
3/8/2021	3	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/8/2021	4	Economic loss due to inability to economically generate
3/8/2021	5	Economic loss due to inability to recover pumping costs
3/8/2021	6	Economic loss due to inability to recover pumping costs
3/8/2021	11	Economic loss due to inability to recover pumping costs
3/8/2021	15	Economic loss due to inability to recover pumping costs
3/8/2021	21	Economic loss due to inability to recover pumping costs
3/8/2021	22	Economic loss due to inability to recover pumping costs
3/8/2021	23	Economic loss due to inability to economically generate
3/8/2021	24	Economic loss due to inability to economically generate
3/17/2021	4	Economic loss due to inability to recover pumping costs
3/17/2021	23	Economic loss due to inability to economically generate
3/20/2021	1	Economic loss due to inability to recover pumping costs
3/20/2021	2	Economic loss due to inability to recover pumping costs
3/20/2021	4	Economic loss due to inability to recover pumping costs
3/20/2021	5	Economic loss due to inability to recover pumping costs
3/20/2021	14	Economic loss due to inability to recover pumping costs
3/20/2021	15	Economic loss due to inability to recover pumping costs
3/20/2021	16	Economic loss due to inability to recover pumping costs
3/20/2021	17	Economic loss due to inability to recover pumping costs
3/20/2021	18	Economic loss due to inability to recover pumping costs
3/20/2021	21	Economic loss due to inability to recover pumping costs
3/20/2021	23	Economic loss due to inability to recover pumping costs
3/20/2021	24	Economic loss due to inability to recover pumping costs
3/23/2021	2	Economic loss due to inability to economically generate
3/23/2021	3	Economic loss due to inability to economically generate
3/23/2021	4	Economic loss due to inability to economically generate
3/23/2021	5	Economic loss due to inability to economically generate
3/23/2021	6	Economic loss due to inability to economically generate
3/23/2021	7	Economic loss due to inability to recover pumping costs
3/23/2021	8	Economic loss due to inability to recover pumping costs
3/23/2021	9	Economic loss due to inability to recover pumping costs
3/23/2021	10	Economic loss due to inability to recover pumping costs
3/23/2021	11	Economic loss due to inability to recover pumping costs
3/23/2021	12	Economic loss due to inability to recover pumping costs
3/23/2021	13	Economic loss due to inability to recover pumping costs
3/23/2021	14	Economic loss due to inability to recover pumping costs
3/23/2021	15	Economic loss due to inability to recover pumping costs
3/23/2021	20	Economic loss due to inability to recover pumping costs
3/23/2021	21	Economic loss due to inability to recover pumping costs
3/23/2021	22	Economic loss due to inability to recover pumping costs
3/23/2021	23	Economic loss due to inability to recover pumping costs
3/23/2021	24	Economic loss due to inability to recover pumping costs
4/4/2021	22	Economic loss due to inability to recover pumping costs
4/4/2021	24	Economic loss due to inability to recover pumping costs
4/12/2021	1	Economic loss due to inability to economically generate
4/12/2021	2	Economic loss due to inability to economically generate
4/12/2021	3	Economic loss due to inability to recover pumping costs
4/12/2021	4	Economic loss due to inability to recover pumping costs
4/12/2021	5	Economic loss due to inability to recover pumping costs
4/12/2021	6	Economic loss due to inability to recover pumping costs
4/12/2021	7	Economic loss due to inability to recover pumping costs
4/12/2021	8	Economic loss due to inability to recover pumping costs
4/12/2021	9	Economic loss due to inability to recover pumping costs
4/12/2021	10	Economic loss due to inability to recover pumping costs
4/12/2021	11	Economic loss due to inability to recover pumping costs
4/12/2021	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
4/12/2021	13	Economic loss due to inability to recover pumping costs
4/12/2021	14	Economic loss due to inability to recover pumping costs
4/12/2021	15	Economic loss due to inability to recover pumping costs
4/12/2021	16	Economic loss due to inability to recover pumping costs
4/12/2021	17	Economic loss due to inability to recover pumping costs
4/12/2021	18	Economic loss due to inability to recover pumping costs
4/12/2021	19	Economic loss due to inability to recover pumping costs
4/12/2021	20	Economic loss due to inability to recover pumping costs
4/12/2021	21	Economic loss due to inability to recover pumping costs
4/12/2021	22	Economic loss due to inability to recover pumping costs
4/12/2021	23	Economic loss due to inability to recover pumping costs
4/12/2021	24	Economic loss due to inability to economically generate
5/26/2021	1	Economic loss due to inability to economically generate
5/26/2021	2	Economic loss due to inability to economically generate
5/26/2021	3	Economic loss due to inability to economically generate
5/26/2021	4	Economic loss due to inability to economically generate
5/26/2021	5	Economic loss due to inability to economically generate
5/26/2021	6	Economic loss due to inability to economically generate
5/26/2021	7	Economic loss due to inability to recover pumping costs
5/26/2021	8	Economic loss due to inability to recover pumping costs
5/26/2021	9	Economic loss due to inability to recover pumping costs
5/26/2021	10	Economic loss due to inability to recover pumping costs
5/26/2021	11	Economic loss due to inability to recover pumping costs
5/26/2021	12	Economic loss due to inability to recover pumping costs
5/26/2021	13	Economic loss due to inability to recover pumping costs
5/26/2021	16	Economic loss due to inability to recover pumping costs
5/26/2021	17	Economic loss due to inability to recover pumping costs
5/26/2021	18	Economic loss due to inability to recover pumping costs
5/26/2021	19	Economic loss due to inability to recover pumping costs
5/26/2021	20	Economic loss due to inability to recover pumping costs
5/26/2021	21	Economic loss due to inability to recover pumping costs
5/26/2021	22	Economic loss due to inability to recover pumping costs
5/26/2021	23	Economic loss due to inability to economically generate
5/31/2021	1	Economic loss due to inability to economically generate
5/31/2021	2	Economic loss due to inability to economically generate
5/31/2021	3	Economic loss due to inability to economically generate
5/31/2021	4	Economic loss due to inability to economically generate
5/31/2021	5	Economic loss due to inability to economically generate
5/31/2021	6	Economic loss due to inability to recover pumping costs
5/31/2021	7	Economic loss due to inability to recover pumping costs
5/31/2021	8	Economic loss due to inability to recover pumping costs
5/31/2021	9	Economic loss due to inability to recover pumping costs
5/31/2021	10	Economic loss due to inability to recover pumping costs
5/31/2021	11	Economic loss due to inability to recover pumping costs
5/31/2021	12	Economic loss due to inability to recover pumping costs
5/31/2021	13	Economic loss due to inability to recover pumping costs
5/31/2021	14	Economic loss due to inability to recover pumping costs
5/31/2021	15	Economic loss due to inability to recover pumping costs
5/31/2021	16	Economic loss due to inability to recover pumping costs
5/31/2021	17	Economic loss due to inability to recover pumping costs
5/31/2021	18	Economic loss due to inability to recover pumping costs
5/31/2021	20	Economic loss due to inability to recover pumping costs
6/2/2021	9	Economic loss due to inability to recover pumping costs
6/2/2021	10	Economic loss due to inability to recover pumping costs
6/2/2021	11	Economic loss due to inability to recover pumping costs
6/2/2021	12	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
6/2/2021	13	Economic loss due to inability to recover pumping costs
6/2/2021	22	Economic loss due to inability to recover pumping costs
6/2/2021	23	Economic loss due to inability to recover pumping costs
6/2/2021	24	Economic loss due to inability to economically generate
6/3/2021	1	Economic loss due to inability to economically generate
6/3/2021	2	Economic loss due to inability to economically generate
6/3/2021	4	Economic loss due to inability to economically generate
6/3/2021	24	Economic loss due to inability to economically generate
6/5/2021	7	Economic loss due to inability to economically generate
6/5/2021	8	Economic loss due to inability to economically generate
6/5/2021	9	Economic loss due to inability to economically generate
6/5/2021	22	Economic loss due to inability to recover pumping costs
6/5/2021	23	Economic loss due to inability to recover pumping costs
6/6/2021	6	Economic loss due to inability to economically generate
6/6/2021	7	Economic loss due to inability to economically generate
6/7/2021	24	Economic loss due to inability to economically generate
6/10/2021	3	Economic loss due to inability to recover pumping costs
6/10/2021	4	Economic loss due to inability to recover pumping costs
6/10/2021	5	Economic loss due to inability to recover pumping costs
6/10/2021	8	Economic loss due to inability to recover pumping costs
6/10/2021	16	Economic loss due to inability to recover pumping costs
6/10/2021	17	Economic loss due to inability to recover pumping costs
6/10/2021	18	Economic loss due to inability to recover pumping costs
6/10/2021	19	Economic loss due to inability to recover pumping costs
6/11/2021	23	Economic loss due to inability to recover pumping costs
6/11/2021	24	Economic loss due to inability to recover pumping costs
6/16/2021	1	Economic loss due to inability to economically generate
6/16/2021	2	Economic loss due to inability to economically generate
6/16/2021	3	Economic loss due to inability to economically generate
6/16/2021	4	Economic loss due to inability to economically generate
6/16/2021	5	Economic loss due to inability to economically generate
6/16/2021	6	Economic loss due to inability to economically generate
6/16/2021	13	Economic loss due to inability to recover pumping costs
6/16/2021	14	Economic loss due to inability to recover pumping costs
6/16/2021	15	Economic loss due to inability to recover pumping costs
6/16/2021	16	Economic loss due to inability to recover pumping costs
6/16/2021	17	Economic loss due to inability to recover pumping costs
6/16/2021	18	Economic loss due to inability to recover pumping costs
6/16/2021	24	Economic loss due to inability to economically generate
6/23/2021	1	Economic loss due to inability to economically generate
6/23/2021	2	Economic loss due to inability to economically generate
6/23/2021	3	Economic loss due to inability to economically generate
6/23/2021	4	Economic loss due to inability to economically generate
6/23/2021	5	Economic loss due to inability to economically generate
6/23/2021	6	Economic loss due to inability to economically generate
6/23/2021	7	Economic loss due to inability to recover pumping costs
6/23/2021	8	Economic loss due to inability to recover pumping costs
6/23/2021	9	Economic loss due to inability to recover pumping costs
6/23/2021	10	Economic loss due to inability to recover pumping costs
6/23/2021	11	Economic loss due to inability to recover pumping costs
6/23/2021	12	Economic loss due to inability to recover pumping costs
6/23/2021	13	Economic loss due to inability to recover pumping costs
6/23/2021	14	Economic loss due to inability to recover pumping costs
6/23/2021	15	Economic loss due to inability to recover pumping costs
6/23/2021	16	Economic loss due to inability to recover pumping costs
6/23/2021	17	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
6/23/2021	19	Economic loss due to inability to recover pumping costs
6/23/2021	20	Economic loss due to inability to recover pumping costs
6/23/2021	24	Economic loss due to inability to economically generate
6/26/2021	5	Economic loss due to inability to economically generate
6/26/2021	6	Economic loss due to inability to economically generate
6/26/2021	11	Economic loss due to inability to recover pumping costs
6/26/2021	12	Economic loss due to inability to recover pumping costs
6/26/2021	13	Economic loss due to inability to recover pumping costs
6/26/2021	14	Economic loss due to inability to recover pumping costs
6/26/2021	15	Economic loss due to inability to recover pumping costs
6/26/2021	18	Economic loss due to inability to recover pumping costs
6/26/2021	19	Economic loss due to inability to recover pumping costs
6/26/2021	20	Economic loss due to inability to recover pumping costs
6/26/2021	21	Economic loss due to inability to recover pumping costs
6/26/2021	23	Economic loss due to inability to economically generate
6/26/2021	24	Economic loss due to inability to economically generate
6/27/2021	1	Economic loss due to inability to economically generate
6/27/2021	2	Economic loss due to inability to economically generate
6/27/2021	3	Economic loss due to inability to economically generate
6/27/2021	4	Economic loss due to inability to economically generate
6/27/2021	5	Economic loss due to inability to economically generate
6/27/2021	6	Economic loss due to inability to economically generate
6/27/2021	7	Economic loss due to inability to economically generate
6/27/2021	8	Economic loss due to inability to economically generate
6/27/2021	9	Economic loss due to inability to economically generate
6/27/2021	11	Economic loss due to inability to recover pumping costs
6/27/2021	12	Economic loss due to inability to recover pumping costs
6/27/2021	13	Economic loss due to inability to recover pumping costs
6/27/2021	15	Economic loss due to inability to recover pumping costs
6/27/2021	16	Economic loss due to inability to recover pumping costs
6/27/2021	19	Economic loss due to inability to recover pumping costs
6/27/2021	20	Economic loss due to inability to recover pumping costs
6/28/2021	6	Economic loss due to inability to economically generate
6/28/2021	7	Economic loss due to inability to recover pumping costs
7/1/2021	17	Economic loss due to inability to recover pumping costs
7/1/2021	18	Economic loss due to inability to recover pumping costs
7/1/2021	19	Economic loss due to inability to recover pumping costs
7/1/2021	20	Economic loss due to inability to recover pumping costs
7/1/2021	21	Economic loss due to inability to recover pumping costs
7/4/2021	13	Economic loss due to inability to recover pumping costs
7/4/2021	14	Economic loss due to inability to recover pumping costs
7/4/2021	23	Economic loss due to inability to recover pumping costs
7/5/2021	5	Economic loss due to inability to economically generate
7/5/2021	6	Economic loss due to inability to economically generate
7/5/2021	7	Economic loss due to inability to recover pumping costs
7/5/2021	8	Economic loss due to inability to recover pumping costs
7/5/2021	9	Economic loss due to inability to recover pumping costs
7/5/2021	10	Economic loss due to inability to recover pumping costs
7/5/2021	11	Economic loss due to inability to recover pumping costs
7/5/2021	12	Economic loss due to inability to recover pumping costs
7/5/2021	17	Economic loss due to inability to recover pumping costs
7/5/2021	18	Economic loss due to inability to recover pumping costs
7/5/2021	19	Economic loss due to inability to recover pumping costs
7/5/2021	20	Economic loss due to inability to economically generate
7/5/2021	21	Economic loss due to inability to economically generate
7/5/2021	22	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/5/2021	23	Economic loss due to inability to economically generate
7/5/2021	24	Economic loss due to inability to economically generate
7/12/2021	6	Economic loss due to inability to economically generate
7/13/2021	6	Economic loss due to inability to economically generate
7/14/2021	5	Economic loss due to inability to economically generate
7/16/2021	5	Economic loss due to inability to economically generate
7/16/2021	6	Economic loss due to inability to economically generate
7/16/2021	15	Economic loss due to inability to recover pumping costs
7/16/2021	16	Economic loss due to inability to recover pumping costs
7/16/2021	17	Economic loss due to inability to recover pumping costs
7/16/2021	18	Economic loss due to inability to recover pumping costs
7/16/2021	19	Economic loss due to inability to recover pumping costs
7/16/2021	20	Economic loss due to inability to recover pumping costs
7/16/2021	21	Economic loss due to inability to recover pumping costs
7/16/2021	22	Economic loss due to inability to recover pumping costs
7/16/2021	23	Economic loss due to inability to recover pumping costs
7/17/2021	12	Economic loss due to inability to recover pumping costs
7/17/2021	13	Economic loss due to inability to economically generate
7/17/2021	14	Economic loss due to inability to recover pumping costs
7/17/2021	15	Economic loss due to inability to recover pumping costs
7/17/2021	16	Economic loss due to inability to recover pumping costs
7/17/2021	17	Economic loss due to inability to recover pumping costs
7/17/2021	18	Economic loss due to inability to recover pumping costs
7/17/2021	19	Economic loss due to inability to recover pumping costs
7/17/2021	20	Economic loss due to inability to recover pumping costs
7/17/2021	21	Economic loss due to inability to recover pumping costs
7/22/2021	1	Economic loss due to inability to economically generate
7/23/2021	1	Economic loss due to inability to economically generate
7/23/2021	24	Economic loss due to inability to recover pumping costs
7/24/2021	1	Economic loss due to inability to economically generate
7/24/2021	9	Economic loss due to inability to economically generate
7/24/2021	10	Economic loss due to inability to economically generate
7/24/2021	11	Economic loss due to inability to recover pumping costs
7/24/2021	13	Economic loss due to inability to recover pumping costs
7/24/2021	14	Economic loss due to inability to recover pumping costs
7/24/2021	15	Economic loss due to inability to recover pumping costs
7/24/2021	16	Economic loss due to inability to recover pumping costs
7/24/2021	17	Economic loss due to inability to recover pumping costs
7/24/2021	18	Economic loss due to inability to recover pumping costs
7/24/2021	19	Economic loss due to inability to recover pumping costs
7/24/2021	20	Economic loss due to inability to recover pumping costs
7/24/2021	21	Economic loss due to inability to recover pumping costs
7/25/2021	2	Economic loss due to inability to economically generate
7/25/2021	7	Economic loss due to inability to economically generate
7/25/2021	8	Economic loss due to inability to economically generate
7/25/2021	9	Economic loss due to inability to economically generate
7/25/2021	10	Economic loss due to inability to recover pumping costs
7/30/2021	1	Economic loss due to inability to economically generate
7/30/2021	2	Economic loss due to inability to economically generate
7/30/2021	3	Economic loss due to inability to economically generate
7/30/2021	4	Economic loss due to inability to economically generate
7/30/2021	5	Economic loss due to inability to economically generate
7/30/2021	6	Economic loss due to inability to economically generate
7/30/2021	12	Economic loss due to inability to recover pumping costs
7/30/2021	13	Economic loss due to inability to recover pumping costs
7/30/2021	14	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
7/30/2021	16	Economic loss due to inability to recover pumping costs
7/30/2021	17	Economic loss due to inability to recover pumping costs
7/30/2021	19	Economic loss due to inability to recover pumping costs
7/30/2021	20	Economic loss due to inability to recover pumping costs
8/2/2021	1	Economic loss due to inability to economically generate
8/2/2021	2	Economic loss due to inability to economically generate
8/2/2021	3	Economic loss due to inability to economically generate
8/2/2021	4	Economic loss due to inability to economically generate
8/2/2021	5	Economic loss due to inability to economically generate
8/2/2021	6	Economic loss due to inability to economically generate
8/2/2021	7	Economic loss due to inability to economically generate
8/2/2021	8	Economic loss due to inability to economically generate
8/2/2021	9	Economic loss due to inability to economically generate
8/2/2021	10	Economic loss due to inability to economically generate
8/2/2021	11	Economic loss due to inability to recover pumping costs
8/2/2021	12	Economic loss due to inability to recover pumping costs
8/2/2021	13	Economic loss due to inability to recover pumping costs
8/2/2021	14	Economic loss due to inability to economically generate
8/2/2021	15	Economic loss due to inability to economically generate
8/2/2021	16	Economic loss due to inability to recover pumping costs
8/2/2021	17	Economic loss due to inability to recover pumping costs
8/2/2021	18	Economic loss due to inability to recover pumping costs
8/2/2021	19	Economic loss due to inability to recover pumping costs
8/2/2021	20	Economic loss due to inability to recover pumping costs
8/2/2021	21	Economic loss due to inability to recover pumping costs
8/2/2021	22	Economic loss due to inability to recover pumping costs
8/2/2021	23	Economic loss due to inability to economically generate
8/2/2021	24	Economic loss due to inability to economically generate
8/5/2021	7	Economic loss due to inability to recover pumping costs
8/8/2021	24	Economic loss due to inability to economically generate
8/10/2021	6	Economic loss due to inability to economically generate
8/11/2021	2	Economic loss due to inability to economically generate
8/15/2021	2	Economic loss due to inability to recover pumping costs
8/15/2021	3	Economic loss due to inability to economically generate
8/15/2021	4	Economic loss due to inability to economically generate
8/16/2021	7	Economic loss due to inability to recover pumping costs
8/22/2021	4	Economic loss due to inability to economically generate
8/29/2021	6	Economic loss due to inability to economically generate
8/29/2021	7	Economic loss due to inability to economically generate
9/1/2021	6	Economic loss due to inability to recover pumping costs
9/1/2021	13	Economic loss due to inability to recover pumping costs
9/1/2021	14	Economic loss due to inability to recover pumping costs
9/1/2021	17	Economic loss due to inability to recover pumping costs
9/3/2021	5	Economic loss due to inability to economically generate
9/4/2021	11	Economic loss due to inability to recover pumping costs
9/4/2021	12	Economic loss due to inability to recover pumping costs
9/4/2021	14	Economic loss due to inability to recover pumping costs
9/4/2021	22	Economic loss due to inability to recover pumping costs
9/4/2021	23	Economic loss due to inability to economically generate
9/4/2021	24	Economic loss due to inability to economically generate
9/7/2021	3	Economic loss due to inability to economically generate
9/7/2021	5	Economic loss due to inability to economically generate
9/7/2021	6	Economic loss due to inability to economically generate
9/7/2021	7	Economic loss due to inability to recover pumping costs
9/7/2021	8	Economic loss due to inability to recover pumping costs
9/7/2021	14	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
9/9/2021	4	Economic loss due to inability to economically generate
9/9/2021	5	Economic loss due to inability to recover pumping costs
9/9/2021	14	Economic loss due to inability to recover pumping costs
9/10/2021	24	Economic loss due to inability to economically generate
9/12/2021	1	Economic loss due to inability to economically generate
9/12/2021	2	Economic loss due to inability to economically generate
9/12/2021	3	Economic loss due to inability to economically generate
9/12/2021	4	Economic loss due to inability to economically generate
9/12/2021	5	Economic loss due to inability to economically generate
9/16/2021	22	Economic loss due to inability to economically generate
9/16/2021	23	Economic loss due to inability to economically generate
9/16/2021	24	Economic loss due to inability to economically generate
10/2/2021	6	Economic loss due to inability to economically generate
10/2/2021	23	Economic loss due to inability to recover pumping costs
10/10/2021	15	Economic loss due to inability to recover pumping costs
10/10/2021	17	Economic loss due to inability to recover pumping costs
10/10/2021	19	Economic loss due to inability to recover pumping costs
10/10/2021	20	Economic loss due to inability to recover pumping costs
10/10/2021	21	Economic loss due to inability to recover pumping costs
10/10/2021	22	Economic loss due to inability to economically generate
10/10/2021	23	Economic loss due to inability to economically generate
10/15/2021	5	Economic loss due to inability to economically generate
10/18/2021	1	Economic loss due to inability to economically generate
10/18/2021	2	Economic loss due to inability to economically generate
10/18/2021	3	Economic loss due to inability to economically generate
10/18/2021	4	Economic loss due to inability to economically generate
10/18/2021	5	Economic loss due to inability to economically generate
10/18/2021	6	Economic loss due to inability to recover pumping costs
10/18/2021	7	Economic loss due to inability to recover pumping costs
10/18/2021	8	Economic loss due to inability to recover pumping costs
10/18/2021	9	Economic loss due to inability to recover pumping costs
10/18/2021	10	Economic loss due to inability to recover pumping costs
10/18/2021	11	Economic loss due to inability to recover pumping costs
10/18/2021	12	Economic loss due to inability to recover pumping costs
10/18/2021	13	Economic loss due to inability to recover pumping costs
10/18/2021	14	Economic loss due to inability to recover pumping costs
10/18/2021	15	Economic loss due to inability to recover pumping costs
10/18/2021	16	Economic loss due to inability to recover pumping costs
10/18/2021	17	Economic loss due to inability to recover pumping costs
10/18/2021	18	Economic loss due to inability to recover pumping costs
10/18/2021	19	Economic loss due to inability to recover pumping costs
10/18/2021	20	Economic loss due to inability to economically generate
10/18/2021	21	Economic loss due to inability to recover pumping costs
10/18/2021	22	Economic loss due to inability to recover pumping costs
10/18/2021	23	Economic loss due to inability to recover pumping costs
10/18/2021	24	Economic loss due to inability to recover pumping costs
10/22/2021	11	Economic loss due to inability to recover pumping costs
10/22/2021	12	Economic loss due to inability to recover pumping costs
10/22/2021	13	Economic loss due to inability to recover pumping costs
10/22/2021	14	Economic loss due to inability to recover pumping costs
10/24/2021	10	Economic loss due to inability to recover pumping costs
10/24/2021	11	Economic loss due to inability to recover pumping costs
10/24/2021	12	Economic loss due to inability to recover pumping costs
10/24/2021	14	Economic loss due to inability to recover pumping costs
10/24/2021	17	Economic loss due to inability to recover pumping costs
10/24/2021	18	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
10/24/2021	23	Economic loss due to inability to recover pumping costs
10/26/2021	7	Economic loss due to inability to recover pumping costs
10/26/2021	8	Economic loss due to inability to recover pumping costs
10/26/2021	9	Economic loss due to inability to recover pumping costs
10/26/2021	10	Economic loss due to inability to recover pumping costs
10/26/2021	11	Economic loss due to inability to recover pumping costs
10/26/2021	12	Economic loss due to inability to recover pumping costs
10/26/2021	13	Economic loss due to inability to recover pumping costs
10/26/2021	14	Economic loss due to inability to recover pumping costs
10/26/2021	15	Economic loss due to inability to recover pumping costs
10/26/2021	16	Economic loss due to inability to recover pumping costs
10/26/2021	17	Economic loss due to inability to recover pumping costs
10/26/2021	18	Economic loss due to inability to recover pumping costs
10/26/2021	19	Economic loss due to inability to recover pumping costs
11/8/2021	12	Economic loss due to inability to recover pumping costs
11/8/2021	15	Economic loss due to inability to recover pumping costs
11/12/2021	2	Economic loss due to inability to economically generate
11/12/2021	9	Economic loss due to inability to recover pumping costs
11/12/2021	10	Economic loss due to inability to recover pumping costs
11/12/2021	12	Economic loss due to inability to recover pumping costs
11/12/2021	13	Economic loss due to inability to recover pumping costs
11/13/2021	12	Economic loss due to inability to recover pumping costs
11/21/2021	11	Economic loss due to inability to economically generate
11/21/2021	12	Economic loss due to inability to economically generate
11/24/2021	11	Economic loss due to inability to recover pumping costs
11/24/2021	12	Economic loss due to inability to recover pumping costs
11/26/2021	8	Economic loss due to inability to recover pumping costs
11/30/2021	24	Economic loss due to inability to economically generate
12/12/2021	9	Economic loss due to inability to economically generate
12/12/2021	10	Economic loss due to inability to economically generate
12/16/2021	7	Economic loss due to inability to recover pumping costs
12/16/2021	12	Economic loss due to inability to recover pumping costs
12/16/2021	13	Economic loss due to inability to recover pumping costs
12/16/2021	14	Economic loss due to inability to recover pumping costs
12/16/2021	15	Economic loss due to inability to recover pumping costs
12/16/2021	16	Economic loss due to inability to recover pumping costs
12/17/2021	5	Economic loss due to inability to economically generate
12/17/2021	13	Economic loss due to inability to recover pumping costs
12/17/2021	14	Economic loss due to inability to recover pumping costs
12/17/2021	15	Economic loss due to inability to recover pumping costs
12/20/2021	7	Economic loss due to inability to recover pumping costs
12/20/2021	9	Economic loss due to inability to recover pumping costs
12/20/2021	13	Economic loss due to inability to recover pumping costs
12/20/2021	14	Economic loss due to inability to recover pumping costs
12/20/2021	16	Economic loss due to inability to recover pumping costs
12/20/2021	17	Economic loss due to inability to recover pumping costs
12/20/2021	18	Economic loss due to inability to recover pumping costs
12/20/2021	19	Economic loss due to inability to recover pumping costs
12/20/2021	20	Economic loss due to inability to recover pumping costs
12/24/2021	20	Economic loss due to inability to recover pumping costs
12/24/2021	21	Economic loss due to inability to recover pumping costs
12/24/2021	22	Economic loss due to inability to recover pumping costs
12/24/2021	23	Economic loss due to inability to recover pumping costs
12/24/2021	24	Economic loss due to inability to economically generate
12/25/2021	16	Economic loss due to inability to recover pumping costs
12/26/2021	6	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/26/2021	7	Economic loss due to inability to economically generate
12/27/2021	11	Economic loss due to inability to recover pumping costs
12/27/2021	13	Economic loss due to inability to recover pumping costs
12/27/2021	14	Economic loss due to inability to recover pumping costs
12/27/2021	15	Economic loss due to inability to recover pumping costs
12/27/2021	16	Economic loss due to inability to recover pumping costs
12/28/2021	4	Economic loss due to inability to economically generate
12/31/2021	6	Economic loss due to inability to recover pumping costs
12/31/2021	7	Economic loss due to inability to recover pumping costs
1/12/2022	7	Economic loss due to inability to economically generate
1/12/2022	8	Economic loss due to inability to recover pumping costs
1/12/2022	10	Economic loss due to inability to recover pumping costs
1/12/2022	11	Economic loss due to inability to recover pumping costs
1/17/2022	11	Economic loss due to inability to recover pumping costs
1/17/2022	12	Economic loss due to inability to recover pumping costs
1/17/2022	13	Economic loss due to inability to recover pumping costs
1/18/2022	8	Economic loss due to inability to recover pumping costs
1/27/2022	7	Economic loss due to inability to recover pumping costs
1/27/2022	8	Economic loss due to inability to recover pumping costs
1/27/2022	9	Economic loss due to inability to recover pumping costs
1/27/2022	10	Economic loss due to inability to recover pumping costs
1/27/2022	19	Economic loss due to inability to recover pumping costs
1/27/2022	20	Economic loss due to inability to economically generate
1/28/2022	7	Economic loss due to inability to economically generate
1/28/2022	8	Economic loss due to inability to recover pumping costs
2/2/2022	5	Economic loss due to inability to economically generate
2/4/2022	1	Economic loss due to inability to economically generate
2/4/2022	2	Economic loss due to inability to economically generate
2/6/2022	9	Economic loss due to inability to recover pumping costs
2/6/2022	10	Economic loss due to inability to recover pumping costs
2/6/2022	11	Economic loss due to inability to recover pumping costs
2/6/2022	18	Economic loss due to inability to recover pumping costs
2/6/2022	19	Economic loss due to inability to recover pumping costs
2/7/2022	11	Economic loss due to inability to recover pumping costs
2/7/2022	22	Economic loss due to inability to recover pumping costs
2/7/2022	23	Economic loss due to inability to recover pumping costs
2/7/2022	24	Economic loss due to inability to recover pumping costs
2/8/2022	24	Economic loss due to inability to recover pumping costs
2/9/2022	1	Economic loss due to inability to economically generate
2/9/2022	2	Economic loss due to inability to economically generate
2/9/2022	3	Economic loss due to inability to economically generate
2/10/2022	11	Economic loss due to inability to recover pumping costs
2/10/2022	23	Economic loss due to inability to recover pumping costs
2/10/2022	24	Economic loss due to inability to recover pumping costs
2/11/2022	17	Economic loss due to inability to recover pumping costs
2/11/2022	23	Economic loss due to inability to economically generate
2/11/2022	24	Economic loss due to inability to economically generate
2/22/2022	2	Economic loss due to inability to economically generate
3/7/2022	3	Economic loss due to inability to recover pumping costs
3/7/2022	4	Economic loss due to inability to economically generate
3/16/2022	23	Economic loss due to inability to recover pumping costs
3/16/2022	24	Economic loss due to inability to recover pumping costs
3/17/2022	1	Economic loss due to inability to economically generate
3/18/2022	18	Economic loss due to inability to recover pumping costs
3/18/2022	22	Economic loss due to inability to recover pumping costs
3/18/2022	23	Economic loss due to inability to economically generate

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
3/18/2022	24	Economic loss due to inability to economically generate
4/6/2022	11	Economic loss due to inability to recover pumping costs
4/6/2022	12	Economic loss due to inability to recover pumping costs
4/6/2022	13	Economic loss due to inability to recover pumping costs
4/6/2022	16	Economic loss due to inability to recover pumping costs
4/6/2022	19	Economic loss due to inability to recover pumping costs
4/6/2022	21	Economic loss due to inability to recover pumping costs
4/7/2022	7	Economic loss due to inability to recover pumping costs
4/7/2022	8	Economic loss due to inability to recover pumping costs
4/7/2022	13	Economic loss due to inability to recover pumping costs
4/7/2022	14	Economic loss due to inability to recover pumping costs
4/7/2022	15	Economic loss due to inability to recover pumping costs
4/7/2022	16	Economic loss due to inability to recover pumping costs
4/7/2022	21	Economic loss due to inability to recover pumping costs
4/10/2022	12	Economic loss due to inability to recover pumping costs
4/10/2022	13	Economic loss due to inability to recover pumping costs
4/10/2022	19	Economic loss due to inability to recover pumping costs
4/10/2022	20	Economic loss due to inability to recover pumping costs
4/10/2022	21	Economic loss due to inability to recover pumping costs
4/10/2022	22	Economic loss due to inability to recover pumping costs
4/10/2022	23	Economic loss due to inability to recover pumping costs
5/9/2022	17	Economic loss due to inability to recover pumping costs
5/9/2022	18	Economic loss due to inability to recover pumping costs
5/9/2022	19	Economic loss due to inability to recover pumping costs
5/9/2022	20	Economic loss due to inability to recover pumping costs
5/9/2022	21	Economic loss due to inability to recover pumping costs
5/13/2022	8	Economic loss due to inability to recover pumping costs
5/15/2022	6	Economic loss due to inability to economically generate
5/22/2022	4	Economic loss due to inability to recover pumping costs
5/22/2022	5	Economic loss due to inability to recover pumping costs
6/22/2022	7	Economic loss due to inability to recover pumping costs
6/22/2022	8	Economic loss due to inability to recover pumping costs
8/2/2022	5	Economic loss due to inability to economically generate
9/1/2022	6	Economic loss due to inability to recover pumping costs
9/1/2022	16	Economic loss due to inability to recover pumping costs
9/2/2022	7	Economic loss due to inability to recover pumping costs
9/2/2022	8	Economic loss due to inability to recover pumping costs
9/2/2022	9	Economic loss due to inability to recover pumping costs
9/2/2022	11	Economic loss due to inability to recover pumping costs
9/2/2022	12	Economic loss due to inability to recover pumping costs
10/3/2022	7	Economic loss due to inability to recover pumping costs
10/9/2022	17	Economic loss due to inability to recover pumping costs
10/9/2022	19	Economic loss due to inability to recover pumping costs
10/25/2022	7	Economic loss due to inability to recover pumping costs
10/25/2022	8	Economic loss due to inability to recover pumping costs
10/25/2022	9	Economic loss due to inability to recover pumping costs
10/25/2022	10	Economic loss due to inability to recover pumping costs
10/25/2022	11	Economic loss due to inability to recover pumping costs
10/25/2022	13	Economic loss due to inability to recover pumping costs
10/25/2022	14	Economic loss due to inability to recover pumping costs
10/25/2022	15	Economic loss due to inability to recover pumping costs
10/25/2022	16	Economic loss due to inability to recover pumping costs
10/25/2022	17	Economic loss due to inability to recover pumping costs
10/25/2022	18	Economic loss due to inability to recover pumping costs
11/9/2022	8	Economic loss due to inability to recover pumping costs
11/9/2022	9	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
11/9/2022	10	Economic loss due to inability to recover pumping costs
11/9/2022	11	Economic loss due to inability to recover pumping costs
11/9/2022	12	Economic loss due to inability to recover pumping costs
11/9/2022	13	Economic loss due to inability to recover pumping costs
11/9/2022	14	Economic loss due to inability to recover pumping costs
11/9/2022	15	Economic loss due to inability to recover pumping costs
11/9/2022	16	Economic loss due to inability to recover pumping costs
11/9/2022	17	Economic loss due to inability to recover pumping costs
11/9/2022	18	Economic loss due to inability to recover pumping costs
11/9/2022	19	Economic loss due to inability to recover pumping costs
11/9/2022	20	Economic loss due to inability to recover pumping costs
11/9/2022	21	Economic loss due to inability to recover pumping costs
11/9/2022	22	Economic loss due to inability to recover pumping costs
11/9/2022	23	Economic loss due to inability to economically generate
11/11/2022	12	Economic loss due to inability to recover pumping costs
11/11/2022	13	Economic loss due to inability to recover pumping costs
11/11/2022	14	Economic loss due to inability to recover pumping costs
11/11/2022	15	Economic loss due to inability to recover pumping costs
11/11/2022	16	Economic loss due to inability to recover pumping costs
11/11/2022	17	Economic loss due to inability to recover pumping costs
11/11/2022	18	Economic loss due to inability to recover pumping costs
11/11/2022	19	Economic loss due to inability to recover pumping costs
11/11/2022	22	Economic loss due to inability to recover pumping costs
11/15/2022	24	Economic loss due to inability to economically generate
11/16/2022	4	Economic loss due to inability to economically generate
11/16/2022	5	Economic loss due to inability to economically generate
11/16/2022	8	Economic loss due to inability to recover pumping costs
11/16/2022	9	Economic loss due to inability to recover pumping costs
11/16/2022	11	Economic loss due to inability to recover pumping costs
11/16/2022	14	Economic loss due to inability to recover pumping costs
11/16/2022	22	Economic loss due to inability to recover pumping costs
11/16/2022	23	Economic loss due to inability to recover pumping costs
11/16/2022	24	Economic loss due to inability to recover pumping costs
11/17/2022	2	Economic loss due to inability to recover pumping costs
11/17/2022	13	Economic loss due to inability to recover pumping costs
11/17/2022	15	Economic loss due to inability to recover pumping costs
11/17/2022	19	Economic loss due to inability to recover pumping costs
11/17/2022	20	Economic loss due to inability to recover pumping costs
11/17/2022	21	Economic loss due to inability to recover pumping costs
11/17/2022	23	Economic loss due to inability to economically generate
11/17/2022	24	Economic loss due to inability to economically generate
11/18/2022	5	Economic loss due to inability to economically generate
11/19/2022	10	Economic loss due to inability to recover pumping costs
11/19/2022	11	Economic loss due to inability to recover pumping costs
11/19/2022	12	Economic loss due to inability to recover pumping costs
11/19/2022	13	Economic loss due to inability to recover pumping costs
11/19/2022	14	Economic loss due to inability to economically generate
11/19/2022	15	Economic loss due to inability to economically generate
11/19/2022	16	Economic loss due to inability to economically generate
11/19/2022	17	Economic loss due to inability to recover pumping costs
11/19/2022	18	Economic loss due to inability to recover pumping costs
11/19/2022	19	Economic loss due to inability to recover pumping costs
11/19/2022	20	Economic loss due to inability to recover pumping costs
11/19/2022	21	Economic loss due to inability to recover pumping costs
11/19/2022	22	Economic loss due to inability to recover pumping costs
11/19/2022	23	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
11/20/2022	10	Economic loss due to inability to economically generate
11/20/2022	11	Economic loss due to inability to economically generate
11/20/2022	12	Economic loss due to inability to economically generate
11/20/2022	13	Economic loss due to inability to economically generate
11/20/2022	14	Economic loss due to inability to economically generate
11/20/2022	15	Economic loss due to inability to economically generate
11/20/2022	16	Economic loss due to inability to economically generate
11/20/2022	17	Economic loss due to inability to recover pumping costs
11/20/2022	18	Economic loss due to inability to recover pumping costs
11/20/2022	19	Economic loss due to inability to recover pumping costs
11/20/2022	20	Economic loss due to inability to recover pumping costs
11/20/2022	21	Economic loss due to inability to recover pumping costs
11/20/2022	22	Economic loss due to inability to recover pumping costs
11/20/2022	23	Economic loss due to inability to recover pumping costs
11/24/2022	8	Economic loss due to inability to recover pumping costs
11/24/2022	9	Economic loss due to inability to recover pumping costs
11/24/2022	10	Economic loss due to inability to recover pumping costs
11/24/2022	11	Economic loss due to inability to recover pumping costs
11/24/2022	12	Economic loss due to inability to recover pumping costs
11/24/2022	13	Economic loss due to inability to recover pumping costs
11/24/2022	14	Economic loss due to inability to recover pumping costs
11/24/2022	15	Economic loss due to inability to recover pumping costs
11/24/2022	16	Economic loss due to inability to recover pumping costs
11/24/2022	17	Economic loss due to inability to recover pumping costs
11/24/2022	18	Economic loss due to inability to recover pumping costs
11/24/2022	19	Economic loss due to inability to recover pumping costs
11/24/2022	20	Economic loss due to inability to recover pumping costs
11/24/2022	21	Economic loss due to inability to recover pumping costs
11/27/2022	15	Economic loss due to inability to recover pumping costs
11/27/2022	16	Economic loss due to inability to recover pumping costs
11/27/2022	17	Economic loss due to inability to recover pumping costs
11/27/2022	18	Economic loss due to inability to recover pumping costs
11/27/2022	19	Economic loss due to inability to recover pumping costs
11/27/2022	20	Economic loss due to inability to recover pumping costs
11/27/2022	21	Economic loss due to inability to economically generate
11/27/2022	22	Economic loss due to inability to economically generate
11/27/2022	23	Economic loss due to inability to economically generate
11/27/2022	24	Economic loss due to inability to economically generate
11/29/2022	20	Economic loss due to inability to recover pumping costs
12/2/2022	18	Economic loss due to inability to recover pumping costs
12/2/2022	19	Economic loss due to inability to recover pumping costs
12/2/2022	20	Economic loss due to inability to recover pumping costs
12/2/2022	21	Economic loss due to inability to recover pumping costs
12/3/2022	18	Economic loss due to inability to recover pumping costs
12/3/2022	20	Economic loss due to inability to recover pumping costs
12/4/2022	21	Economic loss due to inability to recover pumping costs
12/4/2022	22	Economic loss due to inability to economically generate
12/10/2022	10	Economic loss due to inability to recover pumping costs
12/10/2022	20	Economic loss due to inability to recover pumping costs
12/15/2022	8	Economic loss due to inability to recover pumping costs
12/15/2022	10	Economic loss due to inability to recover pumping costs
12/15/2022	11	Economic loss due to inability to recover pumping costs
12/15/2022	12	Economic loss due to inability to recover pumping costs
12/15/2022	13	Economic loss due to inability to recover pumping costs
12/15/2022	14	Economic loss due to inability to recover pumping costs
12/15/2022	15	Economic loss due to inability to recover pumping costs

SBGVA Hour when Pumping is Uneconomic and Associated Reasons for Economic Loss if Pumped

Date	Hour	Reason for Economic Loss
12/15/2022	16	Economic loss due to inability to recover pumping costs
12/15/2022	17	Economic loss due to inability to recover pumping costs
12/15/2022	18	Economic loss due to inability to recover pumping costs
12/15/2022	19	Economic loss due to inability to recover pumping costs
12/18/2022	2	Economic loss due to inability to economically generate
12/18/2022	14	Economic loss due to inability to recover pumping costs
12/18/2022	20	Economic loss due to inability to recover pumping costs
12/28/2022	11	Economic loss due to inability to recover pumping costs
12/28/2022	12	Economic loss due to inability to recover pumping costs
12/28/2022	13	Economic loss due to inability to recover pumping costs
12/28/2022	16	Economic loss due to inability to recover pumping costs
12/28/2022	18	Economic loss due to inability to recover pumping costs
12/28/2022	21	Economic loss due to inability to recover pumping costs
12/30/2022	24	Economic loss due to inability to recover pumping costs
12/31/2022	9	Economic loss due to inability to recover pumping costs
12/31/2022	11	Economic loss due to inability to recover pumping costs
12/31/2022	12	Economic loss due to inability to recover pumping costs
12/31/2022	16	Economic loss due to inability to recover pumping costs
12/31/2022	17	Economic loss due to inability to recover pumping costs
12/31/2022	18	Economic loss due to inability to recover pumping costs
12/31/2022	21	Economic loss due to inability to recover pumping costs
12/31/2022	22	Economic loss due to inability to recover pumping costs
12/31/2022	24	Economic loss due to inability to recover pumping costs

REGULATED HYDROELECTRIC PROJECTS –
CAPACITY REFURBISHMENT VARIANCE ACCOUNT

As discussed in Ex. H1-1-1, Section 5.6, OPG is seeking recovery of additions to the Capacity Refurbishment Variance Account ("CRVA") for the following regulated hydroelectric capital projects that were placed in service during the period from June 1, 2017 to December 31, 2021, or otherwise subsequent to the last time the regulated hydroelectric CRVA balances were reviewed as of year-end 2015. The projects are summarized at Ex. H1-1-1, Table 7b, Note 4 and Ex. H1-1-1, Table 7a, Note 2.

As also discussed in Ex. H1-1-1, Section 5.6, OPG proposes to defer recovery of the hydroelectric portion of the CRVA additions recorded in 2022 to a future application, in order to have available the necessary details for assessing the recoverability of amounts recorded over the full 2022-2026 IR period based on the thresholds set out in the EB-2020-0290 Payment Amounts Order.

<u>Sir Adam Beck I Generating Station – Unit G10 Major Overhaul and Upgrade</u>

As part of this project, OPG completed various major upgrades to Unit G10 at the Sir Adam Beck I GS, such as rewinding the generator stator and rotor, replacing associated electrical equipment, and overhauling the turbine. These changes improved unit efficiency and increased the MCR from 45.9 MW to 55.0 MW. The project was placed in service in 2017 with a total cost of $30.8M. This represented an increase of $3.2M from the Class 3 estimate of $27.0M in the First Execution Business Case, which is inside the Class 3 estimate accuracy range.[1] The cost variance was mainly due to higher than expected contractor cost to perform the work under an Engineer-Procure-Construct ("EPC") contract strategy, Original Equipment Manufacturer's ("OEM") delays in generator coil manufacturing and testing, and scope added

[1] Refers to the Association for the Advancement of Cost Engineering ("AACE") cost estimate classification system. The Estimate Class guidance within the AACE defines the "quality" of a cost estimate based on the underlying inputs and the project's stage of development, with Class 1 being the most accurate and Class 5 the least accurate. Estimates underpinning execution phase releases are generally Class 3, with an expected accuracy range of -20% to +30%.

to the turbine overhaul for a new head cover and bottom ring based on lessons learned from the Sir Adam Beck I Unit G9 upgrade.

Sir Adam Beck Pump Generating Station – PG1 and PG6 Overhauls

Executed as two separate projects, the overhaul of the PG1 and PG6 units at the Sir Adam Beck Pump GS included rehabilitating the existing runners, generators, exciters and other electrical components and systems, and installing a new control system. The overhaul of PG1 was placed in service in 2017 with a total cost of $7.0M, while the overhaul of PG6 was placed in service in 2019 with a total cost of $7.1M. Both projects were completed within their respective First Execution Business Case estimates of $7.7M and $7.9M, respectively.

Stewartville Generating Station – Sluicegate Replacement

Prior to the project, the two existing sluicegates and associated ancillary systems at the Stewartville GS were at the end of life, and inspections had revealed that they were in a deteriorated condition. This project replaced these sluicegates with those of newer design capable of operating in throttling mode, whereby they can be partially opened to regulate flow and variability, to preserve efficiency, along with the associated systems, the hoist, and the tower structure. The project was placed in service 2017 and 2018 with a total cost of $7.3M. This represented an increase of $0.5M, which was within 7% of the First Execution Business Case estimate of $6.8M.

Mountain Chute Generating Station – Rehabilitate Sluicegate Structure and Replace Gates

This project replaced the two existing sluicegates and the associated power supply and control systems as well as the sectional service gates at the Mountain Chute GS. The existing assets were at the end of life and in a deteriorated condition. The replacement sluicegates are designed to operate in throttling mode. The project was placed in service in 2017 and 2018 with a total cost of $7.8M, which was within the First Execution Business Case estimate of $8.3M.

DeCew Falls II Generating Station – Unit G2 Overhaul and Upgrade

This project installed a new generator and turbine shaft at the DeCew Falls II Unit G2, along with performing an overhaul of the turbine. Downstream electrical equipment and protections were also upgraded to accommodate output from the new unit. This work restored the unit's capacity to its 72.0 MW Maximum Continuous Rating ("MCR"), which had previously been de-rated to 63.0 MW between 2013 and 2019 to mitigate the risk of generator failure due to vibrations. The project was placed in service in 2019 with a total cost of $35.5M, which was within the First Execution Business Case estimate of $38.1M.

Otter Rapids Generating Station – T1, T2 Transformer Replacement

Both transformers at the Otter Rapids GS had reached the end of life and were replaced with those uprated in size and containing current technology as part of this project. The new transformers enable an increase in transmission capability from 90MVA to 120MVA to accommodate planned runner upgrades at the facility in the 2022-2026 IR period. The project was placed in service in 2018 and 2020 at a total cost of $12.7M, which was essentially in line with the First Execution Business Case estimate of $12.6M.

Manitou Falls Generating Station – Auto Sluice System Replacement

Prior to this project, auto sluicegates #A and #B at Manitou Falls GS were at the end of life and no longer met operational and design requirements, and their deteriorated condition limited operational frequency in order to manage the risk of failure. This project replaced the existing auto sluice system with an upgraded design and converted the adjacent log sluice to an auto sluice, allowing the system to operate more frequently to respond to market conditions. The project was placed in service in 2020 and 2021 with a total cost of $25.3M. This represented an increase of $1.3M, which was within 5% of the First Execution Business Case estimate of $24.0M.

Sir Adam Beck I Generating Station – Unit G5 Major Overhaul

Prior to this project, Unit G5 at the Sir Adam Beck I GS was at the end of its useful life and operating under a derate to 49MW to manage the risk of generator failure due to vibrations.

The project was a major overhaul and upgrade of the unit, including installation of a new turbine runner and static exciter and refurbishment of the field poles and the generator stator, windings and rotor. In addition to eliminating the derate, these changes increased the unit's MCR from 53.1 MW to 58.0 MW. The project was placed in service in 2021 with a total cost of $44.7M. This represented an increase of $9.9M from the Class 2 estimate of $34.8M in the First Execution Business Case. While characterized as a Class 2 estimate at the time, the level of project definition was reflective of a Class 3 estimate, which would have been typical for the phase of the project at that time.

The cost variance was mainly due to greater execution complexity compared to the station's Unit G10 Major Overhaul (discussed above), which was used as a basis for the cost estimate, resulting in greater than expected OEM cost to perform the work. Additionally, actual cost was impacted by the COVID-19 pandemic, including from suspension of on-site work at the pandemic's onset and additional safety protocols upon resumption, and extended dry commissioning phase and equipment failure during wet commissioning.

<u>Whitedog Falls Generating Station – Auto Sluice System Replacement and Sluicegate #1, #4, #5 and #6 Replacement</u>

The Auto Sluice System Replacement and Sluicegate #1, #4, #5 and #6 Replacement at Whitedog Falls GS were executed as two separate projects. The Auto Sluice System Replacement project replaced the existing auto sluice gates and associated systems, which had reached the end of life and were limited from operating frequently in order to manage the risk of failure, and added a third auto sluicegate by converting an existing pinned sluicegate. The improved design of the auto sluice system allows it to operate as often as needed, enabling quicker responses to market conditions. The project was placed in service in 2018 and 2019 with a total cost of $16.9M, which was essentially in line with the First Execution Business case estimate of $16.8M.

The Sluicegate #1, #4, #5 and #6 Replacement project replaced these four existing pinned sluicegates, the secondary concrete and embedded parts, and the associated electrical

components, all at the end of life. The project was placed in service in 2020 and 2021 with a total cost of $12.8M, which was in line with the First Execution Business Case estimate of $12.8M.

Pine Portage Generating Station – Auto Sluice System Replacement

This project replaced both auto sluicegates at the Pine Portage GS, along with the hoists, the structure, and the sluicegate gains at the spillway; these assets were placed in service in 2018. The project scope subsequently expanded to replace the surface of the dam deck, which deteriorated significantly while work was being performed on the auto sluice system and became a safety hazard. The new concrete deck at the spillway section of the dam was placed in service in 2021. Prior to the project, the existing auto sluicegates were at the end of life and were no longer capable of adequately responding to changing market conditions, and were limited from operating frequently in order to manage the failure rate. The replaced auto sluicegates reflect an upgraded design that allows them to operate as and when needed. The project was completed with a total cost of $13.1M, which was $3.4M higher than the Class 3 estimate of $9.7M in the First Execution Business Case and within the superseding budget of $13.6M that reflected the scope added to replace the surface of the dam deck.

Caribou Falls Generating Station – Auto Sluice System Replacement and Sluicegate #4 and #6 Replacement

The Auto Sluice System Replacement and Sluicegate #4 and #6 Replacement at the Caribou Falls GS were executed as two separate projects. The Auto Sluice System Replacement project replaced existing auto sluicegates #8 and #9 and associated equipment, which had reached the end of life and were constrained to limited operations to minimize the risk of failure. The restricted operations of the sluicegates reduced OPG's ability to operate reliably and to maintain availability to respond to market conditions. The new auto sluicegates will increase the reliability and frequency of operation through their modified design. The project also converted existing pinned sluicegate #7 to an auto sluicegate. The project was placed in service in 2021 with a total cost of $17.1M, which was within 3% of the First Execution Business Case estimate of $16.6M.

The Sluicegate #4 and #6 Replacement project replaced the original pinned sluicegates #4 and #6 at the end of life with new gates containing a new gain and gate heating system, along with the secondary concrete, embedded parts and electrical equipment. The project was placed in service 2021 with a total cost of $7.0M, which was within the First Execution Business Case estimate of $7.3M.

Aguasabon Generating Station – Surge Tank Replacement

This project replaced the existing surge tank at the Aguasabon GS that was approaching the end of life with one reflecting current design, materials and technology. The walls of the existing surge tank had material loss in thickness from corrosion and the lower bowl contained significant leakage. The project was placed in service in 2022 with a total cost of $26.4M. This represented an increase of $1.2M, which was within 5% of the First Execution Business Case estimate of $25.2M.

In this application, OPG is seeking recovery of the project's removal costs of $1.8M and the revenue requirement impact associated with $23.1M in assets placed in service during the 2017-2021 IR period. As noted above, OPG proposes to defer recovery of the hydroelectric portion of the CRVA additions recorded in 2022 to a future application.

Abitibi Canyon Generating Station – Unit G5 Stator Winding Replacement

This project constituted the engineering, design, fabrication, and installation of new stator windings for Unit G5 at the Abitibi Canyon GS to replace existing stator windings that had reached the end of life. Prior to the project, the deterioration of these existing components had resulted in multiple winding and jumper failures. The project was placed in service in 2020 with a total cost of $9.3M, which was within the First Execution Business Case estimate of $9.7M.

Sir Adam Beck I Generating Station – Units G1, G2 Replacement

Under this project, OPG replaced the obsolete and previously decommissioned 25Hz G1 and G2 units at the Sir Adam Beck I GS with two new 60Hz units. For each unit, OPG installed a

new generator, exciter, transformer and protection and controls systems, replaced the scroll cases, refurbished the headgates, and replaced the turbine components. The new units have an MCR of 57.5 MW, compared to 40 MW for the decommissioned units. The project was placed in service over the 2019-2022 period with a total cost of $122.8M, which was within 2.5% of the First Execution Business Case estimate of $119.7M and within the superseding budget of $127.9M. The superseding budget was established to account for supply chain delays for key components manufactured overseas as a result of the COVID-19 pandemic, as well as replacement of the scroll cases for both units upon discovery of significant deterioration beyond repair. In this application, OPG is seeking recovery of the project's removal costs of $9.9M and the revenue requirement impact associated with $11.7M in assets placed in service during the 2017-2021 IR period.

Ranney Falls Generating Station G3

The project installed a new 10 MW G3 unit at the Ranney Falls GS, replacing the existing 0.8 MW unit in the second powerhouse that had reached the end of life. The project was placed in service in 2019 and 2022 with a total cost of $74.5M. Although the project experienced a schedule delay from the generator sustaining damage during final commissioning in 2020, resulting in the final in-service taking place in 2022, it was completed within the First Execution Business Case estimate of $77.3M. As the damage to the generator stemmed from work performed by the vendor, the vendor undertook additional work to repair and reassemble the unit at their own cost. In this application, OPG is seeking recovery of the revenue requirement impact associated with $53.7M in assets placed in service during the 2017-2021 IR period.

R.H. Saunders Generating Station – Replacement of Westinghouse Excitation

OPG is in the process of replacing the outdated excitation systems in all 16 units of the R.H. Saunders GS that were built using technology that has since become obsolete, resulting in minimal manufacturer support and diminished ability for maintenance. As part of this project, replacement of the excitation systems and associated components related to units G1, G3, G5, G6, G7, G9 and G14 were placed in service by the end of the 2017-2021 IR period at an

aggregate cost of $7.5M. Replacement of the excitation systems in the remaining units is ongoing. The overall project is tracking within the First Execution Business Case estimate.

Sir Adam Beck Pump Generating Station – Reservoir Refurbishment

This project refurbished the storage reservoir belonging to the Sir Adam Beck Pump GS. The reservoir is surrounded by a dike consisting of a natural clay material in its core, which connects to the reservoir floor to prevent water seepage. The bedrock underneath the dike contained open, continuous joints that could cause water to seep out from the reservoir, particularly in areas with the largest water depths and strongest downward pressures, risking the formation of sinkholes capable of causing the dike to breach. The project was undertaken to minimize the risk of water seepage and other risks by lining critical areas of the reservoir with clay liners, constructing grout curtain in the bedrock foundation of the dike, and re-grading the reservoir floor in specified locations to remove any depressions. The project was placed in service in February 2017 with a total cost of $48.7M, which was within the First Execution Business Case estimate of $58.2M.

Report on the Accounting Cost for Post Employment Benefit Plans for Fiscal Years 2020, 2021 and 2022

Ontario Power Generation Inc.

January 1, 2020 to December 31, 2022

Table of Contents

Introduction 2

Actuarial Report 4

Actuarial Methods and Assumptions 6

Schedule 1–Summary of 2020 US GAAP Results 9

Schedule 2–Summary of 2021 US GAAP Results 10

Schedule 3–Summary of 2022 US GAAP Results 11

Introduction

This report summarizes the accounting costs for fiscal years 2020, 2021 and 2022 for the post employment benefit plans sponsored by Ontario Power Generation Inc. ("OPG"). In addition, Aon prepared this report to provide an independent actuary's confirmation of information for the post employment benefit plans sponsored by OPG in relation to the December 31, 2022 balances in OPG's Pension & OPEB Cash Versus Accrual Differential Deferral Account, the Pension & OPEB Cash Payment Variance Account and the Pension and OPEB Cost Variance Account, established by the Ontario Energy Board ("OEB"). We understand that this report is expected to be filed with the OEB.

This report covers the following plans sponsored by OPG:

- Ontario Power Generation Inc. Pension Plan ("OPG RPP");
- Ontario Power Generation Inc. Supplementary Pension Plan ("SPP");
- Non-Pension Post Retirement Plan which provides other post retirement benefits ("OPRB") including retiree medical, retiree dental, retiree life insurance, and retirement bonus benefits; and
- Post Employment Plan which provides long-term disability benefits ("LTD") including sick leave benefits before LTD begins and the continuation of medical, dental and life insurance while on LTD.

Collectively SPP, OPRB and LTD are known as Other Post Employment Benefits ("OPEB").

The results cover the fiscal years from January 1, 2020 to December 31, 2020, January 1, 2021 to December 31, 2021, and from January 1, 2022 to December 31, 2022. The results have been developed in accordance with US generally accepted accounting principles ("US GAAP") under ASC 710, 712 and 715.

The results in this report do not include amounts related to the benefit plans of the Nuclear Waste Management Organization or operating subsidiaries which are included in OPG's consolidated financial statements. Where applicable, the registered pension plan ("RPP") results in this report include amounts related to the New Horizon System Solutions Pension Plan, which was assumed by OPG effective November 1, 2022 following insourcing of information technology service operations.

Unless otherwise stated, all assumptions, data elements, methodologies, plan provisions, and information about assets reflected in this report are the same as those underlying and/or contained in the December 31, 2020, December 31, 2021, or the December 31, 2022 disclosure reports ("the Reports") prepared by Aon in accordance with US GAAP for the post employment benefit plans sponsored by OPG. These disclosure reports were dated March 2021, March 2022, and March 2023 respectively, and are titled as follows:

- US GAAP Accounting Information Non-pension Post-retirement and Post-employment Benefits Plans; and
- US GAAP Accounting Information – Pension Plans.

Sincerely,

Aon

[Original signed by]

Linda M. Byron
Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries

Aon

[Original signed by]

Isabelle Hasbani
Fellow of the Society of Actuaries
Fellow of the Canadian Institute of Actuaries

November 2023

Actuarial Report

Results for 2020, 2021 and 2022

This report confirms OPG's total actual pension and OPEB costs for the period from January 1, 2020 to December 31, 2022, as determined in accordance with US GAAP, are as follows:

(in Canadian $ 000's)	January 1, 2020 to December 31, 2020	January 1, 2021 to December 31, 2021	January 1, 2022 to December 31, 2022
RPP	$ 158,857	$ 199,089	$ 85,612
SPP	26,408	26,902	24,859
OPRB	156,539	150,020	154,882
LTD	42,515	35,765	17,403
Total	**$ 384,319**	**$ 411,776**	**$ 282,756**

Further details of the OPG-wide costs provided above, by plan, as well as OPG's actual contributions to the RPP fund and benefit payments for OPEB for the periods from January 1, 2020 to December 31, 2022 are provided in Schedules 1, 2 and 3 to this report.

In its November 2014 decision under case number EB-2013-0321, the OEB established the Pension & OPEB Cash Versus Accrual Differential Deferral Account and the Pension & OPEB Cash Payment Variance Account for OPG's nuclear and regulated hydroelectric businesses, effective November 1, 2014. The OEB authorized the continuation of these accounts in subsequent OPG applications.

As shown in materials being filed by OPG under OEB case number EB-2023-0336, additions to the Pension & OPEB Cash Versus Accrual Differential Deferral Account for the period from January 1, 2020 to December 31, 2022 were calculated by OPG by comparing the portion of the January 1, 2020 to December 31, 2022 OPG-wide US GAAP pension and OPEB costs attributed to OPG's regulated businesses[1] to the regulated businesses'[1] portion of OPG's total actual RPP fund contributions and actual benefit payments under OPEB plans for the corresponding periods. As also shown in those materials, additions to the Pension & OPEB Cash Payment Variance Account for the period from January 1, 2020 to December 31, 2022 were calculated by OPG by comparing the regulated businesses'[1] portion of the total actual RPP fund contributions and actual benefit payments under OPEB plans to such forecast amounts included in the regulated prices established by the OEB under case number EB-2016-0152 (for 2020 and 2021) and EB-2020-0290 (for 2022) for the nuclear business and EB-2013-0321 for the regulated hydroelectric business.

The OEB established the Pension and OPEB Cost Variance in its June 2011 decision under case number EB-2011-0090 and subsequently authorized its continuation in subsequent OPG applications. In its November 2014 decision under case number EB-2013-0321, the OEB ordered that no new variances be recorded in the account effective November 1, 2014. In its decisions and orders under case number EB-

[1] Nuclear and regulated hydroelectric for 2020 and 2021, regulated hydroelectric only for 2022.

2020-0290, the OEB authorized the account to resume recording variances for the nuclear business effective January 1, 2022. As shown in materials being filed by OPG under OEB case number EB-2023-0336, additions to the Pension and OPEB Cost Variance Account for the period from January 1, 2022 to December 31, 2022 were calculated by OPG by comparing the portion of the January 1, 2022 to December 31, 2022 OPG-wide US GAAP pension and OPEB costs attributed to OPG's nuclear business and related tax impacts to such forecast amounts reflected in the regulated prices for the nuclear business established by the OEB under case number EB-2020-0290.

The resulting unamortized balances of the Pension & OPEB Cash Versus Accrual Differential Deferral Account, the Pension & OPEB Cash Payment Variance Account and the Pension and OPEB Cost Variance Account calculated and recorded by OPG as at December 31, 2022 were $799 million to be recovered from ratepayers, and $460 million and $78 million to be paid to ratepayers, respectively, as reported in the audited schedule of regulatory balances as at December 31, 2022, prepared by OPG for filing with the OEB and dated November 28, 2023, and a copy of which was provided to Aon.

Actuarial Methods and Assumptions

Aon confirms that the OPG-wide costs for the years ended December 31, 2020, December 31, 2021 and December 31, 2022 as disclosed in this report were determined using the actuarial methodology and accounting standards described below. We furthermore confirm that the methodology under US GAAP is consistent with the methodology outlined in OPG's application to the OEB under case number EB-2016-0152 and used to determine the forecast of OPG-wide pension and OPEB costs for 2020 and 2021, which were presented by OPG in that proceeding through the filing of our report on these costs, "Report on the Estimated Accounting Cost for Post Employment Benefit Plans for Fiscal Years 2017 to 2021" dated December 2016. Finally, we confirm that the methodology under US GAAP is consistent with the methodology outlined in OPG's application to the OEB under case number EB-2020-0290 and used to determine the forecast of OPG-wide pension and OPEB costs for 2022, which were presented by OPG in that proceeding through the filing of our report on these costs, "Report on the Estimated Accounting Cost for Post Employment Benefit Plans for Fiscal Years 2021 to 2026" dated December 2020.

- Benefit obligations for RPP, SPP and OPRB are determined using the projected benefit method prorated on service;
- Benefit obligations for LTD are determined using the projected benefit method on a terminal basis such that the total estimated future benefit is attributed to the year of service in which a disability occurs;
- The discount rates have been determined in accordance with US GAAP, with reference to those representative of AA corporate bond yields in Canada having duration similar to the liabilities of the plans. For the OPG RPP, SPP and OPRB costs for 2020 to 2022, the discount rates were set using the applicable bond yields used to determine the corresponding benefit obligations as of December 31, 2019, December 31, 2020 and December 31, 2021, respectively;

  The following effective discount rates for determining the 2020 pension and OPEB costs under the full yield curve approach[1] were as follows:

	OPG RPP and SPP	OPRB	LTD
Current Service Cost	3.19% per annum	3.21% per annum	2.83% per annum
Interest Cost[2]	2.91% per annum	3.00% per annum	2.55% per annum

  The discount rate used to determine the projected benefit obligation at December 31, 2020 was 1.89% per annum for LTD;

[1] A series of individual spot rates applied to projected cash flows under the full yield curve approach is expressed as a single effective discount rate for disclosure purposes.

[2] The rates shown apply to interest cost on the projected benefit obligations at the beginning of the year. Under the full yield curve approach, a separate rate is used to calculate the interest cost on the current service cost recognized during the year. For 2020, this rate was 3.11% for OPG RPP and SPP costs, 3.19% for OPRB costs and 2.55% for LTD costs.

The effective discount rates for determining the 2021 pension and OPEB costs under the full yield curve approach were as follows:

	OPG RPP and SPP	OPRB	LTD
Current Service Cost	2.86% per annum	2.93% per annum	1.89% per annum
Interest Cost[1]	2.10% per annum	2.29% per annum	1.28% per annum

The discount rate used to determine the projected benefit obligation at December 31, 2021 was 2.69% per annum for LTD;

The effective discount rates for determining the 2022 pension and OPEB costs under the full yield curve approach were as follows:

	OPG RPP and SPP	OPRB	LTD
Current Service Cost	3.38% per annum	3.43% per annum	2.69% per annum
Interest Cost[2]	2.79% per annum	2.91% per annum	2.16% per annum

The discount rate used to determine the projected benefit obligation at December 31, 2022 was 5.21% per annum for LTD.

Under the full yield curve approach, individual spot discount rates along the yield curve are applied to the projected cash flows at the relevant maturity, resulting in a more precise measurement of interest cost. The service cost is also more precisely determined under the full yield curve approach, based on duration specific spot rates applied to discount the service cost projected cash flows.

- A building block approach is used in determining the expected long-term rate of return on plan assets. Historical markets are studied and long-term historical relationships between equities and fixed-income are preserved consistent with the widely accepted capital market principle that assets with higher volatility generate a greater return over the long run. Current market factors such as inflation and interest rates are evaluated before long-term capital market assumptions are determined. The long-term portfolio return is established using the fund's asset allocations, via a building block approach with proper consideration of diversification and rebalancing. Aon calculated the expected return based on this methodology. An expected rate of return on assets of 6.00% per annum determined using the above approach was used for determining the 2020 OPG

[1] The rates shown apply to interest cost on the projected benefit obligations at the beginning of the year. Under the full yield curve approach, a separate rate is used to calculate the interest cost on the current service cost recognized during the year. For 2021, this rate was 2.60% for OPG RPP and SPP costs, 2.84% for OPRB costs and 1.28% for LTD costs.

[2] The rates shown apply to interest cost on the projected benefit obligations at the beginning of the year. Under the full yield curve approach, a separate rate is used to calculate the interest cost on the current service cost recognized during the year. For 2022, this rate was 3.17% for OPG RPP and SPP costs, 3.37% for OPRB costs and 2.16% for LTD costs.

RPP costs. For 2021 and 2022 OPG RPP costs, an expected rate of return on assets of 5.75% per annum determined using the above approach was used.

- Other actuarial assumptions are management's best estimate of future events, as determined in consultation with us and as set out in the Reports. For 2020 and 2021 costs, the inflation rate was set at 1.75% per annum. For 2022 costs, the inflation rate was set at 2.00% per annum. The salary scale increase rate set for 2020 and 2021 costs was established at 2.00% per annum to the end of 2026 for all employee representations, with the exception of 1.80% per annum for 2021 followed by 1.00% per annum to end of 2023 for employees represented by the Power Workers Union ("PWU"), and 1.80% for 2022 followed by 1.00% per annum to end of 2024 for members represented by the Society of United Professionals ("Society"), and 1.00% per annum for 2022 to end of 2024 for non-represented members, and 2.25% per annum for all employee representations thereafter (plus Promotion, Progression, Merit for all years). For the 2022 costs, the same assumed salary scale increase rates were used for employees represented by PWU and Society, with the exception of 2.50% per annum used for all periods after December 31, 2026 (plus Promotion, Progression, Merit for all years). For 2022 costs, the salary increase rate for non-represented employees was set at 1.80% per annum to the end of 2023, followed by 2.00% per annum to the end of 2026 and 2.50% per annum for all periods after December 31, 2026 (plus Promotion, Progression, Merit for all years);
- Actuarial gains or losses for RPP, SPP and OPRB have been amortized using the 10% corridor method, except where immediate recognition is required under US GAAP for non-routine events during the year (none during 2020, 2021 and 2022);
- Past service costs for RPP, SPP and OPRB have been amortized on a straight-line basis over the expected average remaining service lifetime at the amendment date, except where immediate recognition is required under US GAAP for non-routine events during the year (none during 2020, 2021, and 2022);
- For LTD, all actuarial gains and losses and past service costs are required to be recognized immediately in the cost. Therefore, under US GAAP, the cost is equal to the change in the benefit obligation plus benefit payments; and
- Expected return on assets and amortization of actuarial gains/losses are based on a market-related value of assets for the OPG RPP where investment gains and losses on equity assets in excess of an expected return of 6.00% per annum plus the increase in Consumer Price Index are smoothed over five years.

For the period January 1, 2020 to March 31, 2021, OPG's contributions to the OPG RPP fund were made pursuant to the filed actuarial valuation report for funding purposes as of January 1, 2020 of the plan. For the period April 1, 2021 to December 31, 2021, OPG's contributions to the OPG RPP fund were made pursuant to the filed actuarial valuation report for funding purposes as of April 1, 2021 of the plan. For the period January 1, 2022 to December 31, 2022, OPG's contributions to the OPG RPP fund were made pursuant to the filed actuarial valuation report for funding purposes as of January 1, 2022 of the plan.

Schedule 1–Summary of 2020 US GAAP Results

The following table provides a summary of US GAAP results for 2020 for the post employment benefit plans sponsored by OPG. The net periodic pension/benefit cost for this period was determined based on the balance sheet items at January 1, 2020.

(in Canadian $ 000s)	RPP	SPP	OPRB	LTD
Net Asset (Liability) Recognized as at January 1, 2020				
Projected Benefit Obligation	$ (18,005,986)	$ (379,251)	$ (2,978,758)	$ (196,612)
Fair Value of Plan Assets	14,800,027	-	-	-
Net Asset (Liability) Recognized	**$ (3,205,959)**	**$ (379,251)**	**$ (2,978,758)**	**$ (196,612)**
Amounts Recognized in Accumulated Other Comprehensive Income as at January 1, 2020				
Unrecognized Past Service Costs (Credits)	$ -	$ -	$ (19,909)	$ -
Unrecognized Net Actuarial Loss (Gain)	3,602,258	125,975	221,330	-
Total Accumulated Other Comprehensive Loss (Income)	**$ 3,602,258**	**$ 125,975**	**$ 201,421**	**$ -**
Components of Net Periodic Pension/Benefit Cost, January 1, 2020 to December 31, 2020				
Employer Current Service Cost	$ 334,182	$ 8,203	$ 67,887	$ 18,678
Interest Cost	525,977	11,046	90,371	5,149
Expected Return on Plan Assets	(863,255)	-	-	-
Recognition of LTD Past Service Cost (Credit)	-	-	-	-
Recognition of LTD Actuarial (Gain) Loss	-	-	-	18,688
Amortization of Past Service Cost (Credit)	-	-	(1,719)	-
Amortization of Net Actuarial Loss (Gain)	161,953	7,159	-	-
Total Cost	**$ 158,857**	**$ 26,408**	**$ 156,539**	**$ 42,515**
2020 Estimated Employer Pension Contributions / Benefit Payments				
Amounts used for developing net periodic pension/benefit costs	$ 180,776	$ 16,878	$ 77,164	$ 26,731
2020 Actual Employer Pension Contributions / Benefit Payments	**$ 186,097**	**$ 16,780**	**$ 62,586**	**$ 24,816**

Schedule 2–Summary of 2021 US GAAP Results

The following table provides a summary of US GAAP results for 2021 for the post employment benefit plans sponsored by OPG. The net periodic pension/benefit cost for this period was determined based on the balance sheet items at January 1, 2021.

(in Canadian $ 000s)	RPP	SPP	OPRB	LTD
Net Asset (Liability) Recognized as at January 1, 2021				
Projected Benefit Obligation	$ (19,847,478)	$ (418,216)	$ (3,256,931)	$ (214,311)
Fair Value of Plan Assets	15,249,239	-	-	-
Net Asset (Liability) Recognized	**$ (4,598,239)**	**$ (418,216)**	**$ (3,256,931)**	**$ (214,311)**
Amounts Recognized in Accumulated Other Comprehensive Income as at January 1, 2021				
Unrecognized Past Service Costs (Credits)	$ -	$ -	$ (18,190)	$ -
Unrecognized Net Actuarial Loss (Gain)	5,021,778	155,312	403,831	-
Total Accumulated Other Comprehensive Loss (Income)	**$ 5,021,778**	**$ 155,312**	**$ 385,641**	**$ -**
Components of Net Periodic Pension/Benefit Cost, January 1, 2021 to December 31, 2021				
Employer Current Service Cost	$ 360,697	$ 8,467	$ 70,112	$ 21,645
Interest Cost	418,431	8,817	75,662	2,850
Expected Return on Plan Assets	(852,701)	-	-	-
Recognition of LTD Past Service Cost (Credit)	-	-	-	292
Recognition of LTD Actuarial (Gain) Loss	-	-	-	10,978
Amortization of Past Service Cost (Credit)	-	-	(1,719)	-
Amortization of Net Actuarial Loss (Gain)	272,662	9,618	5,965	-
Total Cost	**$ 199,089**	**$ 26,902**	**$ 150,020**	**$ 35,765**
2021 Estimated Employer Pension Contributions / Benefit Payments				
Amounts used for developing net periodic pension/benefit cost	$ 189,820	$ 17,697	$ 79,722	$ 26,677
2021 Actual Employer Pension Contributions / Benefit Payments	**$ 177,600**	**$ 18,572**	**$ 70,037**	**$ 26,371**

Schedule 3–Summary of 2022 US GAAP Results

The following table provides a summary of US GAAP results for 2022 for the post employment benefit plans sponsored by OPG. The net periodic pension/benefit cost for this period was determined based on the balance sheet items at January 1, 2022.

(in Canadian $ 000s)	RPP	SPP	OPRB	LTD
Projected Benefit Obligation	$ (18,834,637)	$ (396,263)	$ (3,070,231)	$ (223,705)
Fair Value of Plan Assets	16,348,498	-	-	-
Net Asset (Liability) Recognized	**$ (2,486,139)**	**$ (396,263)**	**$ (3,070,231)**	**$ (223,705)**
Unrecognized Past Service Costs (Credits)	$ -	$ -	$ 9,148	$ -
Unrecognized Net Actuarial Loss (Gain)	2,888,189	125,029	109,810	-
Total Accumulated Other Comprehensive Loss (Income)	**$ 2,888,189**	**$ 125,029**	**$ 118,958**	**$ -**
Employer Current Service Cost	$ 339,419	$ 6,478	$ 63,436	$ 23,936
Interest Cost	530,542	11,019	91,148	5,035
Expected Return on Plan Assets	(906,163)	-	-	-
Recognition of LTD Past Service Cost (Credit)	-	-	-	-
Recognition of LTD Actuarial (Gain) Loss	-	-	-	(11,568)
Amortization of Past Service Cost (Credit)	(120)	-	298	-
Amortization of Net Actuarial Loss (Gain)	121,934	7,362	-	-
Total Cost	**$ 85,612**	**$ 24,859**	**$ 154,882**	**$ 17,403**
2022 Estimated Employer Pension Contributions / Benefit Payments				
Amounts used for developing net periodic pension/benefit cost	$ 177,911	$ 18,020	$ 84,003	$ 29,101
2022 Estimated Employer Pension Contributions / Benefit Payments	**$ 191,728**	**$ 15,968**	**$ 73,374**	**$ 24,982**

About Aon

Aon plc (NYSE: AON) exists to shape decisions for the better—to protect and enrich the lives of people around the world. Our colleagues provide our clients in over 120 countries with advice and solutions that give them the clarity and confidence to make better decisions to protect and grow their business.

www.aon.com

Ontario Financing Authority
1 Dundas Street West
Suite 1200
Toronto ON M7A 1Y7

Office ontarien de financement
1 rue Dundas ouest
Bureau 1200
Toronto ON M7A 1Y7

Ontario

Corporate & Electricity Finance Division
Assistant Deputy Minister's Office
Tel. (416) 843-8099

March 1, 2022

MEMORANDUM TO: Alex Kogan
Senior Vice President, Commercial Integration & Strategy, OPG

Jason Van Wart
Vice President, Nuclear Waste Commercial Services, OPG

Carla Carmichael
Vice President, Decommissioning Strategies, OPG

FROM: Ronald Kwan
Assistant Deputy Minister

SUBJECT: **2022 Ontario Nuclear Funds Agreement Reference Plan**

I am writing in follow-up to my memo dated February 4, 2022, to inform you of the Province's response to the proposed 2022 Ontario Nuclear Funds Agreement (ONFA) Reference Plan update.

Based on our review and in accordance with section 5.4.1 of ONFA, the Province approves, effective January 1, 2022, the reference plan submitted by OPG dated as of December 17, 2021. This includes approval for the classification of a portion of the costs for low and intermediate level waste minimization activities as a Decommissioning Eligible Cost, as described in the Reference Plan submitted by OPG.

Provincial approval of a new reference plan constitutes a "Triggering Event" under ONFA, and ONFA prescribes a number of tasks that must be carried out by OPG following a Triggering Event. Staff and I are prepared to work with OPG and provide feedback on OPG's proposed implementation of the calculations mandated by ONFA sections 3.6, 3.7, 3.8 and 4.6.

I look forward to continuing to work with you and other OPG officials and staff in the implementation and administration of ONFA.

Sincerely,

Ronald Kwan Digitally signed by Ronald Kwan
Date: 2022.03.01 20:47:09 -05'00'

Ronald Kwan

Cc: Shelley Babin, Chief Legal and Ethics Officer, OPG
John Mauti, Chief Financial Officer and SVP Finance, OPG
Gillian Irwin, Director, Bruce Relationship, OPG
Sydney Pothakos, Policy Advisor, Minister's Office, MOF
Gadi Mayman, CEO, OFA
Christopher Pearce, Director, Strategic Investment and Finance Branch, OFA

2022 ONTARIO NUCLEAR FUNDS AGREEMENT CONTRIBUTION SCHEDULE

Approved Used Fuel Fund Quarterly Contributions ($)						
	Pickering A (Units 1-4)	**Pickering B (Units 5-8)**	**Bruce A**	**Bruce B**	**Darlington**	**Total**
3/31/2022	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
6/30/2022	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
9/30/2022	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
12/30/2022	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
3/31/2023	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
6/30/2023	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
9/29/2023	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
12/29/2023	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
3/29/2024	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
6/28/2024	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
9/30/2024	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
12/31/2024	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
3/31/2025	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
6/30/2025	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
9/30/2025	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
12/31/2025	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
3/31/2026	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
6/30/2026	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
9/30/2026	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)
12/31/2026	6,847,340	(914,739)	(7,216,462)	(2,586,774)	3,870,635	(0)

2022 ONTARIO NUCLEAR FUNDS AGREEMENT CONTRIBUTION SCHEDULE

Approved Decommissioning Fund Quarterly Contributions ($)						
Date	**Pickering A**	**Pickering B**	**Bruce A**	**Bruce B**	**Darlington**	**Total**
3/31/2022	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
6/30/2022	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
9/30/2022	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
12/30/2022	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
3/31/2023	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
6/30/2023	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
9/29/2023	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
12/29/2023	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
3/29/2024	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
6/28/2024	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
9/30/2024	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
12/31/2024	22,638,032	20,877,673	(24,960,775)	(15,257,430)	(3,297,501)	0
3/31/2025	0	20,877,673	(11,975,513)	(7,320,107)	(1,582,053)	0
6/30/2025	0	20,877,673	(11,975,513)	(7,320,107)	(1,582,053)	0
9/30/2025	0	20,877,673	(11,975,513)	(7,320,107)	(1,582,053)	0
12/31/2025	0	20,877,673	(11,975,513)	(7,320,107)	(1,582,053)	0
3/31/2026	0	0	0	0	0	0
6/30/2026	0	0	0	0	0	0
9/30/2026	0	0	0	0	0	0
12/31/2026	0	0	0	0	0	0

Numbers may not add due to rounding.

Table 1
Deferral and Variance Accounts
Closing Account Balances - 2019, 2020, 2021 and 2022 ($M)

Line No.	Account	Note	Actual Year End Balance 2019	Actual Year End Balance 2020	Actual Year End Balance 2021	Actual Year End Balance 2022
			(a)	(b)	(c)	(d)
			Note 1	Note 2	Note 3	Note 4
	Regulated Hydroelectric:					
1	**Hydroelectric Water Conditions Variance**		(215.8)	(239.8)	(134.9)	(172.4)
2	**Ancillary Services Net Revenue Variance - Hydroelectric**		(62.1)	(49.7)	(28.9)	(34.3)
3	**Hydroelectric Incentive Mechanism Variance**		(0.0)	0.0	0.0	0.0
4	**Hydroelectric Surplus Baseload Generation Variance**		447.7	480.3	403.0	401.8
5	**Income and Other Taxes Variance - Hydroelectric**		(2.6)	(5.2)	(10.4)	(13.3)
6	**Capacity Refurbishment Variance - Hydroelectric**	9	20.3	39.8	56.5	80.3
7	**Niagara Tunnel Project Pre-December 2008 Disallowance Variance**		8.2	8.5	7.4	8.0
8	**Pension and OPEB Cost Variance - Hydroelectric - Future Recovery (Dec 31, 2012 Balance)**		6.3	4.7	3.2	2.1
9	**Pension and OPEB Cost Variance - Hydroelectric - Post 2012 Additions**		15.3	7.2	0.0	0.0
10	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		41.3	41.3	41.3	33.0
11	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Non - RPP - EB-2018-0243 Approved**		34.9	27.9	21.0	14.0
12	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2017 Additions - EB-2020-0290 Approved**		44.1	44.1	44.1	35.3
13	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2019 Additions**		0.0	14.9	31.6	28.1
14	**Pension & OPEB Cash Payment Variance - Hydroelectric**		(59.9)	(73.7)	(75.0)	(77.0)
15	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Hydroelectric**	5	(0.1)	(0.3)	(0.7)	(2.0)
16	**Hydroelectric Deferral and Variance Over/Under Recovery Variance**		17.3	12.9	15.0	16.1
17	**Regulated Hydroelectric Subtotal**		294.9	312.9	373.1	319.8
	Nuclear:					
18	**Nuclear Liability Deferral**		12.4	6.2	0.0	188.3
19	**Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral**	8	(92.3)	(81.4)	0.0	0.0
20	**Nuclear Development Variance**		5.2	16.0	109.8	110.9
21	**Ancillary Services Net Revenue Variance - Nuclear**		(1.1)	(6.5)	(13.1)	(13.6)
22	**Capacity Refurbishment Variance - Nuclear - DRP - Excluding D2O Project**	10,12	38.3	(100.2)	(89.4)	(47.6)
23	**Capacity Refurbishment Variance - Nuclear - Non-DRP**	10	(102.9)	(94.1)	4.9	49.7
24	**Capacity Refurbishment Variance - Nuclear - Accelerated Investment Incentive CCA - DRP**		(19.2)	(39.5)	(36.6)	(30.9)
25	**Capacity Refurbishment Variance - Nuclear - D2O Project**	12	58.0	33.7	77.9	79.4
26	**Bruce Lease Net Revenues Variance - Derivative Sub-Account**	8	(26.9)	(3.0)	0.0	0.0
27	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - EB-2018-0243/EB-2016-0152 Approved**		168.8	155.0	105.3	84.2
28	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - Post 2017 Additions**		23.1	13.8	38.2	17.1
29	**Income and Other Taxes Variance - Nuclear**		(21.1)	(22.7)	(23.3)	(18.8)
30	**Pension and OPEB Cost Variance - Nuclear - Future Recovery (Dec. 31, 2012 Balance)**		136.9	115.1	64.4	42.9
31	**Pension and OPEB Cost Variance - Nuclear - Post 2012 Additions**		331.5	222.6	0.0	0.0
32	**Pension and OPEB Cost Variance - Nuclear - Post 2021 Additions**		0.0	0.0	0.0	(122.6)
33	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		266.0	266.0	266.0	212.8
34	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Non - RPP - EB-2018-0243 Approved**		220.4	176.3	132.2	88.2
35	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2017 Additions - EB-2020-0290 Approved**		278.2	278.2	278.2	222.5
36	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2019 Additions**		0.0	71.8	164.8	164.8
37	**Pension & OPEB Cash Payment Variance - Nuclear**		(288.6)	(407.7)	(434.1)	(383.4)
38	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Nuclear**	5	(0.6)	(2.2)	(4.6)	(12.3)
39	**Nuclear Deferral and Variance Over/Under Recovery Variance**		19.8	(27.0)	(79.5)	(74.7)
40	**Fitness for Duty Deferral**	10	0.5	0.6	1.2	1.6
41	**SR&ED ITC Variance**		(15.1)	(10.4)	(4.9)	(8.6)
42	**Rate Smoothing Deferral**		104.3	507.6	530.4	568.9
43	**Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral**		(245.8)	(402.9)	(139.4)	(57.5)
44	**Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral**	6	0.0	0.0	1.0	(45.0)
45	**Pickering Closure Costs Deferral**	7	0.0	0.0	1.0	2.8
46	**Nuclear Subtotal**		849.8	665.4	950.2	1,019.1
47	**Total** (line 17 + line 46)	13	1,144.7	978.3	1,323.3	1,338.9
48	**Sale of Unprescribed Kipling Site Deferral Account - Tracking Account**	11	0.0	0.0	0.0	(37.2)

Notes:

1 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, col. (a) and App. D, Table 1, col. (a), unless otherwise noted.
2 From Ex. H1-1-1, Table 1a, col. (i).
3 From Ex. H1-1-1, Table 1b, col. (f).
4 From Ex. H1-1-1, Table 1c, col. (f).
5 The Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account has three subaccounts: (i) Carrying Charges Sub-Account; (ii) Primary Sub-Account; and (iii) Contra Sub-Account. Only the Carrying Charges Sub-Account is presented in the table as the Primary and Contra account balances always net to zero.
6 Established effective January 1, 2021 on a final basis per EB-2020-0290 Payment Amounts Order.
7 Established effective January 1, 2021 per Ontario Regulation 53/05, s. 5.6.
8 Discontinued effective January 1, 2022 per EB-2020-0290 Payment Amounts Order. The remaining balance of the Bruce Lease Net Revenues Variance Account - Derivative Sub-Account is transferred to the Nuclear Deferral and Variance Over/Under Recovery Variance Account.
9 The year-end 2019 and 2020 balances have been updated from those presented in EB-2020-0290 to reflect their finalization upon completion of the 2017-2021 IR period. The clearance of the account was deferred in EB-2020-0290.
10 The year-end 2020 balance has been updated from EB-2020-0290, Ex. L-H1-01-Staff 320, Attachment 1, Table 1, col. (d) for typographical and other minor corrections identified in the course of preparing this application.
11 Established effective January 1, 2022 per EB-2020-0290 Payment Amounts Order.
12 The year-end 2020 balance has been updated from EB-2020-0290, Ex. L-H1-01-Staff 320, Attachment 1, Table 1, col. (d) to reflect the OEB's findings with respect to the D2O Project in the EB-2020-0290 Decision and Order dated November 2021.
13 The following accounts have a zero balance and no activity during the period from January 1, 2020 to December 31, 2022 and are not shown in the table: Gross Revenue Charge Variance Account, Impact for IFRS Deferral Account, Clarington Corporate Campus Deferral Account, and Earnings Sharing Deferral Account. The 2021 Overearnings Variance Account was found to have a zero balance and was closed pursuant to the OEB's letter dated February 7, 2023. The Impacts Arising from the COVID-19 Emergency Deferral Account was terminated pursuant to EB-2020-0290 Payment Amounts Order.

Numbers may not add due to rounding.

Table 1a
Deferral and Variance Accounts
Continuity of Account Balances - Year Ended December 31, 2020 ($M)

Line No.	Account	Note	Actual Year End Balance 2019	EB-2020-0290 OEB Adjustments	(a)+(b) EB-2020-0290 Year End Balance 2019	Actual 2020					(c)+(d)+(e)+(f)+(g)+(h) Actual Year End Balance 2020
						Transactions	Amortization EB-2016-0152	Amortization EB-2018-0243	Interest	Transfers	
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
			Note 1	Note 2			Note 3	Note 4	Note 5		
	Hydroelectric:										
1	**Hydroelectric Water Conditions Variance**		(215.8)	0.0	(215.8)	(62.6)	6.1	35.5	(3.0)	0.0	(239.8)
2	**Ancillary Services Net Revenue Variance - Hydroelectric**		(62.1)	0.0	(62.1)	0.1	4.6	8.5	(0.8)	0.0	(49.7)
3	**Hydroelectric Incentive Mechanism Variance**		(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0
4	**Hydroelectric Surplus Baseload Generation Variance**	6	447.7	0.0	447.7	129.9	(28.9)	(74.4)	6.0	0.0	480.3
5	**Income and Other Taxes Variance - Hydroelectric**		(2.6)	0.0	(2.6)	(2.5)	0.0	(0.0)	(0.1)	0.0	(5.2)
6	**Capacity Refurbishment Variance - Hydroelectric**	11	20.3	0.0	20.3	20.4	(1.1)	0.0	0.3	0.0	39.8
7	**Niagara Tunnel Project Pre-December 2008 Disallowance Variance**		8.2	0.0	8.2	1.7	0.0	(1.5)	0.1	0.0	8.5
8	**Pension and OPEB Cost Variance - Hydroelectric - Future Recovery (Dec 31, 2012 Balance)**		6.3	0.0	6.3	0.0	(0.7)	(0.8)	0.0	0.0	4.7
9	**Pension and OPEB Cost Variance - Hydroelectric - Post 2012 Additions**		15.3	0.0	15.3	0.0	(4.1)	(4.0)	0.0	0.0	7.2
10	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		41.3	0.0	41.3	0.0	0.0	0.0	0.0	0.0	41.3
11	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Non - RPP - EB-2018-0243 Approved**		34.9	0.0	34.9	0.0	0.0	(7.0)	0.0	0.0	27.9
12	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2017 Additions - EB-2020-0290 Approved**		44.1	0.0	44.1	0.0	0.0	0.0	0.0	0.0	44.1
13	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2019 Additions**		0.0	0.0	0.0	14.9	0.0	0.0	0.0	0.0	14.9
14	**Pension & OPEB Cash Payment Variance - Hydroelectric**		(59.9)	0.0	(59.9)	(19.6)	(1.5)	8.1	(0.9)	0.0	(73.7)
15	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Hydroelectric**	7	(0.1)	0.0	(0.1)	(0.2)	0.0	0.0	0.0	0.0	(0.3)
16	**Hydroelectric Deferral and Variance Over/Under Recovery Variance**		17.3	0.0	17.3	3.3	(4.7)	(3.3)	0.2	0.0	12.9
17	**Regulated Hydroelectric Subtotal**		294.9	0.0	294.9	85.4	(30.4)	(38.8)	1.9	0.0	312.9
	Nuclear:										
18	**Nuclear Liability Deferral**		12.4	0.0	12.4	0.0	0.0	(6.2)	0.0	0.0	6.2
19	**Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral**	10	(92.3)	0.0	(92.3)	0.0	0.0	10.9	0.0	0.0	(81.4)
20	**Nuclear Development Variance**		5.2	0.0	5.2	11.3	(0.6)	(0.0)	0.1	0.0	16.0
21	**Ancillary Services Net Revenue Variance - Nuclear**		(1.1)	0.0	(1.1)	(4.8)	(0.3)	(0.3)	(0.0)	0.0	(6.5)
22	**Capacity Refurbishment Variance - Nuclear - DRP - Excluding D2O Project**	12,15	38.3	10.3	48.5	(166.6)	17.4	0.0	0.6	0.0	(100.2)
23	**Capacity Refurbishment Variance - Nuclear - Non-DRP**	12	(102.9)	0.0	(102.9)	3.4	6.8	0.0	(1.4)	0.0	(94.1)
24	**Capacity Refurbishment Variance - Nuclear - Accelerated Investment Incentive CCA - DRP**		(19.2)	0.0	(19.2)	(19.9)	0.0	0.0	(0.4)	0.0	(39.5)
25	**Capacity Refurbishment Variance - Nuclear - D2O Project**	15	58.0	(57.9)	0.1	33.4	0.0	0.0	0.2	0.0	33.7
26	**Bruce Lease Net Revenues Variance - Derivative Sub-Account**	10	(26.9)	0.0	(26.9)	0.0	24.0	0.1	(0.2)	0.0	(3.0)
27	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - EB-2018-0243/EB-2016-0152 Approved**		168.8	0.0	168.8	0.0	(7.2)	(6.7)	0.0	0.0	155.0
28	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - Post 2017 Additions**	12	23.1	0.0	23.1	(11.6)	0.0	0.0	2.3	0.0	13.8
29	**Income and Other Taxes Variance - Nuclear**		(21.1)	0.0	(21.1)	(3.4)	1.5	0.6	(0.3)	0.0	(22.7)
30	**Pension and OPEB Cost Variance - Nuclear - Future Recovery (Dec. 31, 2012 Balance)**		136.9	0.0	136.9	0.0	(15.0)	(6.8)	0.0	0.0	115.1
31	**Pension and OPEB Cost Variance - Nuclear - Post 2012 Additions**		331.5	0.0	331.5	0.0	(79.2)	(29.8)	0.0	0.0	222.6
32	**Pension and OPEB Cost Variance - Nuclear - Post 2021 Additions**		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		266.0	0.0	266.0	0.0	0.0	0.0	0.0	0.0	266.0
34	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Non - RPP - EB-2018-0243 Approved**		220.4	0.0	220.4	0.0	0.0	(44.1)	0.0	0.0	176.3
35	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2017 Additions - EB-2020-0290 Approved**		278.2	0.0	278.2	0.0	0.0	0.0	0.0	0.0	278.2
36	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2019 Additions**		0.0	0.0	0.0	71.8	0.0	0.0	0.0	0.0	71.8
37	**Pension & OPEB Cash Payment Variance - Nuclear**		(288.6)	0.0	(288.6)	(121.0)	(8.2)	14.5	(4.3)	0.0	(407.7)
38	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Nuclear**	7	(0.6)	0.0	(0.6)	(1.6)	0.0	0.0	0.0	0.0	(2.2)
39	**Nuclear Deferral and Variance Over/Under Recovery Variance**		19.8	0.0	19.8	(27.9)	(15.4)	(3.2)	(0.1)	0.0	(27.0)
40	**Fitness for Duty Deferral**	12	0.5	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.6
41	**SR&ED ITC Variance**		(15.1)	0.0	(15.1)	4.6	0.0	0.4	(0.2)	0.0	(10.4)
42	**Rate Smoothing Deferral**		104.3	0.0	104.3	390.6	0.0	0.0	12.7	0.0	507.6
43	**Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017)**		(245.8)	0.0	(245.8)	(157.1)	0.0	0.0	0.0	0.0	(402.9)
44	**Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral**	8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	**Pickering Closure Costs Deferral**	9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
46	**Nuclear Subtotal**		849.8	(47.7)	802.1	1.2	(76.3)	(70.6)	8.9	0.0	665.4
47	**Total** (line 17 + line 46)	14	1,144.7	(47.7)	1,097.0	86.6	(106.7)	(109.4)	10.8	0.0	978.3
48	**Sale of Unprescribed Kipling Site Deferral Account - Tracking Account**	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

1 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, col. (a) and App. D, Table 1, col. (a), unless otherwise noted.

2 From EB-2020-0290 Payment Amounts Order, App. D, Table 1, col. (d1).

3 From EB-2016-0152 Payment Amounts Order, App. D, Table 1, col. (g) for Hydroelectric and EB-2016-0152 Payment Amounts Order, App. E, Table 1, col. (g) for Nuclear.

4 From EB-2018-0243 Settlement Proposal, Attachment A: Table 1, col. (j) and Table 2, col. (j), which forms the basis of the payment amounts approved in the Decision and Payment Amounts Order dated February 21, 2019.

5 Per EB-2016-0152 Payment Amounts Order, no interest is recorded on the Pension & OPEB Cash Versus Accrual Differential Deferral Account, Pension and OPEB Cost Variance Account, Nuclear Liability Deferral Account, and the Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral Account. Per Decision and Order in EB-2018-0002, no interest is recorded on the Impact Resulting from Changes in Station End-of-Life Dates (December 31 2017) Deferral Account.

6 Updated from EB-2020-0290, Ex. L-H1-01-Staff 320, Attachment 1, Table 1c for an adjustment, presented as part of 2020 transactions, to remove $1.0M recorded over 2018-2020 for forgone generation at R.H. Saunders GS that has been subsequently determined to be unrelated to SBG conditions. Interest was reversed to the original entry dates. Ex. H1-1-1, Table 5 shows forgone generation for 2020 excluding R.H. Saunders. There is no forgone generation for R.H. Saunders GS recorded in the account in 2021 or 2022.

7 The Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account has three subaccounts: (i) Carrying Charges Sub-Account; (ii) Primary Sub-Account; and (iii) Contra Sub-Account. Only the Carrying Charges Sub-Account is presented in the table as the Primary and Contra account balances always net to zero.

8 Established effective January 1, 2021 on a final basis per EB-2020-0290 Payment Amounts Order.

9 Established effective January 1, 2021 per Ontario Regulation 53/05, s. 5.6.

10 Discontinued effective January 1, 2022 per EB-2020-0290 Payment Amounts Order. The remaining balance of the Bruce Lease Net Revenues Variance Account - Derivative Sub-Account is transferred to the Nuclear Deferral and Variance Over/Under Recovery Variance Account.

11 The year-end 2019 and 2020 balances have been updated from those presented in EB-2020-0290 to reflect their finalization upon completion of the 2017-2021 IR period. The clearance of the account was deferred in EB-2020-0290.

12 Updated from EB-2020-0290, Ex. L-H1-01-Staff 320, Attachment 1, Table 1c for typographical and other minor corrections identified in the course of preparing this application. The differences in amortization amounts at lines 22 and 23, col. (e) are offsetting.

13 Established effective January 1, 2022 per EB-2020-0290 Payment Amounts Order.

14 The following accounts have a zero balance and no activity during the period from January 1, 2020 to December 31, 2022 and are not shown in the table: Gross Revenue Charge Variance Account, Impact for IFRS Deferral Account, Clarington Corporate Campus Deferral Account, and Earnings Sharing Deferral Account. The 2021 Overearnings Variance Account was found to have a zero balance and was closed pursuant to the OEB's letter dated February 7, 2023. The Impacts Arising from the COVID-19 Emergency Deferral Account was terminated pursuant to EB-2020-0290 Payment Amounts Order.

15 Updated from EB-2020-0290, Ex. L-H1-01-Staff 320, Attachment 1, Table 1c to reflect the OEB's findings with respect to the D2O Project in the EB-2020-0290 Decision and Order dated November 2021.

Numbers may not add due to rounding.

Table 1b
Deferral and Variance Accounts
Continuity of Account Balances - Year Ended December 31, 2021 ($M)

Line No.	Account	Note	Actual Year End Balance 2020	Actual 2021				(a)+(b)+(c)+(d)+(e) Actual Year End Balance 2021
				Transactions	Amortization EB-2018-0243	Interest	Transfers	
			(a)	(b)	(c)	(d)	(e)	(f)
			Note 1		Note 2	Note 3		
	Hydroelectric:							
1	**Hydroelectric Water Conditions Variance**		(239.8)	40.8	65.1	(1.0)	0.0	(134.9)
2	**Ancillary Services Net Revenue Variance - Hydroelectric**		(49.7)	5.4	15.6	(0.2)	0.0	(28.9)
3	**Hydroelectric Incentive Mechanism Variance**		0.0	0.0	0.0	0.0	0.0	0.0
4	**Hydroelectric Surplus Baseload Generation Variance**		480.3	56.4	(136.1)	2.4	0.0	403.0
5	**Income and Other Taxes Variance - Hydroelectric**		(5.2)	(5.1)	(0.0)	(0.1)	0.0	(10.4)
6	**Capacity Refurbishment Variance - Hydroelectric**		39.8	16.5	0.0	0.2	0.0	56.5
7	**Niagara Tunnel Project Pre-December 2008 Disallowance Variance**		8.5	1.7	(2.8)	0.0	0.0	7.4
8	**Pension and OPEB Cost Variance - Hydroelectric - Future Recovery (Dec 31, 2012 Balance)**		4.7	0.0	(1.5)	0.0	0.0	3.2
9	**Pension and OPEB Cost Variance - Hydroelectric - Post 2012 Additions**		7.2	0.0	(7.2)	0.0	0.0	0.0
10	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		41.3	0.0	0.0	0.0	0.0	41.3
11	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Non - RPP - EB-2018-0243 Approved**		27.9	0.0	(7.0)	0.0	0.0	21.0
12	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2017 Additions - EB-2020-0290 Approved**		44.1	0.0	0.0	0.0	0.0	44.1
13	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2019 Additions**		14.9	16.7	0.0	0.0	0.0	31.6
14	**Pension & OPEB Cash Payment Variance - Hydroelectric**		(73.7)	(15.7)	14.8	(0.4)	0.0	(75.0)
15	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Hydroelectric**	4	(0.3)	(0.4)	0.0	0.0	0.0	(0.7)
16	**Hydroelectric Deferral and Variance Over/Under Recovery Variance**		12.9	8.0	(6.0)	0.1	0.0	15.0
17	**Regulated Hydroelectric Subtotal**		312.9	124.4	(65.3)	1.0	0.0	373.1
	Nuclear:							
18	**Nuclear Liability Deferral**		6.2	0.0	(6.2)	0.0	0.0	0.0
19	**Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral**	5	(81.4)	0.0	81.4	0.0	0.0	0.0
20	**Nuclear Development Variance**		16.0	93.6	(0.2)	0.3	0.0	109.8
21	**Ancillary Services Net Revenue Variance - Nuclear**		(6.5)	(4.6)	(1.9)	(0.1)	0.0	(13.1)
22	**Capacity Refurbishment Variance - Nuclear - DRP - Excluding D2O Project**		(100.2)	11.3	0.0	(0.5)	0.0	(89.4)
23	**Capacity Refurbishment Variance - Nuclear - Non-DRP**		(94.1)	99.3	0.0	(0.3)	0.0	4.9
24	**Capacity Refurbishment Variance - Nuclear - Accelerated Investment Incentive CCA - DRP**		(39.5)	3.1	0.0	(0.2)	0.0	(36.6)
25	**Capacity Refurbishment Variance - Nuclear - D2O Project**		33.7	43.9	0.0	0.3	0.0	77.9
26	**Bruce Lease Net Revenues Variance - Derivative Sub-Account**	5	(3.0)	0.0	0.6	0.0	2.4	0.0
27	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - EB-2018-0243/EB-2016-0152 Approved**		155.0	0.0	(49.7)	0.0	0.0	105.3
28	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - Post 2017 Additions**		13.8	23.6	0.0	0.8	0.0	38.2
29	**Income and Other Taxes Variance - Nuclear**		(22.7)	(5.0)	4.5	(0.1)	0.0	(23.3)
30	**Pension and OPEB Cost Variance - Nuclear - Future Recovery (Dec. 31, 2012 Balance)**		115.1	0.0	(50.7)	0.0	0.0	64.4
31	**Pension and OPEB Cost Variance - Nuclear - Post 2012 Additions**		222.6	0.0	(222.6)	0.0	0.0	0.0
32	**Pension and OPEB Cost Variance - Nuclear - Post 2021 Additions**		0.0	0.0	0.0	0.0	0.0	0.0
33	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		266.0	0.0	0.0	0.0	0.0	266.0
34	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Non - RPP - EB-2018-0243 Approved**		176.3	0.0	(44.1)	0.0	0.0	132.2
35	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2017 Additions - EB-2020-0290 Approved**		278.2	0.0	0.0	0.0	0.0	278.2
36	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2019 Additions**		71.8	93.1	0.0	0.0	0.0	164.8
37	**Pension & OPEB Cash Payment Variance - Nuclear**		(407.7)	(132.3)	108.1	(2.3)	0.0	(434.1)
38	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Nuclear**	4	(2.2)	(2.4)	0.0	0.0	0.0	(4.6)
39	**Nuclear Deferral and Variance Over/Under Recovery Variance**		(27.0)	(25.8)	(24.1)	(0.3)	(2.4)	(79.5)
40	**Fitness for Duty Deferral**		0.6	0.5	0.0	0.0	0.0	1.2
41	**SR&ED ITC Variance**		(10.4)	2.9	2.6	(0.0)	0.0	(4.9)
42	**Rate Smoothing Deferral**		507.6	0.0	0.0	22.7	0.0	530.4
43	**Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral**		(402.9)	263.5	0.0	0.0	0.0	(139.4)
44	**Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral**	7	0.0	1.0	0.0	0.0	0.0	1.0
45	**Pickering Closure Costs Deferral**	8	0.0	1.0	0.0	0.0	0.0	1.0
46	**Nuclear Subtotal**		665.4	466.6	(202.1)	20.3	0.0	950.2
47	**Total** (line 17 + line 46)	9	978.3	591.0	(267.3)	21.3	0.0	1,323.3
48	**Sale of Unprescribed Kipling Site Deferral Account - Tracking Account**	6	0.0	0.0	0.0	0.0	0.0	0.0

Notes:

1 From Ex. H1-1-1, Table 1a, col. (i).

2 From EB-2018-024, Settlement Proposal, Attachment A: Table 1, col. (k) and Table 2, col. (k), which forms the basis of the payment amounts approved in the Decision and Payment Amounts Order dated February 21, 2019.

3 Per EB-2016-0152 Payment Amounts Order, no interest is recorded on the Pension & OPEB Cash Versus Accrual Differential Deferral Account, Pension and OPEB Cost Variance Account, Nuclear Liability Deferral Account, and the Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral Account. Per Decision and Order in EB-2018-0002, no interest is recorded on the Impact Resulting from Changes in Station End-of-Life Dates (December 31 2017) Deferral Account. Per EB-2020-0290 Payment Amounts Order, no interest is recorded on the Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account.

4 The Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account has three subaccounts: (i) Carrying Charges Sub-Account; (ii) Primary Sub-Account; and (iii) Contra Sub-Account. Only the Carrying Charges Sub-Account is presented in the table as the Primary and Contra account balances always net to zero.

5 Discontinued effective January 1, 2022 per EB-2020-0290 Payment Amounts Order. The remaining balance of the Bruce Lease Net Revenues Variance Account - Derivative Sub-Account is transferred to the Nuclear Deferral and Variance Over/Under Recovery Variance Account.

6 Established effective January 1, 2022 per EB-2020-0290 Payment Amounts Order.

7 Established effective January 1, 2021 on a final basis per EB-2020-0290 Payment Amounts Order.

8 Established effective January 1, 2021 per Ontario Regulation 53/05, s. 5.6.

9 The following accounts have a zero balance and no activity during the period from January 1, 2020 to December 31, 2022 and are not shown in the table: Gross Revenue Charge Variance Account, Impact for IFRS Deferral Account, Clarington Corporate Campus Deferral Account, and Earnings Sharing Deferral Account. The 2021 Overearnings Variance Account was found to have a zero balance and was closed pursuant to the OEB's letter dated February 7, 2023. The Impacts Arising from the COVID-19 Emergency Deferral Account was terminated pursuant to EB-2020-0290 Payment Amounts Order.

Numbers may not add due to rounding.

Table 1c
Deferral and Variance Accounts
Continuity of Account Balances - Year Ended December 31, 2022 ($M)

Line No.	Account	Note	Actual Year End Balance	Actual 2022				(a)+(b)+(c)+(d)+(e) Audited Year End Balance
			2021	Transactions	Amortization EB-2020-0290	Interest	Transfers	2022
			(a)	(b)	(c)	(d)	(e)	(f)
			Note 1		Note 2	Note 3		
	Hydroelectric:							
1	**Hydroelectric Water Conditions Variance**		(134.9)	(71.0)	36.4	(2.9)	0.0	(172.4)
2	**Ancillary Services Net Revenue Variance - Hydroelectric**		(28.9)	(16.1)	11.1	(0.5)	0.0	(34.3)
3	**Hydroelectric Incentive Mechanism Variance**		0.0	0.0	0.0	0.0	0.0	0.0
4	**Hydroelectric Surplus Baseload Generation Variance**		403.0	47.9	(56.1)	7.1	0.0	401.8
5	**Income and Other Taxes Variance - Hydroelectric**		(10.4)	(3.6)	0.9	(0.2)	0.0	(13.3)
6	**Capacity Refurbishment Variance - Hydroelectric**		56.5	22.6	0.0	1.2	0.0	80.3
7	**Niagara Tunnel Project Pre-December 2008 Disallowance Variance**		7.4	1.7	(1.3)	0.1	0.0	8.0
8	**Pension and OPEB Cost Variance - Hydroelectric - Future Recovery (Dec 31, 2012 Balance)**		3.2	0.0	(1.1)	0.0	0.0	2.1
9	**Pension and OPEB Cost Variance - Hydroelectric - Post 2012 Additions**		0.0	0.0	0.0	0.0	0.0	0.0
10	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		41.3	0.0	(8.3)	0.0	0.0	33.0
11	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Non - RPP - EB-2018-0243 Approved**		21.0	0.0	(7.0)	0.0	0.0	14.0
12	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2017 Additions - EB-2020-0290 Approved**		44.1	0.0	(8.8)	0.0	0.0	35.3
13	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2019 Additions**		31.6	(3.5)	0.0	0.0	0.0	28.1
14	**Pension & OPEB Cash Payment Variance - Hydroelectric**		(75.0)	(13.4)	12.9	(1.4)	0.0	(77.0)
15	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Hydroelectric**	4	(0.7)	(1.3)	0.0	0.0	0.0	(2.0)
16	**Hydroelectric Deferral and Variance Over/Under Recovery Variance**		15.0	2.0	(1.1)	0.3	0.0	16.1
17	**Regulated Hydroelectric Subtotal**		373.1	(34.6)	(22.4)	3.7	0.0	319.8
	Nuclear:							
18	**Nuclear Liability Deferral**		0.0	188.3	0.0	0.0	0.0	188.3
19	**Impact Resulting from Changes in Station End-of-Life Dates (December 31, 2015) Deferral**	5	0.0	0.0	0.0	0.0	0.0	0.0
20	**Nuclear Development Variance**		109.8	0.2	(1.2)	2.1	0.0	110.9
21	**Ancillary Services Net Revenue Variance - Nuclear**		(13.1)	(1.5)	1.2	(0.3)	0.0	(13.6)
22	**Capacity Refurbishment Variance - Nuclear - DRP - Excluding D2O Project**		(89.4)	42.9	0.0	(1.1)	0.0	(47.6)
23	**Capacity Refurbishment Variance - Nuclear - Non-DRP**		4.9	12.3	32.0	0.5	0.0	49.7
24	**Capacity Refurbishment Variance - Nuclear - Accelerated Investment Incentive CCA - DRP**		(36.6)	0.0	6.4	(0.6)	0.0	(30.9)
25	**Capacity Refurbishment Variance - Nuclear - D2O Project**		77.9	0.0	(0.0)	1.5	0.0	79.4
26	**Bruce Lease Net Revenues Variance - Derivative Sub-Account**	5	0.0	0.0	0.0	0.0	0.0	0.0
27	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - EB-2018-0243/EB-2016-0152 Approved**		105.3	0.0	(21.1)	0.0	0.0	84.2
28	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - Post 2017 Additions**		38.2	(14.9)	(7.7)	1.5	0.0	17.1
29	**Income and Other Taxes Variance - Nuclear**		(23.3)	0.0	4.8	(0.3)	0.0	(18.8)
30	**Pension and OPEB Cost Variance - Nuclear - Future Recovery (Dec. 31, 2012 Balance)**		64.4	0.0	(21.5)	0.0	0.0	42.9
31	**Pension and OPEB Cost Variance - Nuclear - Post 2012 Additions**		0.0	0.0	0.0	0.0	0.0	0.0
32	**Pension and OPEB Cost Variance - Nuclear - Post 2021 Additions**		0.0	(122.6)	0.0	0.0	0.0	(122.6)
33	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		266.0	0.0	(53.2)	0.0	0.0	212.8
34	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Non - RPP - EB-2018-0243 Approved**		132.2	0.0	(44.1)	0.0	0.0	88.2
35	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2017 Additions - EB-2020-0290 Approved**		278.2	0.0	(55.6)	0.0	0.0	222.5
36	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2019 Additions**		164.8	0.0	0.0	0.0	0.0	164.8
37	**Pension & OPEB Cash Payment Variance - Nuclear**		(434.1)	0.0	58.1	(7.3)	0.0	(383.4)
38	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Nuclear**	4	(4.6)	(8.0)	0.2	0.0	0.0	(12.3)
39	**Nuclear Deferral and Variance Over/Under Recovery Variance**		(79.5)	(1.9)	8.4	(1.6)	0.0	(74.7)
40	**Fitness for Duty Deferral**		1.2	0.4	-	0.0	0.0	1.6
41	**SR&ED ITC Variance**		(4.9)	(7.7)	4.0	(0.1)	0.0	(8.6)
42	**Rate Smoothing Deferral**		530.4	19.0	0.0	19.5	0.0	568.9
43	**Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral**		(139.4)	0.0	81.9	0.0	0.0	(58)
44	**Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral**	7	1.0	(45.9)	0.0	0.0	0.0	(45.0)
45	**Pickering Closure Costs Deferral**	8	1.0	1.8	0.0	0.0	0.0	2.8
46	**Nuclear Subtotal**		950.2	62.4	(7.3)	13.7	0.0	1,019.1
47	**Total** (line 17 + line 46)	9	1,323.3	27.8	(29.7)	17.4	0.0	1,338.9
48	**Sale of Unprescribed Kipling Site Deferral Account - Tracking Account**	6	0.0	(37.2)	0.0	0.0	0.0	(37.2)

Notes:

1 From Ex. H1-1-1, Table 1b, col. (f).

2 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, col. (h) for Hydroelectric and EB-2020-0290 Payment Amounts Order, App. D, Table 1, col. (h) for Nuclear.

3 Per EB-2020-0290 Payment Amounts Order, no interest is recorded on the Pension & OPEB Cash Versus Accrual Differential Deferral Account, Pension and OPEB Cost Variance Account, Nuclear Liability Deferral Account, Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral Account and Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account.

4 The Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account has three subaccounts: (i) Carrying Charges Sub-Account; (ii) Primary Sub-Account; and (iii) Contra Sub-Account. Only the Carrying Charges Sub-Account is presented in the table as the Primary and Contra account balances always net to zero.

5 Discontinued effective January 1, 2022 per EB-2020-0290 Payment Amounts Order. The remaining balance of the Bruce Lease Net Revenues Variance Account - Derivative Sub-Account is transferred to the Nuclear Deferral and Variance Over/Under Recovery Variance Account.

6 Established effective January 1, 2022 per EB-2020-0290 Payment Amounts Order.

7 Established effective January 1, 2021 on a final basis per EB-2020-0290 Payment Amounts Order.

8 Established effective January 1, 2021 per Ontario Regulation 53/05, s. 5.6.

9 The following accounts have a zero balance and no activity during the period from January 1, 2020 to December 31, 2022 and are not shown in the table: Gross Revenue Charge Variance Account, Impact for IFRS Deferral Account, Clarington Corporate Campus Deferral Account, and Earnings Sharing Deferral Account. The 2021 Overearnings Variance Account was found to have a zero balance and was closed pursuant to the OEB's letter dated February 7, 2023. The Impacts Arising from the COVID-19 Emergency Deferral Account was terminated pursuant to EB-2020-0290 Payment Amounts Order.

Numbers may not add due to rounding.

Table 2
Hydroelectric Water Conditions Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	Regulated Hydroelectric:				
1	**Forecast Production (GWh)**	1	32,432	32,432	32,432
2	**Actual Calculated Production (GWh)**		34,658	31,681	34,815
3	**Difference (GWh)** (line 1 - line 2)		(2,227)	751	(2,384)
4	**Payment Amount ($/MWh)**	2	43.15	43.88	43.88
5	**Revenue Impact ($M)** (line 3 x line 4 / 1000)		(96.1)	32.9	(104.6)
6	**GRC/Water Rental Costs ($M)**		33.5	7.8	33.6
7	**Total Addition to Variance Account ($M)** (line 5 + line 6)		(62.6)	40.8	(71.0)

Notes:

1 Cols. (a) and (b) as set out in EB-2016-0152 Payment Amounts Order, App. G, pp. 3-4. Col. (c) as set out in EB-2020-0290 Payment Amounts Order, App. E, pp. 3-4.

2 Col. (a) from EB-2019-0209 Decision and Payment Amounts Order, p.5. Col. (b) from EB-2020-0210 Decision and Payment Amounts Order, p.4. Col. (c) from EB-2020-0290 Payment Amounts Order, p. 4.

Numbers may not add due to rounding.

Table 3
Ancillary Services Net Revenue Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	Regulated Hydroelectric:				
1	**Forecast Revenue**	1	55.5	55.5	55.5
2	**Actual Revenue**		55.5	50.1	71.6
3	**Regulated Hydroelectric Addition to Variance Account** (line 1 - line 2)		0.1	5.4	(16.1)
	Nuclear:				
4	**Forecast Revenue**	1	1.9	2.0	5.8
5	**Actual Revenue**	2	6.7	6.6	7.2
6	**Nuclear Addition to Variance Account** (line 4 - line 5)		(4.8)	(4.6)	(1.5)

Notes:
1 Cols. (a) and (b) as per EB-2016-0152 Payment Amounts Order, App. G, p. 5. Col. (c) as per EB-2020-0290 Payment Amounts Order, App. E, pp. 4-5.
2 Col. (a) as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 32, line 6, col. (e).

Numbers may not add due to rounding.

Table 4
Hydroelectric Incentive Mechanism Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
1	**Total Actual Regulated Hydroelectric Incentive Mechanism Net Revenue**	1	5.1	16.8	14.3
2	**Threshold**	2	54.5	54.5	54.5
3	**Actual Hydroelectric Incentive Mechanism Net Revenue In Excess of Threshold** (line 1 - line 2; nil if line 1 < line 2)		0.0	0.0	0.0
4	**Percentage**	2	50%	50%	50%
5	**Total Addition to Variance Account** (line 3 x line 4)		0.0	0.0	0.0

Notes:

1 Annual values as reported in OPG's 2021 Management's Discussion & Analysis (p. 69) for 2020 and 2021, and OPG's 2022 Management's Discussion & Analysis (p. 52) for 2022.

2 Annual threshold and percentage per EB-2014-0370 Payment Amounts Order, App. B, pp. 8-9.

Numbers may not add due to rounding.

Table 5
Hydroelectric Surplus Baseload Generation Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	Regulated Hydroelectric:				
1	**Actual Foregone Production Due to SBG Conditions (GWh)**	1	4,315	1,882	1,592
2	**Payment Amount ($/MWh)**	2	43.15	43.88	43.88
3	**Revenue ($M)** (line 1 x line 2 / 1000)		186.2	82.6	69.9
4	**GRC/Water Rental Costs ($M)**		(55.8)	(26.2)	(22.0)
5	**Total Addition to Variance Account ($M)** (line 3 + line 4)		130.4	56.4	47.9

Notes:

1 Annual values are reported in OPG's 2021 Management's Discussion & Analysis (p. 14) for 2020 and 2021, and OPG's 2022 Management's Discussion & Analysis (p. 14) for 2022. Additionally, the value for 2020 excludes forgone generation at R.H. Saunders GS that has been subsequently determined to be unrelated to SBG conditions (see Ex. H1-1-1, Table 1a, Note 15).

2 Col. (a) from EB-2019-0209 Decision and Payment Amounts Order, p.5. Col. (b) from EB-2020-0210 Decision and Payment Amounts Order, p.4. Col. (c) from EB-2020-0290 Payment Amounts Order, p. 4.

Numbers may not add due to rounding.

Filed: 2023-12-13
EB-2023-0336
Exhibit H1
Tab 1
Schedule 1
Table 6

Table 6
Income and Other Taxes Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020			Actual 2021			Actual 2022		
			Regulated Hydroelectric	Nuclear	(a)+(b) Total	Regulated Hydroelectric	Nuclear	(d)+(e) Total	Regulated Hydroelectric	Nuclear	(g)+(h) Total
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Entry (i): CCA Accelerated Investment Incentive Property Impact	1, 2									
1	**2018 CCA differences**		0.0	0.0	0.0	(0.1)	0.0	(0.1)	0.0	0.0	0.0
2	**2019 CCA differences**		0.0	0.0	0.0	(3.3)	0.0	(3.3)	0.0	0.0	0.0
3	**2020 CCA differences**		(7.3)	(10.1)	(17.3)	(3.2)	0.0	(3.2)	0.2	-	0.2
4	**2021 CCA differences**		0.0	0.0	0.0	(8.1)	(8.0)	(16.2)	(0.2)	-	(0.2)
5	**2022 CCA differences**		0.0	0.0	0.0	0.0	0.0	0.0	(10.8)	0.0	(10.8)
6	**Income Tax Impact for 2018** (line 1 x 25%)		0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.0
7	**Income Tax Impact for 2019** (line 2 x 25%)		0.0	0.0	0.0	(0.8)	0.0	(0.8)	0.0	0.0	0.0
8	**Income Tax Impact for 2020** (line 3 x 25%)		(1.8)	(2.5)	(4.3)	(0.8)	0.0	(0.8)	0.1	-	0.1
9	**Income Tax Impact for 2021** (line 4 x 25%)		0.0	0.0	0.0	(2.0)	(2.0)	(4.0)	(0.0)	-	(0.0)
10	**Income Tax Impact for 2022** (line 5 x 25%)		0.0	0.0	0.0	0.0	0.0	0.0	(2.7)	0.0	(2.7)
11	**Addition to Variance Account** (line 6 + line 7 + line 8 + line 9 + line 10) / (1-25%)		(2.4)	(3.4)	(5.8)	(4.9)	(2.7)	(7.6)	(3.6)	0.0	(3.6)
	Entry (ii): Correction to Transcription Error in 2018 Entry Related to Increase of SR&ED ITCs Recognition Percentage for 2014										
12	**Forecast SR&ED ITCs, net of Tax on ITCs, at 75%**		(0.3)	-	(0.3)	-	-	-	-	-	-
13	**Forecast SR&ED ITCs, net of Tax on ITCs, at 100%** (line 12 x 4/3)		(0.4)	-	(0.4)	-	-	-	-	-	-
14	**Addition to Variance Account** (line 13 - line 12)	3	(0.1)	-	(0.1)	-	-	-	-	-	-
	Entry (iii): Increase of SR&ED ITCs Recognition Percentage from 75% to 100% in 2021 for 2016	4									
15	**Forecast SR&ED ITCs, net of Tax on ITCs, at 75%**		-	-	-	(0.7)	(7.1)	(7.8)	-	-	-
16	**Forecast SR&ED ITCs, net of Tax on ITCs, at 100%** (line 15 x 4/3)		-	-	-	(1.0)	(9.4)	(10.4)	-	-	-
17	**Addition to Variance Account** (line 16 - line 15)		-	-	-	(0.2)	(2.4)	(2.6)	-	-	-
	Entry (iv): Ontario Research and Development Tax Credit (ORDTC) Reduction from 4.5% to 3.5% Effective June 1, 2016										
18	**Addition to Variance Account - Reduction in ORDTC Rate**		0.0	-	0.0	0.0	-	0.0	0.0	-	0.0
19	**Total Addition to Variance Account** (line 11 + line 14 + line 17 + line 18)		(2.5)	(3.4)	(5.8)	(5.1)	(5.0)	(10.2)	(3.6)	0.0	(3.6)

Notes:

1 Recorded to reflect the impact of changes in Capital Cost Allowance (CCA) rules, whereby taxpayers can claim higher first-year CCA deductions on eligible capital assets acquired after November 20, 2018, for assets other than those subject to the Capacity Refurbishment Variance Account (CRVA). The impact of this rule change for assets subject to the CRVA is recorded in the CRVA as part of the total CCA variances for those projects. There are no entries recorded for the nuclear facilities in 2022 as the impact of this rule change was reflected in the EB-2020-0290 nuclear revenue requirements.

2 As discussed in EB-2020-0290, Ex. L-H1-01 Staff-326 (d), credit entries were recorded in 2021 to correct the impact of an error identified by OPG in calculations of the hydroelectric portion of the CCA variance in 2018 and 2019. An additional credit entry was recorded in 2021 to correct the impact of a similar error related to the hydroelectric portion of the CCA variance in 2020. These credit entries total $2.3M. Interest was applied to the original entry dates.

3 As noted in EB-2020-0290, Ex. L-H1-01-Staff-320, Att. 1, Table 6, Note 4, this entry was posted in 2020 to offset a transcribing error made in the entry recorded in 2018 related to the increase in SR&ED ITCs recognition percentage for 2014. Interest was applied to the original entry date.

4 Recorded in 2021 following the resolution, during 2021, of the 2016 taxation year audit. Amount at line 16 represents SR&ED ITCs, net of tax on ITCs, for 2016 previously credited to ratepayers at 75% through the EB-2013-0321 payment amounts.

Numbers may not add due to rounding.

Table 7
Capacity Refurbishment Variance Account - Hydroelectric - Capital Projects In-service Prior to June 1, 2017 and Non-Capital Portion
Summary of Account Transactions - 2016, 2017, 2018, 2019, 2020 and 2021 ($M)

Line No.	Particulars	Notes	Actual 2016	Actual Jan 1 2017- May 31 2017	Actual June 1 2017 - Dec 31 2017	(b) + (c) Actual 2017	Actual 2018	Actual 2019	Actual 2020	Actual 2021	(a)+(d)+(e)+(f)+(g)+(h) Total
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Capital Addition to Variance Account:										
1	**Forecast Cost of Capital Amount**	1	4.0	1.7	2.3		4.0	4.0	4.0	4.0	
2	**Actual Net Plant Rate Base Amount**	2	61.6	87.6	87.6		113.0	111.0	109.0	107.0	
3	**Weighted Average Cost of Capital**	3	6.85%	6.85%	6.85%		6.85%	6.85%	6.85%	6.85%	
4	**Actual Cost of Capital Amount** (line 2 x line 3)		4.2	2.5	3.5	6.0	7.7	7.6	7.5	7.3	
5	**Cost of Capital Variance** (line 4 - line 1)		0.2	0.8	1.2	2.0	3.7	3.6	3.5	3.3	
6	**Forecast Depreciation**	1	1.2	0.5	0.7	1.2	1.2	1.2	1.2	1.2	
7	**Actual Depreciation**	2	1.4	0.8	1.1	1.9	2.0	2.0	2.1	2.1	
8	**Depreciation Variance** (line 7 - line 6)		0.3	0.3	0.5	0.8	0.8	0.8	0.9	0.9	
	Income Tax Impact										
9	**Forecast Capital Cost Allowance Deduction**	1	3.5	1.5	2.1	3.5	3.5	3.5	3.5	3.5	
10	**Actual Capital Cost Allowance Deduction**		3.4	1.8	2.5	4.2	5.0	4.7	4.5	4.2	
11	**Difference** (line 9 - line 10)		0.2	(0.3)	(0.4)	(0.7)	(1.5)	(1.2)	(0.9)	(0.7)	
12	**Net Increase in Regulatory Taxable Income**	4	0.5	0.5	0.8	1.3	1.6	1.8	2.1	2.3	
13	**Income Tax Rate**		25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	
14	**Income Tax Impact** (line 12 x line 13 / (1 - line 13))		0.2	0.2	0.3	0.4	0.5	0.6	0.7	0.8	
15	**Addition to Variance Account - Capital Portion - Projects In-service Prior to June 1, 2017, Before Adjustment** (line 5 + line 8 + line 14)		0.6	1.3	1.9	3.2	5.1	5.1	5.1	5.0	
16	**Less: EB-2013-0321 Impact Statement (Ex. N1) Adjustment**	6	(0.2)	(0.1)	0.0	(0.1)	0.0	0.0	0.0	0.0	
17	**Total Addition to Variance Account - Capital Portion - Projects In-service Prior to June 1, 2017** (line 15 - line 16)		0.9	1.4	1.9	3.3	5.1	5.1	5.1	5.0	24.4
	Non-Capital Addition to Variance Account:										
18	**Forecast Non-Capital Costs**	5	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	
19	**Actual Non-Capital Costs**	7	0.0	0.5	0.6	1.1	1.5	5.8	9.1	5.5	
20	**Non-Capital Addition to Variance Account Before Adjustment** (line 19 - line 18)		(0.1)	0.4	0.6	1.0	1.5	5.7	9.1	5.4	
21	**Less: EB-2013-0321 Impact Statement (Ex. N1) Adjustment**	6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
22	**Total Addition to Variance Account - Non-Capital Portion** (line 20 - line 21)		(0.1)	0.4	0.6	1.0	1.5	5.7	9.1	5.4	22.5

For notes see Table 7a.

Numbers may not add due to rounding.

Filed: 2023-12-13
EB-2023-0336
Exhibit H1
Tab 1
Schedule 1
Table 7a

Table 7a
Notes to Table 7
Capacity Refurbishment Variance Account - Hydroelectric - Capital Projects In-service Prior to June 1, 2017 and Non-Capital Portion ($M)

Notes:

1 For cols. (a) to (h), the amounts are calculated as follows:

Table to Note 1 - Capacity Refurbishment Variance Account - Forecast Capital Amounts for Hydroelectric Projects In-Service Prior to June 1, 2017 - EB-2013-0321 ($M)

Line No.		2014	2015	((a)+(b)) / 2 Reference Amount
		(a)	(b)	(c)
1a	Forecast Net Plant Rate Base Amount*	50.3	66.9	
2a	Weighted Average Cost of Capital**	6.86%	6.85%	
3a	Forecast Cost of Capital Amount (line 1a x line 2a)	3.4	4.6	4.0
4a	ROE Component of Forecast Cost of Capital Amount	2.1	2.8	2.5
5a	Forecast Depreciation	1.0	1.3	1.2
6a	Forecast Capital Cost Allowance Deduction	3.0	4.1	3.5

* Represents forecasts of the following projects for which account additions were previously approved for year 2015 in EB-2016-0152: Otto Holden GS - Replace Headgates and Rehabilitate Gains, Des Joachims GS - Replace Main Output Transformers, Des Joachims GS - Turbine Runner Replacement, Otto Holden GS - Replace Sluicegates and Rehabilitate Sluicegate Systems, and Sir Adam Beck I Generating Station – Unit G10 Major Overhaul and Upgrade ("EB-2016-0152 Approved CRVA Projects").

** From EB-2013-0321 Payment Amounts Order, App. A: Table 5b, line 6, col. (c) for 2014 and Table 6b, line 6, col. (c) for 2015.

2 For cols. (a) to (h), the amounts are calculated as follows:

Table to Note 2 - Capacity Refurbishment Variance Account - Actual Net Plant Rate Base Amounts for Hydroelectric Projects In-Service Prior to June 1, 2017 ($M)

Line No.		2016	Jan 1 2017- May 31 2017	June 1 2017- Dec 31 2017	(b) + (c) Total 2017	2018	2019	2020	2021
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1b	Gross Plant Opening Balance	67.8			68.2	123.1	123.1	123.1	123.1
	In-service Additions:								
2b	Sir Adam Beck Pump GS - Reservoir Refurbishment^	0.0	48.7	0.0	48.7	0.0	0.0	0.0	0.0
3b	EB-2016-0152 Approved CRVA Projects	0.4	6.2	0.0	6.2	0.0	0.0	0.0	0.0
4b	Gross Plant Closing Balance (line 1b + 2b + 3b)	68.2			123.1	123.1	123.1	123.1	123.1
5b	Gross Plant Rate Base Amount (line 1b + 4b)/2	68.0			95.7	123.1	123.1	123.1	123.1
6b	Accumulated Depreciation Opening Balance	5.7			7.1	9.0	11.0	13.0	15.1
7b	Depreciation	1.4	0.8	1.1	1.9	2.0	2.0	2.1	2.1
8b	Accumulated Depreciation Closing Balance (line 6b + line 7b)	7.1			9.0	11.0	13.0	15.1	17.2
9b	Accumulated Depreciation Rate Base Amount (line 6b + 8b)/2	6.4			8.1	10.0	12.0	14.1	16.1
10b	Net Plant Rate Base Amount (line 5b - line 9b)	61.6			87.6	113.0	111.0	109.0	107.0

^ The project was placed in service in February 2017 with a total cost of $48.7M, compared to the First Execution Business Case estimate of $58.2M. See Ex. H1-1-1, Attachment 4 for further details.

3 From EB-2013-0321 Payment Amounts Order, App. A, Table 6b, line 6, col. (c).

4 The change in regulatory taxable income is calculated as the sum of lines 8 and 11, plus the ROE component of the cost of capital variance at line 5. The ROE component of the variance is equal to the difference between (i) line 2 multiplied by the OEB-approved equity portion (45%) of the capital structure and the OEB-approved ROE rate of 9.30%, and (ii) line 4a, col. (c).

5 EB-2016-0152, Ex. J20.6.

6 The adjustments are per the EB-2013-0321 Payment Amounts Order (App. G, p.10), and EB-2014-0370 Payment Amounts Order (App. B, p.12) requirement that amounts recorded in the account do not include those that OPG indicated it is not seeking to recover from, or refund to, ratepayers as part of the differences between the revenue requirement in its EB-2013-0321 pre-filed evidence and the information based on OPG's 2014-2016 Business Plan, which was provided in the EB-2013-0321 Impact Statement at Ex. N1.

7 The actual non-capital amounts in cols. (a) to (h) comprise the following:

Table to Note 7 - Capacity Refurbishment Variance Account - Actual Non-Capital (Removal) Costs for Hydroelectric Projects ($M)

Line No.	Project Name	2016	Jan 1 2017 - May 31 2017	June 1 2017- Dec 31 2017	2018	2019	2020	2021
		(a)	(b)	(c)	(d)	(e)	(f)	(g)
1c	Stewartville Generating Station – Sluicegate Replacement		0.0	0.0				
2c	Mountain Chute Generating Station – Rehabilitate Sluicegate Structure and Replace Gates		0.0	0.0	0.0			
3c	DeCew Falls II Generating Station – Unit G2 Overhaul and Upgrade		0.2	0.3				
4c	Otter Rapids Generating Station – T1, T2 Transformer Replacement				0.3	0.1	0.3	
5c	Manitou Falls Generating Station – Auto Sluice System Replacement					0.7	0.4	
6c	Sir Adam Beck I Generating Station – Unit G5 Major Overhaul						1.6	(0.4)
7c	Whitedog Falls Generating Station – Sluicegate #1, #4, #5 and #6 Replacement						0.7	0.7
8c	Pine Portage Generating Station – Auto Sluice System Replacement		0.2	0.2				0.8
9c	Caribou Falls Generating Station – Sluicegate #4 and #6 Replacement							0.7
10c	Whitedog Falls Generating Station – Auto Sluice System Replacement				1.2	0.7		
11c	Aguasabon Generating Station – Surge Tank Replacement							1.8
12c	Abitibi Canyon Generating Station – Unit G5 Stator Winding Replacement						0.7	
13c	Caribou Falls Generating Station – Auto Sluice System Replacement						1.2	
14c	Sir Adam Beck I Generating Station – Units G1, G2 Replacement					4.2	4.0	1.7
15c	R.H. Saunders Generating Station – Replacement of Westinghouse Excitation					0.1	0.1	0.2
16c	Otto Holden GS - Replace Headgates and Rehabilitate Gains	0.0	0.1	0.1				
17c	Total	0.0	0.5	0.6	1.5	5.8	9.1	5.5

Numbers may not add due to rounding.

Filed: 2023-12-13
EB-2023-0336
Exhibit H1
Tab 1
Schedule 1
Table 7b

Table 7b
Capacity Refurbishment Variance Account - Hydroelectric - Projects In-service from June 1, 2017 to December 31, 2021
Summary of Account Additions Before Application of Recoverability Threshold - 2016, 2017, 2018, 2019, 2020 and 2021 ($M)

Line No.	Particulars	Note	Actual 2016	Actual Jan 1 2017- May 31 2017	Actual June 1 2017 - Dec 31 2017	Actual 2018	Actual 2019	Actual 2020	Actual 2021
			(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	**Actual Net Plant Rate Base**	4	0.0	0.0	22.4	57.4	127.8	203.2	272.0
2	**Weighted Average Cost of Capital**	1	6.85%	6.85%	6.85%	6.85%	6.85%	6.85%	6.85%
3	**Cost of Capital** (line 1 x line 2)		0.0	0.0	1.5	3.9	8.8	13.9	18.6
4	**Actual Depreciation**	4	0.0	0.0	0.3	1.0	2.3	3.6	4.8
	Income Tax Impact								
5	**Actual Capital Cost Allowance Deduction**		0.0	0.0	1.6	4.4	18.3	28.7	25.1
6	**Actual SR&ED Qualifying Capital Expenditures**		0.3	1.1	1.6	0.0	12.2	20.0	23.7
7	**Net Decrease in Regulatory Taxable Income**	3	(0.3)	(1.1)	(1.9)	(1.0)	(22.9)	(36.6)	(32.7)
8	**Income Tax Rate**		25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
9	**Income Tax Impact** (line 7 x line 8 / (1 - line 8))		(0.1)	(0.4)	(0.6)	(0.3)	(7.6)	(12.2)	(10.9)
10	**Total Capital-Related Revenue Requirement Impact** (line 3 + line 4 + line 9)		(0.1)	(0.4)	1.2	4.5	3.4	5.4	12.5
11	**Less: EB-2016-0152 Reference Amount**	2	0.0	0.0	0.6	1.0	1.0	1.0	1.0
12	**Total Capital Addition to Variance Account - Capital Portion - Projects In-service from June 1, 2017 to Dec 31, 2021, Before Application of Recoverability Threshold** (line 10 - line 11)		(0.1)	(0.4)	0.7	3.6	2.4	4.4	11.5

Notes:

1 From EB-2013-0321 Payment Amounts Order, App. A, Table 6b, line 6, col. (c).

2 Per EB-2016-0152 Payment Amounts Order, App. G, pp. 9-10, calculated as $0.9M escalated at the following OEB-approved I-X rates applied to adjust OPG's regulated hydroelectric payment amounts (prorated by 7/12th for June 1 to December 31, 2017): 1.4% in 2017, 0.9% in 2018, 1.1% in 2019, 1.5% in 2020, and 1.7% in 2021.

3 The decrease in regulatory taxable income is calculated as line 4, less the sum of 5 and 6, plus the ROE component of the cost of capital at line 3. The ROE component is equal to line 1 multiplied by the OEB-approved equity portion (45%) of the capital structure and the OEB-approved ROE rate of 9.30%.

4 For cols. (a) to (g), the amounts are calculated as follows:

Table to Note 4 - Capacity Refurbishment Variance Account - Actual Net Plant Rate Base Amounts for Hydroelectric Projects In-Service from June 1, 2017 to December 31, 2021 ($M)

Line No.		June 1 2017 - Dec 31 2017	2018	2019	2020	2021
		(a)	(b)	(c)	(d)	(e)
1a	Gross Plant Opening Balance	0.0	45.2	71.2	189.2	228.0
2a	In-service Additions*	45.2	26.0	118.0	38.7	107.3
3a	Gross Plant Closing Balance (line 1a + line 2a)	45.2	71.2	189.2	228.0	335.2
4a	Gross Plant Rate Base Amount (line 1a + line 3a)/2	22.6	58.2	130.2	208.6	281.6
5a	Accumulated Depreciation Opening Balance	0.0	0.3	1.3	3.5	7.2
6a	Depreciation	0.3	1.0	2.3	3.6	4.8
7a	Accumulated Depreciation Closing Balance (line 5a + line 6a)	0.3	1.3	3.5	7.2	11.9
8a	Accumulated Depreciation Rate Base Amount (line 5a + line 7a)/2	0.2	0.8	2.4	5.3	9.5
9a	Net Plant Rate Base Amount (line 4a - line 8a)	22.4	57.4	127.8	203.2	272.0

* The following projects comprise the actual in-service additions. See Ex. H1-1-1, Attachment 4 for further details.

Capacity Refurbishment Variance Account - Hydroelectric - In-Service Capital Project Listing from June 1, 2017 to December 31, 2021 ($M)

Line No.	Project Name	Final In-Service Date+	Total Project Cost ++	1st Execution Business Case	In-Service June 1 2017- Dec 31 2017	In-Service 2018	In-Service 2019	In-Service 2020	In-Service 2021
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1b	Sir Adam Beck I Generating Station – Unit G10 Major Overhaul and Upgrade	Jun-17	30.8	27.0	30.2				
2b	Sir Adam Beck Pump Generating Station – PG1 Overhaul	Dec-17	7.0	7.7	7.0				
3b	Stewartville Generating Station – Sluicegate Replacement	Oct-18	7.3	6.8	3.7	3.6			
4b	Mountain Chute Generating Station – Rehabilitate Sluicegate Structure and Replace Gates	Nov-18	7.8	8.3	4.3	3.4			
5b	Sir Adam Beck Pump Generating Station – PG6 Overhaul	May-19	7.1	7.9			7.1		
6b	DeCew Falls II Generating Station – Unit G2 Overhaul and Upgrade	Jul-19	35.5	38.1			34.9		
7b	Otter Rapids Generating Station – T1, T2 Transformer Replacement	Aug-20	12.7	12.6		4.6		7.4	
8b	Manitou Falls Generating Station – Auto Sluice System Replacement	Sep-21	25.3	24.0				14.8	8.8
9b	Sir Adam Beck I Generating Station – Unit G5 Major Overhaul	Sep-21	44.7	34.8					43.4
10b	Whitedog Falls Generating Station – Sluicegate #1, #4, #5 and #6 Replacement	Oct-21	12.8	12.8				5.7	5.3
11b	Pine Portage Generating Station – Auto Sluice System Replacement	Oct-21	13.1	9.7		9.5			2.4
12b	Caribou Falls Generating Station – Sluicegate #4 and #6 Replacement	Nov-21	7.0	7.3					6.0
13b	Whitedog Falls Generating Station – Auto Sluice System Replacement	Dec-21	16.9	16.8		5.0	9.4		0.4
14b	Aguasabon Generating Station – Surge Tank Replacement	Aug-23	26.4	25.2					23.1
15b	Abitibi Canyon Generating Station – Unit G5 Stator Winding Replacement	Oct-23	9.3	9.7				8.1	
16b	Caribou Falls Generating Station – Auto Sluice System Replacement	Oct-23	17.1	16.6					14.6
17b	Sir Adam Beck I Generating Station – Units G1, G2 Replacement	Oct-23	122.8	119.7			10.9	0.7	
18b	Ranney Falls Generating Station G3	Oct-23	74.5	77.3			53.7		
19b	R.H. Saunders Generating Station – Replacement of Westinghouse Excitation			17.2			1.8	2.0	3.3
20b	Total				45.2	26.0	118.0	38.7	107.3

\+ For completed projects only, subject to project close out where it may not have yet occurred. Final In-Service Date means the final date for in-service and close out of project, or the final in-service date (but not the final project close out date which may not have yet occurred).

++ For completed projects only, subject to project close out where it may not have yet ocurred. Project costs shown include removal costs expensed to OM&A, whereas in-service amounts exclude these costs.

Numbers may not add due to rounding.

Table 7c
Capacity Refurbishment Variance Account - Hydroelectric - Projects In-service from June 1, 2017 to December 31, 2021
Revenue Requirement Impact of Differences Between Total In-Service Additions and Capital Funding Implicit in Payment Amounts ($M)

Line No.	Particulars	Note	Actual June 1 2017- Dec 31 2017	Actual 2018	Actual 2019	Actual 2020	Actual 2021	(a)+(b)+(c)+(d)+(e) Total
			(a)	(b)	(c)	(d)	(e)	(f)
1	**Capital Funding Implicit in Payment Amounts**	1	84.8	146.6	148.2	150.5	153.0	683.1
2	**Total Actual In-Service Additions**		77.3	146.0	248.1	147.3	247.8	866.6
3	**Difference Between Total Actual In-Service Additions and Capital Funding Implicit in Payment Amounts** (line 2 - line 1)		(7.4)	(0.6)	99.9	(3.2)	94.8	183.6
4	**Actual Net Plant Rate Base Amount**	2	(3.8)	(7.8)	41.0	87.7	131.3	
5	**Weighted Average Cost of Capital**	3	6.85%	6.85%	6.85%	6.85%	6.85%	
6	**Cost of Capital** (line 4 x line 5)		(0.3)	(0.5)	2.8	6.0	9.0	
7	**Actual Depreciation**	2	0.1	0.1	1.7	1.5	2.9	
	Income Tax Impact							
8	**Actual Capital Cost Allowance Deduction**	4	0.4	0.5	14.0	9.9	16.2	
9	**Actual SR&ED Qualifying Capital Expenditures**	4	0.1	0.0	12.5	(0.8)	9.7	
10	**Net Decrease in Regulatory Taxable Income**	5	(0.6)	(0.8)	(23.1)	(3.9)	(17.5)	
11	**Income Tax Rate**		25.0%	25.0%	25.0%	25.0%	25.0%	
12	**Income Tax Impact** (line 10 x line 11 / (1 - line 11))		(0.1)	(0.3)	(7.7)	(1.3)	(5.8)	
13	**Revenue Requirement Impact of Difference Between Total Actual In-Service Additions and Capital Funding Implicit in Payment Amounts** (line 6 + line 7 + line 12)		(0.2)	(0.7)	(3.2)	6.3	6.1	8.2

Notes:

1 Per EB-2016-0152 Payment Amounts Order, App. G, pp. 9-10, calculated as $143.3M escalated at the following OEB-approved I-X rates applied to adjust OPG's regulated hydroelectric payment amounts (prorated by 7/12th for June 1 to December 31, 2017): 1.4% in 2017, 0.9% in 2018, 1.1% in 2019, 1.5% in 2020, and 1.7% in 2021.

2 For cols. (a) to (e), the amounts are calculated as follows:

Table to Note 2 - Net Plant Rate Base Amounts for Differences Between Total Actual In-Service Additions And Capital Funding Implicit in Payment Amounts for Regulated Hydroelectric Projects ($M)

Line No.		June 1 2017 - Dec 31 2017	2018	2019	2020	2021
		(a)	(b)	(c)	(d)	(e)
1a	Opening Balance	0.0	(7.5)	(8.2)	90.1	85.4
2a	In-service additions (line 3)	(7.4)	(0.6)	99.9	(3.2)	94.8
3a	Depreciation*	0.1	0.1	1.7	1.5	2.9
4a	Closing Balance (line 1a + line 2a - line 3a)	(7.5)	(8.2)	90.1	85.4	177.2
5a	Net Plant Rate Base Amount (line 1a + line 4a)/2	(3.8)	(7.8)	41.0	87.7	131.3

* Calculated as the difference between: (i) actual depreciation of total regulated hydroelectric in-service additions each year, and (ii) estimated depreciation of capital funding implicit in payment amounts each year. The amount in (ii) is calculated as follows: a proportion of the corresponding year's amount in (i) multiplied by the ratio of the implicit funding (line 1) to the total in-service additions (line 2), plus the amount in (ii) for the preceding year.

3 From EB-2013-0321 Payment Amounts Order, App. A, Table 6b, line 6, col. (c).

4 Calculated as the difference between: (i) actual CCA deductions and SR&ED qualifying capital expenditures for total cumulative regulated hydroelectric in-service additions to date, and (ii) estimated CCA deductions and SR&ED qualifying capital expenditures related to the cumulative capital funding implicit in payment amounts to date. The amount in (ii) is calculated based on the corresponding year's average CCA and SR&ED qualifying capital expenditure rates derived as a proportion of (i) to the underlying tax balances for the total in-service additions.

5 The change in regulatory taxable income is calculated as line 7, less the sum of lines 8 and 9, plus the ROE component of the cost of capital at line 6. The ROE component is equal to line 4 multiplied by the OEB-approved equity portion (45%) of the capital structure and the OEB-approved ROE rate of 9.30%.

Numbers may not add due to rounding.

Table 7d
Capacity Refurbishment Variance Account - Hydroelectric - Projects In-service from June 1, 2017 to December 31, 2021
Summary of Account Transactions - 2016, 2017, 2018, 2019, 2020 and 2021 ($M)

Line No.	Particulars	Note	Actual 2016	Actual Jan 1 2017 - May 31 2017	Actual June 1 2017- Dec 31 2017	Actual 2018	Actual 2019	Actual 2020	Actual 2021	(a)+(b)+(c)+(d)+(e)+(f)+(g) Total
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	Capital Addition to Variance Account:									
1	**Capital Addition to Variance Account Before Application of Recoverability Threshold**	1	(0.1)	(0.4)	0.7	3.6	2.4	4.4	11.5	22.1
2	**Revenue Requirement Impact of Difference Between Total Actual In-Service Additions and Capital Funding Implicit in Payment Amounts**	2	-	-	(0.2)	(0.7)	(3.2)	6.3	6.1	8.2
3	**Total Addition to Variance Account - Capital Portion - Projects In-Service from June 1, 2017 to December 31, 2021** (col. (h): lesser of line 1 and line 2; cols. (a) - (g): line 1 or line 2 corresponding to col.(h))		-	-	(0.2)	(0.7)	(3.2)	6.3	6.1	8.2

Notes:
1 From Ex. H1-1-1, Table 7b, line 12.
2 From Ex. H1-1-1, Table 7c, line 13.

Numbers may not add due to rounding.

Table 8
Pension & OPEB Cash Payment Variance Account and Pension & OPEB Cash Versus Accrual Differential Deferral Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020			Actual 2021			Actual 2022		
			Regulated Hydroelectric	Nuclear	(a)+(b) Total	Regulated Hydroelectric	Nuclear	(d)+(e) Total	Regulated Hydroelectric	Nuclear[4]	(g)+(h) Total
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	**Forecast Pension Contributions**	1	45.1	247.9	293.0	45.1	250.6	295.8	45.1	0.0	45.1
2	**Forecast OPEB Payments**	1	12.8	104.3	117.2	12.8	108.5	121.4	12.8	0.0	12.8
3	**Total Forecast Pension and OPEB Cash Amounts** (line 1 + line 2)		58.0	352.3	410.2	58.0	359.2	417.2	58.0	0.0	58.0
4	**Actual Pension Contributions**	2	24.6	148.3	172.9	25.7	137.7	163.4	27.9	0.0	27.9
5	**Actual OPEB Payments**	2	13.8	83.0	96.8	16.6	89.2	105.8	16.7	0.0	16.7
6	**Total Actual Pension and OPEB Cash Amounts** (line 4 + line 5)		38.4	231.3	269.7	42.3	226.9	269.2	44.6	0.0	44.6
7	**Total Addition to Pension & OPEB Cash Payment Variance Account** (line 6 - line 3)		(19.6)	(121.0)	(140.6)	(15.7)	(132.3)	(148.0)	(13.4)	0.0	(13.4)
8	**Actual Pension - Registered Pension Plan (RPP) Accrual Costs**	3	23.0	124.0	147.0	28.4	154.9	183.3	12.4	0.0	12.4
9	**Actual OPEB - Non-RPP Accrual Costs**	3	30.3	179.0	209.3	30.7	165.1	195.7	28.7	0.0	28.7
10	**Total Actual Pension and OPEB Accrual** (line 8 + line 9)		53.3	303.0	356.3	59.0	320.0	379.0	41.1	0.0	41.1
11	**Addition to Pension & OPEB Cash Versus Accrual Differential Deferral Account - RPP** (line 8 - line 4)		(1.7)	(24.2)	(25.9)	2.7	17.2	19.9	(15.5)	0.0	(15.5)
12	**Addition to Pension & OPEB Cash Versus Accrual Differential Deferral Account - Non-RPP** (line 9 - line 5)		16.5	96.0	112.5	14.0	75.9	89.9	12.0	0.0	12.0
13	**Total Addition to Pension & OPEB Cash Versus Accrual Differential Deferral Account** (line 11 + line 12)		14.9	71.8	86.6	16.7	93.1	109.8	(3.5)	0.0	(3.5)

Notes:

1 Cols. (a), (b), (d) and (e) are per EB-2016-0152 Payment Amounts Order, App. G, pp. 12-13. and col. (g) is per EB-2020-0290 Payment Amounts Order, App. E, p. 12.

2 Represents the portion of OPG's actual pension contributions and OPEB payments for the corresponding years, as set out in Ex. H1-1-1, Attachment 5, pp. 9-11, attributed to the regulated hydroelectric or nuclear facilities.

3 Represents the portion of OPG's actual pension and OPEB costs for the corresponding years, as set out in Ex. H1-1-1, Attachment 5, pp. 9-11, attributed to the regulated hydroelectric or nuclear facilities.

4 As per the EB-2020-0290 Payment Amounts Order, App. E, p. 12, no additions are recorded to the Pension & OPEB Cash Payment Variance Account or the Pension & OPEB Cash Versus Accrual Differential Deferral Account for the nuclear facilities beginning in 2022 as the nuclear revenue requirements approved in that proceeding reflected pension and OPEB costs calculated on an accrual basis.

Numbers may not add due to rounding.

Filed: 2023-12-13
EB-2023-0336
Exhibit H1
Tab 1
Schedule 1
Table 8a

Table 8a
Pension and OPEB Forecast Accrual Versus Actual Cash Payment Differential Variance Account - Primary, Contra and Carrying Charges Sub-Accounts
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020			Actual 2021			Actual 2022		
			Regulated Hydroelectric	Nuclear	(a)+(b) Total	Regulated Hydroelectric	Nuclear	(d)+(e) Total	Regulated Hydroelectric	Nuclear	(g)+(h) Total
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1	**Amortization of Pension & OPEB Cash Versus Accrual Differential Deferral - Registered Pension Plan (RPP) - EB-2018-0243 Approved**	1	0.0	0.0	0.0	0.0	0.0	0.0	8.3	53.2	61.5
2	**Amortization of Pension & OPEB Cash Versus Accrual Differential Deferral - Non-RPP - EB-2018-0243 Approved**	1	7.0	44.1	51.1	7.0	44.1	51.1	7.0	44.1	51.1
3	**Amortization of Pension & OPEB Cash Versus Accrual Differential Deferral - Post-2017 Additions**	1	0.0	0.0	0.0	0.0	0.0	0.0	8.8	55.6	64.5
4	**Actual Pension and OPEB Accrual Costs - Nuclear - Beginning January 1, 2022**	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	216.8	216.8
5	**Actual Pension and OPEB Cash Amounts - Nuclear - Beginning January 1, 2022**	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	234.6	234.6
6	**Total Addition to Primary Sub-Account Tracking Balance** (line 1 + line 2 + line 3 + line 4 - line 5)		7.0	44.1	51.1	7.0	44.1	51.1	24.1	135.1	159.2
7	**Total Addition to Contra Sub-Account Tracking Balance** (line 6 x -1)		(7.0)	(44.1)	(51.1)	(7.0)	(44.1)	(51.1)	(24.1)	(135.1)	(159.2)
8	**Net Total Addition to Primary and Contra Sub-Accounts Tracking Balances**		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	**Primary Sub-Account Tracking Balance - Opening**	4	7.0	44.1	51.1	14.0	88.2	102.1	21.0	132.2	153.2
10	**Primary Sub-Account Tracking Balance - Closing** (line 6 + line 9)		14.0	88.2	102.1	21.0	132.2	153.2	45.0	267.4	312.4
11	**Total Addition to Carrying Charges Sub-Account**	5	(0.2)	(1.6)	(1.8)	(0.4)	(2.4)	(2.8)	(1.3)	(8.0)	(9.3)

Notes:

1 Cols. (a) and (d) per EB-2018-0243 Settlement Proposal, Attachment A, Table 1, line 11, cols. (j) and (k) for Non-RPP and line 10, cols. (j) and (k) for RPP. Cols. (b) and (e) per EB-2018-0243 Settlement Proposal, Attachment A, Table 2, line 13, cols. (j) and (k) for Non-RPP and line 12, cols. (j) and (k) for RPP. Col. (g) per EB-2020-0290 Payment Amounts Order, App. C, Table 1, lines 10-12, col. (h). Col. (h) per EB-2020-0290 Payment Amounts Order, App. D, Table 1, lines 15-17, col. (h).

2 Col. (h) from Ex. H1-1-1, Table 8b, line 6.

3 Col. (h) represents the portion of OPG's actual pension contributions and OPEB payments for 2022, as set out in Ex. H1-1-1, Attachment 5, p. 11, attributed to the nuclear facilities.

4 Cols. (a) and (b) from EB-2020-0290, Ex. H1-1-1, Table 7a, line 4, cols. (a) and (b), respectively. Cols. (d), (e), (g) and (h) are equal to line 10 of the preceding year.

5 Carrying charges are calculated on the monthly opening cumulative balance in the Primary Sub-Account (when in a credit position) using the OEB's prescribed Construction Work in Progress rate, as follows: 2020 - 2.88% for Q1, 2.48% for Q2 to Q3 and 2.03% for Q4; 2021 - 2.03% for Q1, 2.29% for Q2 to Q4; 2022 - 2.72% for Q1, 3.31% for Q2, 4.66% for Q3 and 5.01% for Q4.

Numbers may not add due to rounding.

Table 8b
Pension and OPEB Cost Variance Account - Nuclear
Summary of Account Transactions - 2022 ($M)

Line No.	Particulars	Note	Actual 2022
1	**Forecast Accrual Pension Costs**	1	154.0
2	**Forecast Accrual OPEB Costs**	1	157.7
3	**Total Forecast Accrual Pension and OPEB Costs** (line 1 + line 2)	2	311.7
4	**Actual Accrual Pension Costs**	3	65.7
5	**Actual Accrual OPEB Costs**	3	151.1
6	**Total Actual Accrual Pension and OPEB Costs** (line 4 + line 5)		216.8
7	**Addition to Variance Account - Pension Costs** (line 4 - line 1)		(88.3)
8	**Addition to Variance Account - OPEB Costs** (line 5 - line 2)		(6.6)
9	**Addition to Variance Account - Income Tax Impact**	4	(27.7)
10	**Total Addition to Variance Account** (line 7 + line 8 + line 9)		(122.6)

Notes:

1 From EB-2020-0290, Ex. F4-3-2, Chart 1.

2 From EB-2020-0290 Payment Amounts Order, App. E, p.10, line 27.

3 Represents the portion of OPG's actual pension and OPEB costs in 2022, as set out in Ex. H1-1-1, Attachment 5, p. 11, attributed to the nuclear facilities.

4 Table to Note 4 - The income tax impact of the pension and OPEB cost additions to the account is calculated as follows ($M):

Line No.		Note	Actual 2022
1a	Forecast Income Tax Impact	*	21.7
	Actual Additions to / Deductions from Regulatory Earnings Before Tax:		
2a	Actual Accrual Pension Costs (line 4)		65.7
3a	Actual Accrual OPEB Costs (line 5)		151.1
4a	Less: Actual Pension Contributions	**	147.0
5a	Less: Actual OPEB Payments	**	87.6
6a	Net Additions to Regulatory Earnings Before Tax (line 2a + line 3a - line 4a - line 5a)		(17.8)
7a	Actual Income Tax Impact (line 6a x 25% / (1 - 25%))		(5.9)
8a	Addition to Variance Account - Income Tax Impact (line 7a - line 1a)		(27.7)

* From EB-2020-0290 Payment Amounts Order, App. E, p. 11, line 2.

** Represents the portion of OPG's actual pension contributions and OPEB payments in 2022, as set out in Ex. H1-1-1, Attachment 5, p. 11, attributed to the nuclear facilities.

Numbers may not add due to rounding.

Table 9
Hydroelectric Deferral and Variance Over/Under Recovery Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
1	**Regulated Hydroelectric Rider ($/MWh)-EB-2016-0152**	1	1.01		
2	**Regulated Hydroelectric Rider ($/MWh)-EB-2018-0243**	2	1.25	2.05	
3	**Regulated Hydroelectric Rider ($/MWh)-EB-2020-0290**	3			1.03
4	**Regulated Hydroelectric Production Forecast Used to Set Rider (TWh) EB-2016-0152**	4	30.2		
5	**Regulated Hydroelectric Production Forecast Used to Set Rider (TWh) EB-2018-0243**	5	33.0	33.0	
6	**Regulated Hydroelectric Production Forecast Used to Set Rider (TWh) EB-2020-0290**	6			33.0
7	**Regulated Hydroelectric Actual Production (TWh)**		30.3	29.1	31.1
8	**Production Variance for Regulated Hydroelectric Rider (TWh) EB-2016-0152** (line 4 - line 7)		(0.0)		
9	**Production Variance for Regulated Hydroelectric Rider (TWh) EB-2018-0243** (line 5 - line 7)		2.7	3.9	
10	**Production Variance for Regulated Hydroelectric Rider (TWh) EB-2020-0290** (line 6 - line 7)				1.9
11	**Addition to Variance Account ($M) - Regulated Hydroelectric Rider-EB-2016-0152** (line 8 x line 1)		(0.0)		
12	**Addition to Variance Account ($M) - Regulated Hydroelectric Rider-EB-2018-0243** (line 9 x line 2)		3.4	8.0	
13	**Addition to Variance Account ($M) - Regulated Hydroelectric Rider-EB-2020-0290** (line 10 x line 3)				2.0
14	**Total Addition to Variance Account ($M)** (line 11 + line 12 + line 13)		3.3	8.0	2.0

Notes:

1 From EB-2016-0152 Payment Amounts Order, App. D, Table 1, line 14, col. (g).
2 From EB-2018-0243 Decision and Payment Amounts Order, p. 5.
3 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, line 23, col. (h).
4 From EB-2016-0152 Payment Amounts Order, App. D, Table 1, line 13, col. (g).
5 From EB-2018-0243 Ex. M1 Settlement Proposal, Attachment A, Table 1, line 18, cols. (j) and (k), which forms the basis of the payment amounts approved in the Decision and Payment Amounts Order dated February 21, 2019.
6 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, line 22, col. (h).

Numbers may not add due to rounding.

Table 10
Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	Capital Addition to Variance Account:				
1	**Actual Net Plant Rate Base Amount**	1	20.0	19.7	19.5
2	**Weighted Average Cost of Capital**	2	6.85%	6.85%	6.85%
3	**Actual Cost of Capital Amount** (line 1 x line 2)		1.4	1.4	1.3
4	**Cost of Capital Variance**		1.4	1.4	1.3
5	**Forecast Depreciation**		0.0	0.0	0.0
6	**Actual Depreciation**		0.2	0.2	0.2
7	**Depreciation Variance** (line 6 - line 5)		0.2	0.2	0.2
	Income Tax Impact:				
8	**Forecast Capital Cost Allowance Deduction**		0.0	0.0	0.0
9	**Actual Capital Cost Allowance Deduction**		0.7	0.6	0.6
10	**Difference** (line 8 - line 9)		(0.7)	(0.6)	(0.6)
11	**Net Increase in Regulatory Taxable Income**	3	0.4	0.4	0.4
12	**Income Tax Rate**	4	25%	25%	25%
13	**Income Tax Impact** (line 11 x line 12 / (1 - line 12))		0.1	0.1	0.1
14	**Total Addition to Variance Account** (line 4 + line 7 + line 13)		1.7	1.7	1.7

Notes:

1 The continuity of the variation between the original Niagara Tunnel Project rate base disallowance of $28M and the varied disallowance of $6.4M is as follows:

	Table to Note 1 - Niagara Tunnel Project Disallowance Continuity ($M)			
Line No.		2020	2021	2022
		(a)	(b)	(c)
1a	Opening Balance (col. (a) from EB-2020-0290, Ex. H1-1-1, Table 9, line 4a, col. (b))	20.1	19.9	19.6
2a	In-Service	0.0	0.0	0.0
3a	Depreciation Expense (line 6)	(0.2)	(0.2)	(0.2)
4a	Closing Balance	19.9	19.6	19.4
5a	Actual Net Plant Rate Base Amount (lines 1a+ 4a)/ 2	20.0	19.7	19.5

2 From EB-2013-0321 Payment Amounts Order, App. A, Table 6b, line 6, col. (c).

3 The change in regulatory taxable income is calculated as the sum of lines 7 and 10, plus the ROE component of the cost of capital variance at line 4. The ROE component of the variance is equal to line 1 multiplied by the OEB-approved equity portion (45%) of the capital structure, multiplied by the EB-2013-0321 OEB-approved ROE rate of 9.30%.

4 From EB-2013-0321 Payment Amounts Order, App. A, Table 8, line 31, col. (c).

Numbers may not add due to rounding.

Table 11
Bruce Lease Net Revenues Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
1	**Actual Total Bruce Lease Net Revenues ($M)**	1	(11.9)	(68.7)	(33.0)
2	**Forecast Bruce Lease Net Revenue**	2	(20.1)	(40.4)	(45.6)
3	**Forecast Nuclear Production (TWh)**	3	37.4	35.4	33.6
4	**Rate Credited to (Recovered from) Customers ($/MWh)** (line 2 / line 3)	4	(0.537)	(1.141)	(1.36)
5	**Actual Nuclear Production (TWh)**	5	43.8	39.6	35.3
6	**Amount Credited to (Recovered from) Customers ($M)** (line 4 x line 5)		(23.5)	(45.1)	(47.9)
7	**Total Addition to Variance Account ($M)** (line 6 - line 1)		(11.6)	23.6	(14.9)

Notes:

1 From Ex. H1-1-1 Table 11a, line 22, cols. (a), (d) and (g). Col. (a) as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 33, line 3, col. (e).

2 Cols. (a) and (b) from EB-2016-0152 Payment Amounts Order, App. G, p. 16. Col. (c) from EB-2020-0290 Payment Amounts Order, App. E, p. 17.

3 Cols. (a) and (b) from EB-2016-0152 Payment Amounts Order, App. C, Table 1, line 2, cols. (d) and (e). Col. (c) from EB-2020-0290 Payment Amounts Order, App. B, Table 1, line 2, col. (a).

4 Cols. (a) and (b) from EB-2016-0152 Payment Amounts Order, App. G, p. 16. Col. (c) from EB-2020-0290 Payment Amounts Order, App. E, p. 17.

5 Col. (a) as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 14, line 3, col. (e).

Numbers may not add due to rounding.

Filed: 2023-12-13
EB-2023-0336
Exhibit H1
Tab 1
Schedule 1
Table 11a

Table 11a
Bruce Lease Net Revenues Variance Account
Comparison of Bruce Lease Net Revenues - 2020, 2021 and 2022 ($M) [1]

Line No.	Particulars	Note	Actual 2020	OEB Approved 2020 (EB-2016-0152)	(a) - (b) Change	Actual 2021	OEB Approved 2021 (EB-2016-0152)	(d) - (e) Change	Actual 2022	OEB Approved 2022 (EB-2020-0290)	(g) - (h) Change
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
			Note 2	Note 3			Note 3			Note 4	
	Revenues:										
1	**Site Services (OPG to Bruce Power)**		0.7	0.7	0.0	0.7	0.7	0.0	0.6	0.5	0.1
2	**Low & Intermediate Level Waste Services**		21.2	18.6	2.6	29.9	21.6	8.3	2.4	18.1	(15.7)
3	**Cobalt-60**		0.8	0.5	0.2	0.4	0.5	(0.2)	0.6	0.6	(0.1)
4	**Total Services Revenue**		22.7	19.8	2.9	30.9	22.8	8.1	3.6	19.2	(15.6)
5	**Fixed (Base) Rent**		25.4	25.4	(0.0)	25.4	25.7	(0.4)	26.3	26.1	0.2
6	**Supplemental Rent**		170.2	174.5	(4.3)	146.5	140.1	6.3	139.7	140.4	(0.7)
7	**Total Rent Revenue**		195.6	200.0	(4.4)	171.8	165.9	5.9	166.0	166.5	(0.5)
8	**Total Revenue** (line 4 + line 7)		218.2	219.8	(1.5)	202.7	188.7	14.0	169.6	185.7	(16.1)
	Costs:										
9	**Depreciation**		69.6	68.4	1.2	69.8	68.4	1.4	52.4	69.6	(17.2)
10	**Property Tax**		12.3	14.0	(1.7)	12.6	15.1	(2.5)	13.0	12.6	0.4
11	**Accretion**		504.1	495.8	8.2	522.3	512.4	9.9	513.6	537.5	(23.9)
12	**(Earnings) Losses on Segregated Funds**		(439.0)	(426.2)	(12.8)	(431.6)	(436.0)	4.5	(471.3)	(452.6)	(18.7)
13	**Used Fuel Storage and Disposal**		60.1	64.2	(4.2)	84.1	52.2	31.9	86.9	57.9	29.0
14	**Waste Management Expenses, Facilities Removal and Other Costs**		4.0	3.4	0.6	19.6	4.6	14.9	7.7	3.2	4.6
15	**Interest**		23.1	26.8	(3.7)	17.6	25.8	(8.2)	11.2	18.3	(7.1)
16	**Total Costs Before Income Tax** (lines 9 through 15)		234.1	246.4	(12.3)	294.3	242.5	51.8	213.6	246.5	(32.9)
17	**Income Tax - Current**	5	33.1	47.0	(13.9)	45.0	41.7	3.4	69.8	75.9	(6.1)
18	**Income Tax - Deferred**	6	(37.0)	(53.6)	16.6	(67.9)	(55.1)	(12.8)	(80.8)	(91.1)	10.3
19	**Total Income Tax** (line 17 + line 18)		(4.0)	(6.7)	2.7	(22.9)	(13.4)	(9.5)	(11.0)	(15.2)	4.2
20	**Total Costs** (line 16 + line 19)		230.1	239.8	(9.6)	271.4	229.0	42.4	202.6	231.3	(28.7)
21	**Total Bruce Lease Net Revenues** (line 8 - line 20)		(11.9)	(20.1)	8.1	(68.7)	(40.4)	(28.4)	(33.0)	(45.6)	12.6

Notes:
1 All amounts from 2020 to 2022 are presented on a US GAAP basis, which was used to determine the EB-2016-0152 and EB-2020-0290 OEB-approved forecasts.
2 As shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1: Table 34, col. (e) for Revenues and Table 35, col. (e) for Costs.
3 As detailed in EB-2016-0152, Ex. J21.2 Attachment 1, Table 1, cols. (d) and (e).
4 As detailed in EB-2020-0290, Ex. G2-2-1: Table 2, col. (g) for Revenues and Table 5, col. "2022 Plan" for Costs.
5 Cols. (a) and (d) from Ex. H1-1-1, Table 11b, line 19, cols. (a) and (b). Col. (g) from Ex. H1-1-1, Table 11b, line 19, col. (c).
6 Cols. (a) and (d) from Ex. H1-1-1, Table 11b, line 26, cols. (a) and (b). Col. (g) from Ex. H1-1-1, Table 11b, line 26, col. (c).

Numbers may not add due to rounding.

Table 11b
Bruce Lease Net Revenues Variance Account
Calculation of Bruce Income Taxes - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
			Note 1		
	Determination of Taxable Income				
1	**Earnings (Loss) Before Tax**	2	(15.9)	(91.6)	(44.0)
	Additions for Tax Purposes - Temporary Differences:				
2	**Base Rent Accrual**		(9.1)	(9.1)	(9.1)
3	**Depreciation**		69.6	69.8	52.4
4	**Accretion**		504.1	522.3	513.6
5	**Used Fuel and Waste Management Expenses and Facilities Removal Costs**		64.0	92.6	94.7
6	**Receipts from Nuclear Segregated Funds**		72.7	93.7	102.0
7	**Other**		(29.4)	10.9	2.4
8	**Total Additions - Temporary Differences** (lines 2 through 7)		671.9	780.2	756.0
	Deductions for Tax Purposes - Temporary Differences:				
9	**CCA**		12.9	10.9	10.9
10	**Cash Expenditures for Used Fuel, Waste Management & Decommissioning and Facilities Removal**		174.4	168.6	150.5
11	**Contributions to Nuclear Segregated Funds**		(102.5)	(102.5)	(200.1)
12	**Earnings (Losses) on Nuclear Segregated Funds**		439.0	431.6	471.3
13	**Total Deductions - Temporary Differences** (lines 9 through 12)		523.8	508.5	432.6
14	**Taxable Income/(Loss) Before Loss Carry-Over** (line 1 + line 8 - line 13)		132.2	180.1	279.4
15	**Tax Loss Carry-Over to Future Years / (from Prior Years)**		0.0	0.0	0.0
16	**Taxable Income After Loss Carry-Over** (line 14 + line 15)		132.2	180.1	279.4
	Determination of Total Current Income Taxes				
17	**Taxable Income After Loss Carry-Over** (from line 16)		132.2	180.1	279.4
18	**Income Tax Rate - Current**		25.00%	25.00%	25.00%
19	**Income Taxes - Current** (line 17 x line 18)		33.1	45.0	69.8
	Determination of Total Deferred Income Taxes				
20	**Total Net Temporary Differences** (line 8 - line 13)		148.1	271.7	323.4
21	**Income Tax Rate - Deferred**		25.00%	25.00%	25.00%
22	**Deferred Income Taxes** (line 20 x -1 x line 21)		(37.0)	(67.9)	(80.8)
23	**Tax Loss / Tax Loss Carry-Over** (line 14 or line 15)		0.0	0.0	0.0
24	**Income Tax Rate - Current**		25.00%	25.00%	25.00%
25	**Deferred Income Taxes - Tax Loss / Tax Loss Carry-Over** (line 23 x line 24)		0.0	0.0	0.0
26	**Deferred Income Tax - Total** (line 22 + line 25)		(37.0)	(67.9)	(80.8)
	Income Tax Rate - Current				
27	**Federal Tax**		15.00%	15.00%	15.00%
28	**Provincial Tax net of Manufacturing & Processing Profits Deduction**		10.00%	10.00%	10.00%
29	**Total Income Tax Rate - Current**		25.00%	25.00%	25.00%
	Income Tax Rate - Long-Term				
30	**Federal Tax**		15.00%	15.00%	15.00%
31	**Provincial Tax net of Manufacturing & Processing Profits Deduction**		10.00%	10.00%	10.00%
32	**Total Income Tax Rate - Long-Term**		25.00%	25.00%	25.00%

Notes:
1 As shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 36, col. (a).
2 Earnings (Loss) Before Tax is derived as the difference between Total Revenue in Ex. H1-1-1, Table 11a, line 8 and Total Costs Before Income Tax in Ex. H1-1-1, Table 11a, line 16.

Numbers may not add due to rounding.

Table 12
Nuclear Deferral and Variance Over/Under Recovery Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
1	**Nuclear Rider ($/MWh)-EB-2016-0152**	1	2.04		
2	**Nuclear Rider ($/MWh)-EB-2018-0243**	2	2.28	6.13	
3	**Nuclear Rider ($/MWh)-EB-2020-0290**	3			1.16
4	**Nuclear Production Forecast Used to Set Nuclear Rider (TWh)-EB-2016-0152**	4	37.4		
5	**Nuclear Production Forecast Used to Set Nuclear Rider (TWh)-EB-2018-0243**	5	37.4	35.4	
6	**Nuclear Production Forecast Used to Set Nuclear Rider (TWh)-EB-2020-0290**	6			33.6
7	**Actual Nuclear Production (TWh)**	7	43.8	39.6	35.3
8	**Production Variance for Nuclear Rider (TWh)** (line 4 - line 7)		(6.5)		
9	**Production Variance for Nuclear Rider (TWh)** (line 5 - line 7)		(6.5)	(4.2)	
10	**Production Variance for Nuclear Rider (TWh)** (line 6 - line 7)				(1.7)
11	**Addition To Variance Account - Nuclear Rider-EB-2016-0152** (line 8 x line 1)		(13.2)		
12	**Addition To Variance Account - Nuclear Rider-EB-2018-0243** (line 9 x line 2)		(14.8)	(25.8)	
13	**Addition To Variance Account - Nuclear Rider-EB-2020-0290** (line 10 x line 3)				(1.9)
14	**Total Addition To Variance Account** (line 11 + line 12 + line 13)		(27.9)	(25.8)	(1.9)

Notes:

1 From EB-2016-0152 Payment Amounts Order, App. E, Table 1, line 18, col. (g).
2 From EB-2018-0243 Decision and Payment Amounts Order, p. 5.
3 From EB-2020-0290 Payment Amounts Order, App. D, Table 1, line 32, col. (h).
4 From EB-2016-0152 Payment Amounts Order, App. E, Table 1, line 17, col. (g).
5 From EB-2018-0243, Ex. M1 Settlement Proposal, Att. A, Table 2, line 22 cols. (j) and (k), which forms the basis of the payment amounts approved in the Decision and Payment Amounts Order dated February 21, 2019.
6 From EB-2020-0290 Payment Amounts Order, App. D, Table 1, line 31, col. (h).
7 Col. (a) as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 14, line 3, col. (e).

Numbers may not add due to rounding.

Table 13
Impact Resulting from Changes in Pickering End-of-Life Dates (December 31, 2017) Deferral
Summary of Account Transactions - 2020 and 2021 ($M)

Line No.	Description	Note	Actual 2020	Actual 2021
			(a)	(b)
			Note 1	Note 1
	Cost of Capital:			
1	**Asset Retirement Cost ("ARC") Rate Base**		6.0	3.4
2	**Non-ARC Rate Base**		20.2	22.1
3	**Total Return on Rate Base Impact** (line 1 + line 2)		26.3	25.4
	Depreciation Expense:			
4	**Asset Retirement Costs**		8.0	74.5
5	**Non-Asset Retirement Costs**		(154.3)	95.6
6	**Total Depreciation Expense Impact** (line 4 + line 5)		(146.3)	170.0
	Variable Expenses:			
7	**Used Fuel Storage and Disposal Variable Expenses**		3.9	3.9
8	**Low & Intermediate Level Waste Management Variable Expenses**	2	0.2	0.2
9	**Total Variable Expenses Impact** (line 7 + line 8)		4.1	4.1
	Income Taxes:			
10	**Return on Rate Base - Non-ARC Impact - ROE Component** (line 2 / 6.44% Weighted Average Cost of Capital Rate x 45% Equity Ratio x 8.78% ROE) x (25%/75%)		4.1	4.5
11	**Depreciation Expense on Non-Asset Retirement Costs** (line 5 x (25%/75%))		(51.4)	31.9
12	**Total Non-ARC Income Tax Impact** (line 10 + line 11)		(47.3)	36.3
13	**Return on Rate Base - ARC Impact** (col. (a): line 1 x (25%/75%); col. (b): Note 3)	3	2.0	1.5
14	**Depreciation Expense on Asset Retirement Costs** (line 4 x (25%/75%))		2.7	24.8
15	**Used Fuel Storage and Disposal Variable Expenses** (line 7 x (25%/75%))		1.3	1.3
16	**Low & Intermediate Level Waste Management Variable Expenses** (line 8 x (25%/75%))		0.1	0.1
17	**Total Nuclear Liabilities Income Tax Impact** (line 13 + line 14 + line 15 + line 16)		6.1	27.6
18	**Total Income Tax Impact** (line 12 + line 17)		(41.2)	64.0
19	**Revenue Requirement Impact - Nuclear Liabilities** (line 1 + line 4 + line 9 + line 17)		24.2	109.6
20	**Revenue Requirement Impact - Non-ARC** (line 2 + line 5 + line 12)		(181.4)	154.0
21	**Total Revenue Requirement Impact** (line 19 + line 20)		(157.1)	263.5

Notes:

1 Calculations follow the methodology in EB-2018-0002 Decision and Order, Schedule A. All amounts, with the exception of those discussed in Note 2, are per EB-2018-0002, OEB Staff Interrogatory #1, Schedule 1-Staff-1.

2 Excludes $0.3M and $0.4M of low & intermediate level waste management variable expenses related to the Darlington Refurbishment Project as these impacts are captured in the Capacity Refurbishment Variance Account. The amount recorded in the Impact Resulting from Changes in Pickering End-of-Life Dates (December 31, 2017) Deferral Account has been calculated to avoid duplication.

3 Col. (b) is calculated as EB-2018-0002, OEB Staff Interrogatory #1, Schedule 1-Staff-1, Table 1a: (line 3c - line 3d - line 3g) x (25%/75%).

Numbers may not add due to rounding.

Table 14
Scientific Research and Experimental Development ("SR&ED") Investment Tax Credits ("ITCs") Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	ADDITIONS BASED ON CURRENT YEAR TAX PROVISION				
1	**Forecast Annual SR&ED ITCs**	1	18.4	18.4	16.5
2	**Less: Tax on Provincial Portion Taxable in Current Year**		(0.9)	(0.9)	(0.8)
3	**Less: Tax on Federal ITC in Prior Year**		(3.7)	(3.7)	(3.7)
4	**Forecast Annual SR&ED ITCs, net of Tax**		13.8	13.8	12.0
5	**Actual Annual SR&ED ITCs Recorded in the Year**		18.5	15.6	18.5
6	**Less: Tax on Provincial Portion Taxable in Current Year**		(0.9)	(0.8)	(0.9)
7	**Less: Tax on Federal ITC in Prior Year**		(3.8)	(3.9)	(4.1)
8	**Actual Annual SR&ED ITCs Recorded, net of Tax**		13.8	11.0	13.5
9	**Addition to Variance Account based on Current Year Tax Provision** ((line 4 - line 8) / (1-25%))		(0.1)	3.7	(2.0)
	TRUE UP ADJUSTMENTS BASED ON PRIOR YEAR'S INCOME TAX RETURN				
10	**Actual Annual SR&ED ITCs Recorded, net of Tax**	2	16.9	13.8	11.0
11	**Prior Year Actual Annual SR&ED ITCs per Income Tax Return Completed in Current Year**		18.9	19.1	20.2
12	**Less: Tax on Provincial Portion Taxable in Current Year**		(0.9)	(0.9)	(1.0)
13	**Less: Tax on Federal ITC in Prior Year**		(4.5)	(3.8)	(3.9)
14	**Prior Year Actual Annual SR&ED ITCs Finalized in Current Year, net of Tax**		13.4	14.4	15.3
15	**True-Up Adjustment Based on Prior Year Actual Annual SR&ED ITCs Finalized in Current Year, net of tax** (line 10 - line 14)	3	3.5	(0.6)	(4.3)
16	**Addition to Variance Account based on True-Up Adjustments based on Prior Year's Income Tax Return** (line 15 / (1-25%))		4.7	(0.7)	(5.7)
17	**Total Addition to Variance Account** (line 9 + line 16)		4.6	2.9	(7.7)

Notes:
1 Cols. (a) and (b) per EB-2016-0152 Payment Amounts Order, App. H, p. 4. Col. (c) per EB-2020-0290 Payment Amounts Order, App. E, p. 18.
2 Col. (a) from EB-2020-0290, Ex. H1-1-1, Table 14, line 8, col. (b). Cols. (b) and (c) from line 8, cols. (a) and (b), respectively.
3 Represents the adjustment based on the final ITC values determined in 2020, 2021 and 2022 as part of the filing of the 2019, 2020 and 2021 income tax returns and trued up as part of the 2020, 2021 and 2022 entries to the variance account, respectively.

Numbers may not add due to rounding.

Table 15
Capacity Refurbishment Variance Account - Nuclear - Non-Capital Portion - Non DRP
Summary of Account Transactions 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	Non-Capital Addition to Variance Account - Non-DRP				
	Forecast Non-Capital Costs:				
1	**Pickering Extended Operations**	1,2	104.3	0.0	0.0
2	**Fuel Channel Life Extension Project**	1	1.7	0.0	0.4
3	**FCLE Related Ongoing Costs**	1	14.4	7.5	35.7
4	**Darlington U3 Fuel Channel Component Retrieval Project**	1	0.0	0.0	0.0
5	**Darlington Annulus Spacer Life Management Project**		0.0	0.0	0.0
6	**Pickering B Refurbishment Feasibility Assessment**		0.0	0.0	0.0
7	**Darlington Steam Generator Primary Moisture Separators Replacement**		0.0	0.0	0.0
8	**Optimization of Pickering Shutdown**	1	0.0	0.0	16.2
9	**Total** (lines 1 through 8)	3	120.4	7.5	52.3
	Actual Non-Capital Costs:	4			
10	**Pickering Extended Operations**	2,5,7	83.3	51.2	8.6
11	**Fuel Channel Life Extension Project**		0.7	5.0	3.2
12	**FCLE Related Ongoing Costs**		28.1	34.1	35.0
13	**Darlington U3 Fuel Channel Component Retrieval Project**		1.9	2.2	(0.2)
14	**Darlington Annulus Spacer Life Management Project**		3.0	(1.2)	0.3
15	**Pickering B Refurbishment Feasibility Assessment**		0.0	0.0	0.2
16	**Darlington Steam Generator Primary Moisture Separators Replacement**		0.0	0.0	3.3
17	**Optimization of Pickering Shutdown**		0.9	4.5	8.4
18	**Total** (lines 10 through 17)		117.9	95.9	58.7
	Non-Capital Addition to Variance Account:				
19	**Pickering Extended Operations** (line 10 - line 1)		(21.0)	51.2	8.6
20	**Fuel Channel Life Extension Project** (line 11 - line 2)		(1.0)	5.0	2.7
21	**FCLE Related Ongoing Costs** (line 12 - line 3)		13.7	26.6	(0.7)
22	**Darlington U3 Fuel Channel Component Retrieval Project** (line 13 - line 4)		1.9	2.2	(0.2)
23	**Darlington Annulus Spacer Life Management Project** (line 14 - line 5)		3.0	(1.2)	0.3
24	**Pickering B Refurbishment Feasibility Assessment** (line 15 - line 6)		0.0	0.0	0.2
25	**Darlington Steam Generator Primary Moisture Separators** (line 16 - line 7)		0.0	0.0	3.3
26	**Optimization of Pickering Shutdown** (line 17 - line 8)		0.9	4.5	(7.8)
27	**Non-Capital Addition to Variance Account Before Adjustment** (lines 19 through 26)		(2.5)	88.4	6.4
28	**Less: Fuel Channel Life Extension Project Reference Plan Error Correction Adjustment**	6	(1.7)	0.0	0.0
29	**Total Addition to Variance Account - Non-Capital Portion - Non-DRP** (line 27 - line 28)		(0.8)	88.4	6.4

Notes:

1 Cols. (a) and (b) from EB-2016-0152, Ex. L-4.1-1, Staff-024. Col. (c) as shown in EB-2020-0290, Ex. L-H1-01-Staff-328, Chart 1.

2 Pickering Extended Operations include Fuel Channel Life Assurance (FCLA) costs. This is consistent with presentation in EB-2016-0152, Ex. L-4.1-1 Staff-024.

3 Col. (c) from EB-2020-0290 Payment Amounts Order, App. E, p. 9.

4 As shown in EB-2020-0290, Ex. L-A1-2-Staff-002, unless otherwise noted.

5 As identified in EB-2020-0290, Ex. L-H1-01-Staff-320, Table 15, Note 7, actual costs for 2020 are presented net of a reversal of $1.2M related to non-CRVA eligible project costs inadvertently booked to the account in 2016. For this reason, the actual costs presented for 2020 differ from EB-2020-0290, Ex. L-A1-2-Staff-002.

6 As set out in EB-2020-0290 Ex. H1-1-1, Section 5.6 and EB-2020-0290 Ex. L-H1-01-Staff-331, the EB-2016-0152 Payment Amounts Order established reference amounts for 2017-2020 per EB-2016-0152, Ex. L-4.1-1 Staff-024 that included an updated Fuel Channel Life Extension Project (FCLE) cost forecast relative to OPG's pre-filed evidence. However, the nuclear revenue requirements for those years approved by the OEB in the EB-2016-0152 Payment Amounts Order did not reflect the updated FCLE forecast. Consistent with the correction of this error as part of the clearance of the 2017-2019 account entries in EB-2020-0290, this adjustment corrects for this error for 2020. As noted in EB-2020-0290, Ex. H1-1-1, Note 37, both the EB-2016-0152 reference amounts and the EB-2016-0152 nuclear revenue requirements reflected $0 for FCLE in 2021, requiring no such adjustment.

7 Actual costs for 2022 include the retirement of the algae mitigation bubble curtain project of $7.6M. The amount represents the remaining net book value of the project that was charged as a non-capital cost as at December 31, 2022. Refer to Ex. H1-1-1, Section 5.6.

Numbers may not add due to rounding.

Table 16
Capacity Refurbishment Variance Account - Nuclear - Capital Portion - Non-DRP
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
	Capital Addition to Variance Account:				
1	**Forecast Cost of Capital Amount**	1	0.4	0.4	1.4
2	**Actual Net Plant Rate Base Amount**	2	16.7	34.6	29.1
3	**Weighted Average Cost of Capital**	1	6.44%	6.43%	5.89%
4	**Actual Cost of Capital Amount** (line 2 x 3)		1.1	2.2	1.7
5	**Cost of Capital Variance** (line 4 - line 1)		0.7	1.9	0.3
6	**Forecast Depreciation**	1	0.2	0.2	8.8
7	**Actual Depreciation**	2	3.2	9.2	12.9
8	**Depreciation Variance** (line 7 - line 6)		3.1	9.0	4.1
	Income Tax Impact				
9	**Forecast Capital Cost Allowance Deduction**	1	0.6	0.5	2.1
10	**Actual Capital Cost Allowance Deduction**		3.0	3.9	2.2
11	**Actual SR&ED Qualifying Capital Expenditures**		0.0	7.0	0.0
12	**Difference** (line 9 - line 10 - line 11)		(2.4)	(10.4)	(0.1)
13	**Net Increase (Decrease) in Regulatory Taxable Income**	3	1.1	(0.2)	4.3
14	**Income Tax Rate**		25.0%	25.0%	25.0%
15	**Income Tax Impact** (line 13 x line 14 / (1 - line 14))		0.4	(0.1)	1.4
16	**Total Addition to Variance Account - Capital Portion - Non-DRP** (line 5 + line 8 +line 15)		4.1	10.9	5.9

For notes see Table 16a

Numbers may not add due to rounding.

Table 16a
Notes to Table 16
Capacity Refurbishment Variance Account - Nuclear - Capital Portion - Non-DRP ($M)

Notes:

1 For cols. (a) to (c), the amounts are calculated as follows:

Table to Note 1- Capacity Refurbishment Variance Account - Forecast Capital Amounts for Nuclear Projects - EB-2016-0152/EB-2020-0290 ($M)

Line No.		2020	2021	2022
		(a)	(b)	(c)
1a	Forecast Net Plant Rate Base Amount*^	5.7	5.6	23.2
2a	Weighted Average Cost of Capital**	6.44%	6.43%	5.89%
3a	Forecast Cost of Capital Amount (line 1a x line 2a)^	0.4	0.4	1.4
4a	ROE Component of Forecast Cost of Capital Amount	0.2	0.2	0.9
5a	Forecast Depreciation^	0.2	0.2	8.8
6a	Forecast Capital Cost Allowance Deduction^	0.6	0.5	2.1

* Represents the EB-2016-0152 forecast for the Darlington Spacer Retrieval Project in 2020 and 2021 and the EB-2020-0290 forecast for Pickering Extended Operations projects in 2022.

** Cols. (a) and (b) from EB-2016-0152 Payment Amounts Order, App. A, Tables 14 and 15, line 6, col. (c). Col. (c) is calculated as EB-2020-0290 Payment Amounts Order, App. A, Table 11: line 4 col. (b) x col. (c) plus line 5a, col. (c) x line 5b, col. (b).

^ For lines 5a and 6a, col. (c) as shown in EB-2020-0290, Ex. L-H1-01-Staff-328, Chart 3. The sum of the following equals $12.7M per EB-2020-0290 Payment Amounts Order, App. E, p. 9: (i) line 3a, col. (c); (ii) line 5a, col. (c); and (iii) the result of the following, multipled by 25% / (1-25%): line 4a, col. (c) plus line 5a, col. (c) minus line 6a, col. (c).

2 For cols. (a) to (c), the amounts are calculated as follows:

Table to Note 2 - Capacity Refurbishment Variance Account - Actual Net Plant Rate Base Amounts for Nuclear Projects ($M)

Line No.		2020	2021	2022
		(a)	(b)	(c)
1b	Gross Plant Opening Balance+	7.8	32.3	50.4
2b	In-service Additions++	24.4	23.9	0.7
2bb	Retirements++	0.0	0.0	(13.0)
3b	Gross Plant Closing Balance (line 1b + line 2b + line 2bb)	32.3	56.2	38.1
4b	Gross Plant Rate Base Amount (line 1b + line 3b)/2	20.0	44.2	44.2
5b	Accumulated Depreciation Opening Balance+	1.7	5.0	11.4
6b	Depreciation	3.2	9.2	12.9
6bb	Retirements++	0.0	0.0	(5.4)
7b	Accumulated Depreciation Closing Balance (line 5b + line 6b + line 6bb)	5.0	14.2	18.9
8b	Accumulated Depreciation Rate Base Amount (line 5b + line 7b)/2	3.4	9.6	15.2
9b	Net Plant Rate Base Amount (line 4b - line 8b)	16.7	34.6	29.1

\+ The actual in-sevice amount for the Darlington Space Retrieval Project was reflected in rate base in EB-2020-0290, effective January 1, 2022, and ceased being tracked for variance purposes as of that date. For consistency with the forecast amounts used for variance purposes, the project is excluded from the net plant rate base amounts shown beginning in 2022.

++ In-service additions are for Pickering Extended Operations. The retirement of the algae mitigation bubble curtain in 2022 is discussed in Ex. H1-1-1, Section 5.6.

3 The change in regulatory taxable income is calculated as the sum of lines 8 and 12, plus the ROE component of the cost of capital variance at line 5. The ROE component of the variance is equal to the difference between (i) line 2 multiplied by the OEB-approved equity portion (45%) of the capital structure and the OEB-approved ROE rate of 8.78% for 2020 and 2021 and 8.66% for 2022, and (ii) line 4a, for the corresponding year.

Numbers may not add due to rounding.

Table 17
Capacity Refurbishment Variance Account - Nuclear - D2O Project
Summary of Account Transactions - 2020 and 2021 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021
			(a)	(b)
	Capital Addition to Variance Account:			
1	**Forecast Cost of Capital Amount**	1	0.8	0.8
2	**Actual Net Plant Rate Base Amount**	2	293.8	378.5
3	**Weighted Average Cost of Capital**	1	6.44%	6.43%
4	**Actual Cost of Capital Amount** (line 2 x line3)		18.9	24.3
5	**Cost of Capital Variance** (line 4 - line 1)		18.1	23.6
6	**Forecast Depreciation**	1	0.4	0.4
7	**Actual Depreciation**	2	9.1	12.0
8	**Depreciation Variance** (line 7 - line 6)		8.7	11.6
	Income Tax Impact:			
9	**Net Increase in Regulatory Taxable Income**	3	19.8	26.1
10	**Income Tax Rate**		25.0%	25.0%
11	**Income Tax Impact** (line 9 x line 10 / (1 - line 10))		6.6	8.7
12	**Total Additon to Variance Account - D2O Project** (line 5 + line 8 + line 11)		33.4	43.9

Notes:

1 For cols. (a) and (b), the amounts are calculated as follows:

Table to Note 1 - D2O Project Forecast Capital Amounts - EB-2016-0152 ($M)

Line No.		2020	2021
		(a)	(b)
1a	Forecast Net Plant Rate Base Amount*	12.5	12.2
2a	Weighted Average Cost of Capital**	6.44%	6.43%
3a	Forecast Cost of Capital Amount (line 1a x line 2a)	0.8	0.8
4a	ROE Component of Forecast Cost of Capital Amount	0.5	0.5
5a	Forecast Depreciation*	0.4	0.4

* Cols. (a) and (b) as reflected in the EB-2016-0152 Payment Amounts Order.
** From EB-2016-0152 Payment Amounts Order, App. A: Table 14, line 6, col. (c) for 2020 and Table 15, line 6, col. (c) for 2021.

2 For cols. (a) and (b), the amounts are calculated as follows:

Table to Note 2 - D2O Project Actual Net Plant Rate Base Amounts ($M)

Line No.		2020	2021
		(a)	(b)
1b	Gross Plant Opening Balance+	14.6	395.6
2b	In-service Additions++	381.0	0.0
3b	Gross Plant Closing Balance (line 1b + line 2b)	395.6	395.6
4b	Gross Plant Rate Base Amount (line 1b + line 3b)/2+	300.4	395.6
5b	Accumulated Depreciation and Amortization Opening Balance+++	2.0	11.2
6b	Depreciation and Amortization++++	9.1	12.0
7b	Accumulated Depreciation and Amortization Closing Balance (line 5b + line 6b)	11.2	23.2
8b	Accumulated Depreciation and Amortization Rate Base Amount (line 5b + line 7b)/2+++	6.6	17.2
9b	Net Plant Rate Base Amount (line 4b - line 8b)	293.8	378.5

\+ From EB-2020-0290 Payment Amounts Order, App. A, Table 9a, lines 3a and 3f, cols. (e) and (f). Based on March 27, 2020 in-service date, the in-service additions at line 2a are assigned a weighting of 9 months for purposes of 2020 rate base.
++ From EB-2020-0290 Payment Amounts Order, App. A, Table 9a, cols. (e) and (f): line 3b + line 3c + line 3d.
+++ From EB-2020-0290 Payment Amounts Order, App. A, Table 10a, lines 4a and 4e, cols. (e) and (f).
++++ From EB-2020-0290 Payment Amounts Order, App. A, Table 10a, cols. (e) and (f): line 4b + line 4c.

3 The change in regulatory taxable income is calculated as the sum of line 8 and the ROE component of the cost of capital variance at line 5. The ROE component of the variance is equal to the difference between (i) line 2 multiplied by the OEB-approved equity portion (45%) of the capital structure and the OEB-approved ROE rate of 8.78% for 2020 and 2021, and (ii) line 4a, for the corresponding year. Consistent with EB-2020-0290, CCA for the D2O Project is included within overall DRP and Accelerated Investment Incentive CCA - DRP balances of the Capacity Refurbishment Variance Account.

Numbers may not add due to rounding.

Table 18
Nuclear Liability Deferral Account
Summary of Account Transactions - 2022 ($M)

Line No.	Particulars	Note	Actual 2022
			(a)
	Revenue Requirement Impact of Current Approved ONFA Reference Plan Effective January 1, 2022:		
1	**Depreciation Expense**	1	80.5
	Return on Rate Base		
2	**Average Asset Retirement Costs**	2	232.3
3	**Weighted Average Accretion Rate**	3	4.89%
4	**Return on Rate Base** (line 2 x line 3)		11.4
	Variable Expenses		
5	**Used Fuel Storage and Disposal Variable Expenses**	5	(0.0)
6	**Low & Intermediate Level Waste Management Variable Expenses**	5	20.3
7	**Total Variable Expenses** (line 5 + line 6)		20.3
	Income Tax Impact		
8	**Forecast Contributions to Segregated Funds**	6	244.4
9	**Contributions to Segregated Funds based on Current Approved ONFA Reference Plan**	7	200.1
10	**Decrease in Contributions to Segregated Funds** (line 8 - line 9)		44.3
11	**Net Increase in Regulatory Taxable Income** (line 1 + line 4 + line 7 + line 10)		156.4
12	**Income Tax Rate**		25.0%
13	**Income Tax Impact** (line 11 x line 12 / (1 - line 12))		52.1
14	**Addition to Deferral Account - Year-End 2022 ARO / ARC Adjustment** (lines 1 + 4 + 7 + 13)		164.3
15	**Addition to Deferral Account - Change in Pickering Station End-of-Life Dates**	4	24.0
16	**Total Addition to Deferral Account** (line 14 + line 15)		188.3

Notes:

1 The depreciation expense component of the addition to the deferral account is calculated as follows:

Table to Note 1 - Change in Depreciation Expense ($M)

Line No.		Pickering Units 1 & 4	Pickering Units 5 - 8	Darlington	(a) + (b) + (c) Total
		(a)	(b)	(c)	(d)
	Incremental Asset Retirement Cost ("ARC") Continuity:				
1a	ARC Adjustment at December 31, 2021 (Ex. H1-1-1, Table 18a, line 7b)	254.8	(16.5)	34.2	272.6
2a	Remaining Useful Life as at December 31, 2021 (years)*	3.0	3.0	31.0	
3a	2022 Annual Incremental Depreciation (line 1a / line 2a)	84.9	(5.5)	1.1	80.5
4a	Incremental ARC at December 31, 2022 (line 1a - line 3a)	169.9	(11.0)	33.1	192.0

* A common end of life date of December 31, 2024 is used to depreciate ARC for Pickering Units 1 & 4 due to the integrated nature of Unit operations.

2 Calculated as (line 1a, col. (d) + line 4a, col. (d)) / 2.

3 From EB-2020-0290 Payment Amounts Order, Appendix E, p.15.

4 From Ex. H1-1-1, Table 19, line 20, col. (b). Represents the nuclear liabilities' component of the revenue requirement impacts arising from the extension of station end-of-life dates for Pickering Units 1 and 4 to December 31, 2024, effective December 31, 2020. As the current approved ONFA Reference Plan reflects this change effective January 1, 2022, this impact is recorded in the Nuclear Liability Deferral Account beginning in 2022. Prior to 2022, the impact was recorded in the Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account as this change in end-of-life dates was not yet reflected in the current approved

5 Annual 2022 value calculated as the difference between: (A) the product of (i) 2022 unit cost rates for the Used Fuel Storage and Disposal Programs and the Low and Intermediate Level Waste ("L&ILW") Storage and Disposal Programs arising from the current approved ONFA Reference Plan, and (ii) the forecast used fuel bundles and L&ILW volumes reflected for 2022 in the EB-2020-0290 nuclear revenue requirement, and (B) the product of (i) 2022 unit cost rates for the Used Fuel Storage and Disposal Programs and the L&ILW Storage and Disposal Programs applicable following the changes in nuclear liabilities as a result of the extension of station end-of-life dates for Pickering Units 1 and 4 effective December 31, 2020, and (ii) the forecast used fuel bundles and L&ILW volumes reflected for 2022 in the EB-2020-0290

6 Per EB-2020-0290, Ex. C2-1-1, Table 2, line 15, col. (g).

7 From Ex. H1-1-1, Attachment 7.

Numbers may not add due to rounding.

Table 18a

Impact of Year End 2020 Adjustment - Assignment of ARO Adjustment and Allocation of ARC to Nuclear Stations ($M)[1]

Line No.	Particulars	Pickering Units 1 & 4	Pickering Units 5 - 8	Darlington	(a) + (b) + (c) Prescribed Facilities Total	Bruce A	Bruce B	(e) + (f) Bruce Faclities Total	(d) + (g) OPG Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	December 31, 2020 Actual:								
1a	**Decommissioning Program**	(5.7)	2.0	1.2	(2.6)	0.1	0.2	0.3	(2.2)
2a	**Low and Intermediate Level Waste Storage Program**	2.1	(3.5)	(12.1)	(13.5)	(1.8)	(1.0)	(2.8)	(16.3)
3a	**Low and Intermediate Level Waste Disposal Program**	9.0	5.6	(4.1)	10.5	(4.7)	(5.6)	(10.3)	0.2
4a	**Used Fuel Disposal Program**	65.1	12.5	13.5	91.1	(14.0)	31.5	17.4	108.5
5a	**Used Fuel Storage Program**	(20.1)	(11.0)	(3.3)	(34.4)	4.6	3.6	8.3	(26.1)
6a	**ARO Adjustment Assignment to Station Level**	50.4	5.6	(4.8)	51.1	(15.7)	28.7	13.0	64.1
7a	**Asset Retirement Cost Adjustment**	50.4	5.6	(4.8)	51.1	(15.7)	28.7	13.0	64.1

Impact of 2022 ONFA Reference Plan (Year End 2021) Adjustment - Assignment of ARO Adjustment and Allocation of ARC to Nuclear Stations ($M)

Line No.	Particulars	Pickering Units 1 & 4	Pickering Units 5 - 8	Darlington	(a) + (b) + (c) Prescribed Facilities Total	Bruce A	Bruce B	(e) + (f) Bruce Faclities Total	(d) + (g) OPG Total
		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
	December 31, 2021 Actual:								
1b	**Decommissioning Program**	318.7	151.8	53.1	523.6	(13.7)	(5.8)	(19.5)	504.2
2b	**Low and Intermediate Level Waste Storage Program**	61.3	55.3	103.9	220.5	48.2	(7.9)	40.3	260.8
3b	**Low and Intermediate Level Waste Disposal Program**	(113.9)	(186.1)	(112.4)	(412.4)	(204.6)	(114.1)	(318.7)	(731.1)
4b	**Used Fuel Disposal Program**	(34.5)	(51.4)	(129.2)	(215.0)	(193.6)	(174.5)	(368.1)	(583.1)
5b	**Used Fuel Storage Program**	23.1	13.9	118.8	155.8	35.0	31.0	66.0	221.8
6b	**ARO Adjustment Assignment to Station Level**	254.8	(16.5)	34.2	272.6	(328.7)	(271.2)	(599.9)	(327.3)
7b	**Asset Retirement Cost Adjustment**	254.8	(16.5)	34.2	272.6	(328.7)	(271.2)	(599.9)	(327.3)

Notes:

1 As shown in EB-2020-0290 Ex. L-F4-01-Staff-271, Att. 1, Table 1.

Numbers may not add due to rounding.

Table 19

Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account[1]

Summary of Account Transactions - 2021 and 2022 ($M)

Line No.	Description	Note	Actual 2021	Actual 2022
			(a)	(b)
	Cost of Capital			
1	**Asset Retirement Cost ("ARC") Rate Base** (Note 4, line 4h)		2.3	2.4
2	**Non-ARC Rate Base** (Note 5, line 5f)		0.6	3.2
3	**Total Return on Rate Base Impact** (line 1 + line 2)		2.9	5.5
	Depreciation Expense:			
4	**Asset Retirement Costs** (Note 2, col. (f))		(2.0)	(2.0)
5	**Non-Asset Retirement Costs** (Note 3, line 3c)		(19.0)	(37.4)
6	**Total Depreciation Expense Impact** (line 4 + line 5)		(21.0)	(39.3)
	Other Expenses:			
7	**Used Fuel Storage and Disposal Variable Expenses**	6	18.0	16.7
8	**Low & Intermediate Level Waste Management Variable Expenses**	6, 7	0.9	0.8
9	**Total Variable Expenses Impact** (line 7 + line 8)		18.9	17.5
	Income Taxes:			
10	**Return on Rate Base - Non-ARC Impact - ROE Component** (Note 5, line 5g x (25%/75%))		0.1	0.7
11	**Depreciation Expense on Non-Asset Retirement Costs** (line 5 x (25%/75%))		(6.3)	(12.5)
12	**Total Non-ARC Income Tax Impact** (line 10 + line 11)		(6.2)	(11.8)
13	**Return on Rate Base - ARC Impact** (Note 4, line 4k x (25%/75%))		0.8	0.9
14	**Depreciation Expense on Asset Retirement Costs** (line 4 x (25%/75%))		(0.7)	(0.7)
15	**Used Fuel Storage and Disposal Variable Expenses** (line 7 x (25%/75%))		6.0	5.6
16	**Low & Intermediate Level Waste Management Variable Expenses** (line 8 x (25%/75%))		0.3	0.3
17	**Total Nuclear Liabilities Income Tax Impact** (line 13 + line 14 + line 15 + line 16)		6.4	6.1
18	**Total Income Tax Impact** (line 12 + line 17)		0.2	(5.6)
19	**Revenue Requirement Impact - Nuclear Liabilities** (line 1 + line 4 + line 9 + line 17)		25.6	24.0
20	**Revenue Requirement Impact - Non-ARC** (line 2 + line 5 + line 12)		(24.6)	(45.9)
21	**Total Revenue Requirement Impact** (line 17 + line 18)		1.0	(21.9)
20	**Less: Revenue Requirement Impact Recorded in Nuclear Liability Def. Acct Beginning January 1, 2022** (line 19)	8	0.0	24.0
21	**Total Addition to Deferral Account** (line 19 - line 20)		1.0	(45.9)

For notes see Tables 19a and 19b.

Numbers may not add due to rounding.

Table 19a
Notes to Table 19
Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account ($M)

1 Calculations follow the methodology in EB-2020-0290 Payment Amounts Order, App. F, p.1. All 2021 amounts are as set out in EB-2020-0290 Ex. L-H1-01-Staff-337, Att. 1, Table 1. The 2022 amounts are as set out in EB-2020-0290 Ex. L-F-01-Staff-271, Att. 1, Table 2, other than those that reflect changes between the EB-2020-0290 proposed and OEB approved revenue requirement for 2022.

2 The ARC depreciation expense component of the addition to the deferral account is calculated as follows:

Table to Note 2 - ARC Depreciation Expense ($M)

Line No.		Pickering Units 1 & 4	Pickering Units 5-8	Darlington	(a)+(b)+(c) Total	ARC Depreciation per EB-2018-0002 / EB-2020-0290***	(d) - (e) Impact
		(a)	(b)	(c)	(d)	(e)	(f)
2a	Asset Retirement Cost as at December 31, 2020 Before Pickering Units 1 & 4 End-of-Life Adjustment*	63.3	187.8	113.9	365.2		
2b	Asset Retirement Cost Adjustment as at December 31, 2020 (Ex. H1-1-1, Table 18a, line 7a)	50.4	5.6	(4.8)	51.1		
2c	Unamortized Asset Retirement Cost as at December 31, 2020 (line 2a + line 2b)	113.6	193.4	109.1	416.2		
2d	Remaining Useful Life as at December 31, 2020 (years)**	4.0	4.0	32.0			
2e	Annual Depreciation (line 2c / line 2d)	28.4	48.3	3.4	80.2	82.2	(2.0)
2f	Unamortized Asset Retirement Cost as at December 31, 2021 (line 2c - line 2e)	85.2	145.0	105.7	336.0		
2g	Remaining Useful Life as at December 31, 2021 (years)**	3.0	3.0	31.0			
2h	2022 Annual Depreciation (line 2f / line 2g)	28.4	48.3	3.4	80.2	82.2	(2.0)
2i	Unamortized Asset Retirement Cost as at December 31, 2022 (line 2f - line 2h)	56.8	96.7	102.3	255.8		

* Col. (d) per EB-2020-0290, Ex. L-A1-02-Staff-002, Att. 1, Table 7, col. (a), line 24.

** A common end of life date of December 31, 2024 is used to depreciate ARC for Pickering Units 1 & 4 due to the integrated nature of Unit operations.

*** Per EB-2018-0002 OEB Staff Interrogatory #1, Schedule 1-Staff-1, Att. 1, Table 1a, line 1n, col. (d) for 2021 and EB-2020-0290 Payment Amounts Order, App. A, Table 10, line 8, col. (b) for 2022.

3 The non-ARC depreciation and amortization expense component of the addition to the deferral account is calculated as follows:

Table to Note 3 - Non-ARC Depreciation Expense ($M)

Line No.		2021	2022
		(a)	(b)
3a	Unadjusted Non-ARC Depreciation and Amortization Expense - December 31, 2022 Pickering Units 1 & 4 End-of-Life+	123.9	432.4
3b	Non-ARC Depreciation and Amortization Expense - December 31, 2024 Pickering Units 1 & 4 End-of-Life#	104.9	395.0
3c	Impact of Pickering Units 1 & 4 End-of-Life Extension (line 3b less line 3a)	(19.0)	(37.4)

\+ EB-2018-0002 OEB Staff Interrogatory #1, Schedule 1-Staff-1, Att. 1, Table 1a, line 2d for 2021 and EB-2020-0290, Ex. B3-4-1, Table 2, line 22, cols. (b) to (d) for 2022.

\# Calculated by applying the revised Pickering end-of-life dates to the forecast non-ARC Pickering gross plant including forecast in-service additions reflected in the correspnoding nuclear revenue requirements (EB-2016-0152 for 2021 and EB-2020-0290 for 2022) and holding all other variables constant, effective January 1, 2021 (for 2021) and January 1, 2022 (for 2022).

4 Cost of capital for ARC Rate Base component of the addition to the deferral account is calculated as follows:

Table to Note 4 - Cost of Capital for ARC Rate Base ($M)

Line No.		2021	2022
		(a)	(b)
4a	Average ARC: Note 2, col. (d); (opening ARC + closing ARC for corresponding year)/2	376.1	295.9
4b	Average UNL	441.7	151.1
4c	Weighted Average Accretion Rate++	4.86%	4.86%
4d	Return on Rate Base at Weighted Average Accretion Rate ((lesser of line 4a or 4b) x line 4c)+++	18.3	7.3
4e	Return on Rate Base at Weighted Average Cost of Capital ((line 4a - line 4b) x 5.89% if line 4a > line 4b)++	0.0	8.5
4f	EB-2018-0002 and EB-2020-0290 Return on Rate Base at Weighted Average Accretion Rate^	16.0	3.6
4g	EB-2020-0290 Return at Weighted Average Cost of Capital^^	0.0	9.9
4h	Impact of Pickering end-of-life extension ((line 4d + line 4e) - (line 4f + line 4g))	2.3	2.4
4i	ROE Component of Line 4d Cost of Capital ((line 4a - line 4b) x 45% x 8.66%), if line 4a > line 4b	0.0	5.6
4j	ROE Component of Line 4f Cost of Capital^^^	0.0	6.6
4k	Impact of Pickering end-of-life extension on Cost of Capital for Income Tax Calculation ((line 4d - line 4f) + (line 4i - line 4j))	2.3	2.8

++ From EB-2020-0290, Ex. L-A1-2-Staff-002, Att. 1, Table 5, line 7, col. (c).

+++ Weighted average cost of capital for 2022 per EB-2020-0290 Payment Amounts Order, App. A, Table 11: line 4 col. (b) x col. (c) plus line 5a, col. (c) x line 5b, col. (b).

^ EB-2018-0002, Schedule 1-Staff-1, Att. 1, Note 3, line 3c, col. (d) for 2021 and EB-2020-0290 Payment Amounts Order, App. A, Table 11, line 7, col. (d) for 2022.

^^ Col. (b): EB-2020-0290, Ex. C2-1-1, Table 1a, line 7a, col. (c) multipled by weighted average cost of capital of 5.89% (see note ++).

^^^ Col. (b): EB-2020-0290, Ex. C2-1-1, Table 1a, line 7a, col. (c) multipled by the OEB-approved equity portion (45%) of the capital structure and the OEB-approved ROE rate of 8.66% for 2022.

Table 19b
Notes to Table 19 - Continued
Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account ($M)

5 Cost of Capital for Non-ARC Rate Base component of the addition to the deferral account is calculated as follows:

Table to Note 5 - Cost of Capital for Non-ARC Rate Base ($M)

Line No.		2021	2022
		(a)	(b)
5a	Opening Non-ARC Net Plant Balance Impact[##]	0.0	35.4
5b	Non-ARC Depreciation and Amortization Expense Impact (Note 3, line 3c x -1)	19.0	37.4
5c	Ending Non-ARC Net Plant Balance Impact (line 5a + line 5b)	19.0	72.7
5d	Non-ARC Rate Base Impact (line 5a + line 5c)/2	9.5	54.1
5e	Weighted Average Cost of Capital[###]	6.43%	5.89%
5f	Total Cost of Capital (line 5d x line 5e)	0.6	3.2
5g	ROE Component of Cost of Capital (line 5d x 45% x 8.78% for 2021; line 5d x 45% x 8.66% for 2022)	0.4	2.1

Col. (b) from EB-2020-0290, Ex. L-F4-01-Staff-271, Att. 1, Table 2a, line 3c., col. (a).

Col. (a) per EB-2016-0152 Payment Amounts Order, App. A, Table 15, line 6, col. (c). Col. (b) per EB-2020-0290 Payment Amounts Order, App. A, Table 11: line 4 col. (b) x col. (c) plus line 5a, col. (c) x line 5b, col. (b).

6 The variable expense component of the addition to the deferral account is determined by multiplying the differences between (i) and (ii) by the corresponding forecast used fuel bundles and low and intermediate level waste ("L&ILW") volumes reflected in the EB-2016-0152 nuclear revenue requirement for 2021 and the EB-2020-0290 nuclear revenue requirement for 2022, where:
(i) is the 2021/2022 unit cost rates for the Used Fuel Storage and Disposal Programs and the L&ILW Storage and Disposal Programs reflecting the 2.01% discount rate used to determine the year-end 2020 ARO adjustment reflecting the Pickering end-of-life extension, and
(ii) is the equivalent 2021/2022 unit cost rates reflected in the corresponding variable expenses included in the EB-2016-0152 and EB-2020-0290 nuclear revenue requirements, respectively.

7 Excludes $1.6M and $1.0M of low & intermediate level waste management variable expenses related to the Darlington Refurbishment Project as these impacted are captured in the Capacity Refurbishment Variance Account. The amount recorded in the Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral Account has been calculated to avoid

8 Refer to Ex. H1-1-1, Table 18, Note 4.

Numbers may not add due to rounding.

Table 20
Nuclear Development Variance Account
Summary of Account Transactions - 2020, 2021 and 2022 ($M)

Line No.	Particulars	Note	Actual 2020	Actual 2021	Actual 2022
			(a)	(b)	(c)
1	**Forecast Costs**	1	1.8	1.8	2.2
2	**Actual Costs**	2	13.1	95.4	2.4
3	**Addition to Variance Account** (line 2 - line 1)		11.3	93.6	0.2

Notes:

1 Cols. (a) and (b) as per EB-2016-0152 Payment Amounts Order, App. G, p. 15. Col. (c) as per EB-2020-0290 Payment Amounts Order, App. E, p.16.

2 Col. (a) as shown in EB-2020-0290, Ex. L-A1-2-Staff-002, Attachment 1, Table 16, line 6, col. (e).

CLEARANCE OF DEFERRAL AND VARIANCE ACCOUNTS

1.0 PURPOSE

This evidence describes OPG's proposed approach for clearing the audited December 31, 2022 balances in the company's deferral and variance accounts ("D&V accounts").

2.0 SUMMARY

OPG is requesting recovery of the audited December 31, 2022 balances in the D&V accounts, less amortization amounts previously approved by the OEB in EB-2020-0290 for the 2023-2026 period, together with the income tax impacts associated with the recovery of the Pension & OPEB Cash Versus Accrual Differential Deferral Account,[1] through payment amount riders effective from July 1, 2024 until December 31, 2026. As outlined in Ex. H1-1-1, OPG is not seeking clearance of balances in the following accounts: the Darlington Refurbishment Program ("DRP"), the Pickering B Refurbishment Feasibility Assessment, and the Optimization of Pickering Shutdown components of the nuclear sub-account and a portion of the hydroelectric sub-account of the Capacity Refurbishment Variance Account ("CRVA"), the 2022 additions to the hydroelectric portion of the CRVA, the Fitness for Duty Deferral Account, the Rate Smoothing Deferral Account, the Pickering Closure Costs Deferral Account, and Sale of the Unprescribed Kipling Site Deferral Account. Audited balances at December 31, 2022 are presented at Ex. H1-1-1, Table 1, and discussed at Ex. H1-1-1.

Section 3.0 describes the methodology for the proposed recovery of the balances in the D&V accounts and the income tax impacts associated with the recovery of the Pension & OPEB Cash Versus Accrual Differential Deferral Account. Section 4.0 describes the proposed recovery periods for the regulated hydroelectric and nuclear D&V account balances. Section 5.0 describes the payment riders proposed for the recovery of these balances.

3.0 METHODOLOGY

OPG proposes to calculate separate hydroelectric and nuclear payment riders for the period

[1] The recovery of the income tax impacts associated with the recovery of the Pension & OPEB Cash Versus Accrual Differential Deferral Account is consistent with the approach reflected in EB-2018-0243 and EB-2020-0290.

from July 1, 2024 to December 31, 2026 in the form of $/MWh rates consistent with the form of payment riders approved in decisions and payment amounts orders in prior OPG proceedings.

The approach OPG has used to calculate the proposed hydroelectric and nuclear payment riders is consistent with the methodology previously approved by the OEB. Under this approach, OPG calculates each rider separately using the following three steps. First, a recovery period is determined for each account to be cleared. Second, based on each account's recovery period and the audited balance in the account less any amortization already approved, the amount to be amortized in each year of the period is determined. Finally, the total amount to be amortized each year for all balances is divided by a forecast of annual energy production volumes to determine the payment riders in each year.

Consistent with EB-2018-0243 and EB-2020-0290, OPG proposes to calculate the hydroelectric payment amount rider using the average of the 2014 and 2015 OEB-approved hydroelectric production.[2] For calculating the nuclear payment amount rider, OPG proposes to use the 2024-2026 nuclear production forecast approved in EB-2020-0290. Any differences between the production amounts used to set the payment amount riders and actual production will continue to be addressed by entries into the Hydroelectric Deferral and Variance Over/Under Recovery Variance Account and Nuclear Deferral and Variance Over/Under Recovery Variance Account.

4.0 RECOVERY PERIODS

OPG proposes to recover the D&V account balances on a straight-line basis, over the 30-month period from July 1, 2024 to December 31, 2026.

[2] EB-2013-0321 Decision with Reasons, p. 9.

A 30-month recovery period matches the remaining portion of the five-year rate-setting term ending on December 31, 2026. In addition, the 30-month period is not dissimilar to recovery periods for the majority of D&V account balances approved in prior OPG proceedings.[3]

5.0 PAYMENT RIDERS

The calculation of the Hydroelectric Payment Rider is shown in Ex. H1-2-1, Table 1, while the Nuclear Payment Rider calculation is shown in Ex. H1-2-1, Table 2. In both tables, the 2022 audited D&V account balances (col. a) less the 2023-2026 amortization approved in EB-2020-0290 (col. b) results in the balance available for recovery (col. c). Amounts proposed to be deferred to future applications are removed from this balance (col. d), resulting in the amounts proposed for recovery in this application (col. e). The proposed recovery terms described in Section 4.0 (col. f) are used to determine the amount to be amortized in each year of the 2024-2026 period for which D&V account riders are proposed, as discussed in Section 3.0. Remaining unamortized balances as at December 31, 2026 are also provided (col. k) to illustrate full disposition of balances available for recovery.

The proposed Hydroelectric Payment Rider is calculated using the amounts available for recovery in each year, comprising the total of hydroelectric D&V account amortizations in the year and the income tax impacts associated with the recovery of the hydroelectric component of the Pension & OPEB Cash Versus Accrual Differential Deferral Account, divided by the average of the 2014 and 2015 OEB-approved hydroelectric production, as set out in Section 3.0. The resulting rider in effect would be $2.75/MWh from July 1, 2024 to December 31, 2026.

The proposed Nuclear Payment Rider is calculated using the amounts available for recovery in each year, comprising the total of nuclear D&V account amortizations in the year and the income tax impacts associated with the recovery of the nuclear component of the Pension & OPEB Cash Versus Accrual Differential Deferral Account, divided by the proposed production forecast for the nuclear facilities, as set out in Section 3.0. The resulting riders in effect would

[3] For example: EB-2020-0290 – majority of balances cleared over 36 month period. EB-2018-0243 – majority of balances cleared over 36 month period. EB-2016-0152 – majority of balances cleared over 34-month period.

be $3.25/MWh from July 1, 2024 to December 31, 2024, $3.55/MWh from January 1, 2025 to December 31, 2025, and $5.04/MWh from January 1, 2026 to December 31, 2026.

Numbers may not add due to rounding.

Table 1
Calculation of Deferral and Variance Account Recovery Payment Rider - Regulated Hydroelectric ($M)

Line No.	Account	Note	Audited Year End Balance 2022	EB-2020-0290 OEB-Approved Amortization (2023-2026)	(a)-(b) 2022 Balance Less Approved Amortization	Amounts Deferred to Future Applications	(c)-(d) Amounts Recoverable in Current Application	Recovery Period (months)	Amortization July - Dec 2024	Amortization Jan - Dec 2025	Amortization Jan - Dec 2026	(g)+(h)+(i) Amortization	(c)-(j) Unamortized Balance
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
			Note 1	Note 2									
1	**Hydroelectric Water Conditions Variance**		(172.4)	(72.7)	(99.6)	0.0	(99.6)	30	(19.9)	(39.9)	(39.9)	(99.6)	0.0
2	**Ancillary Services Net Revenue Variance - Hydroelectric**		(34.3)	(22.2)	(12.1)	0.0	(12.1)	30	(2.4)	(4.8)	(4.8)	(12.1)	0.0
3	**Hydroelectric Incentive Mechanism Variance**		0.0	0.0	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
4	**Hydroelectric Surplus Baseload Generation Variance**		401.8	112.2	289.6	0.0	289.6	30	57.9	115.8	115.8	289.6	0.0
5	**Income and Other Taxes Variance - Hydroelectric**		(13.3)	(1.8)	(11.5)	0.0	(11.5)	30	(2.3)	(4.6)	(4.6)	(11.5)	0.0
6	**Capacity Refurbishment Variance - Hydroelectric**	3	80.3	0.0	80.3	23.8	56.5	30	11.3	22.6	22.6	56.5	23.8
7	**Niagara Tunnel Project Pre-December 2008 Disallowance Variance Account**		8.0	2.5	5.5	0.0	5.5	30	1.1	2.2	2.2	5.5	0.0
8	**Pension and OPEB Cost Variance - Hydroelectric - Future Recovery (Dec 31, 2012 Balance)**		2.1	2.1	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
9	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		33.0	33.0	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
10	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Non-RPP - EB-2018-0243 Approved**		14.0	14.0	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
11	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2017 Additions - EB-2020-0290 Approved**		35.3	35.3	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
12	**Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2019 Additions**		28.1	0.0	28.1	0.0	28.1	30	5.6	11.2	11.2	28.1	0.0
13	**Pension & OPEB Cash Payment Variance - Hydroelectric**		(77.0)	(25.7)	(51.3)	0.0	(51.3)	30	(10.3)	(20.5)	(20.5)	(51.3)	0.0
14	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Hydroelectric**		(2.0)	(0.1)	(1.9)	0.0	(1.9)	30	(0.4)	(0.8)	(0.8)	(1.9)	0.0
15	**Hydroelectric Deferral and Variance Over/Under Recovery Variance**		16.1	2.3	13.8	0.0	13.8	30	2.8	5.5	5.5	13.8	0.0
16	**Total**		319.8	78.9	240.8	23.8	217.0		43.4	86.8	86.8	217.0	23.8
17	**Tax on Pension & OPEB Cash Versus Accrual Differential Deferral - Hydroelectric - Post-2019 Additions**	4			9.4	0.0	9.4	30	1.9	3.7	3.7	9.4	0.0
18	**Total Recoverable Amount**				250.2	23.8	226.4		45.3	90.5	90.5	226.4	23.8
19	**Forecast Production (TWh)**	5							16.5	33.0	33.0		
20	**Regulated Hydroelectric Payment Rider ($/MWh)** (line 18 / line 19)								2.75	2.75	2.75		

Notes:

1 From Ex. H1-1-1 Table 1, col (d).
2 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, sum of cols. (i) (j), (k) and (l).
3 Clearance of the balance is proposed to be deferred, in part or in full, to a future application.
4 Calculated as: line 12 * tax rate / (1 - tax rate). Tax rate as shown at EB-2020-0290 Payment Amounts Order, App A, Table 19, line 32, col. (c).
5 From EB-2020-0290 Payment Amounts Order, App. C, Table 1, line 22: col. (j) * 6/12 for 2024, col. (k) for 2025 and (l) for 2026.

Numbers may not add due to rounding.

Table 2
Calculation of Deferral and Variance Account Recovery Payment Rider - Nuclear ($M)

Line No.	Account	Note	Audited Year End Balance 2022	EB-2020-0290 OEB-Approved Amortization (2023-2026)	(a)-(b) 2022 Balance Less Approved Amortization	Amounts Deferred to Future Applications	(c)-(d) Amounts Recoverable in Current Application	Recovery Period (months)	Amortization July - Dec 2024	Amortization Jan - Dec 2025	Amortization Jan - Dec 2026	(g)+(h)+(i) Amortization	(c)-(j) Unamortized Balance
			(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
			Note 1	Note 2									
1	**Nuclear Liability Deferral**		188.3	0.0	188.3	0.0	188.3	30	37.7	75.3	75.3	188.3	0.0
2	**Nuclear Development Variance**		110.9	2.5	108.4	0.0	108.4	30	21.7	43.3	43.3	108.4	0.0
3	**Ancillary Services Net Revenue Variance - Nuclear**		(13.6)	(2.4)	(11.3)	0.0	(11.3)	30	(2.3)	(4.5)	(4.5)	(11.3)	0.0
4	**Capacity Refurbishment Variance - Nuclear - DRP - Excluding D2O Project**	3	(47.6)	0.0	(47.6)	(47.6)	0.0		0.0	0.0	0.0	0.0	(47.6)
5	**Capacity Refurbishment Variance - Nuclear - Non-DRP**	3	49.7	(64.1)	113.8	(2.2)	116.0	30	23.2	46.4	46.4	116.0	(2.2)
6	**Capacity Refurbishment Variance - Nuclear - Accelerated Investment Incentive CCA - DRP**		(30.9)	(12.8)	(18.1)	0.0	(18.1)	30	(3.6)	(7.2)	(7.2)	(18.1)	0.0
7	**Capacity Refurbishment Variance - Nuclear - D2O Project**		79.4	0.1	79.3	0.0	79.3	30	15.9	31.7	31.7	79.3	0.0
8	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - EB-2018-0243/EB-2016-0152 Approved**		84.2	84.2	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
9	**Bruce Lease Net Revenues Variance - Non-Derivative Sub-Account - Post-2017 Additions**		17.1	15.4	1.7	0.0	1.7	30	0.3	0.7	0.7	1.7	0.0
10	**Income and Other Taxes Variance - Nuclear**		(18.8)	(9.7)	(9.1)	0.0	(9.1)	30	(1.8)	(3.7)	(3.7)	(9.1)	0.0
11	**Pension and OPEB Cost Variance - Nuclear - Future Recovery (Dec. 31, 2012 Balance)**		42.9	42.9	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
12	**Pension and OPEB Cost Variance - Nuclear - Post 2021 Additions**		(122.6)	0.0	(122.6)	0.0	(122.6)	30	(24.5)	(49.0)	(49.0)	(122.6)	0.0
13	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Registered Pension Plan (RPP) - EB-2018-0243 Approved**		212.8	212.8	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
14	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear-Non - RPP - EB-2018-0243 Approved**		88.2	88.2	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
15	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2017 Additions - EB-2020-0290 Approved**		222.5	222.5	0.0	0.0	0.0	30	0.0	0.0	0.0	0.0	0.0
16	**Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2019 Additions**		164.8	0.0	164.8	0.0	164.8	30	33.0	65.9	65.9	164.8	0.0
17	**Pension & OPEB Cash Payment Variance - Nuclear**		(383.4)	(116.1)	(267.3)	0.0	(267.3)	30	(53.5)	(106.9)	(106.9)	(267.3)	0.0
18	**Pension and OPEB Forecast Accrual versus Actual Cash Payment Differential Variance - Carrying Charges - Nuclear**		(12.3)	(0.4)	(11.9)	0.0	(11.9)	30	(2.4)	(4.8)	(4.8)	(11.9)	0.0
19	**Nuclear Deferral and Variance Over/Under Recovery Variance**		(74.7)	(16.8)	(58.0)	0.0	(58.0)	30	(11.6)	(23.2)	(23.2)	(58.0)	0.0
20	**Fitness for Duty Deferral**	3	1.6	0.0	1.6	1.6	0.0		0.0	0.0	0.0	0.0	1.6
21	**SR&ED ITC Variance**		(8.6)	(8.1)	(0.5)	0.0	(0.5)	30	(0.1)	(0.2)	(0.2)	(0.5)	0.0
22	**Rate Smoothing Deferral**	3	568.9	0.0	568.9	568.9	0.0		0.0	0.0	0.0	0.0	568.9
23	**Impact Resulting from Changes to Pickering Station End-of-Life Dates (December 31, 2017) Deferral**		(57.5)	(163.9)	106.4	0.0	106.4	30	21.3	42.5	42.5	106.4	0.0
24	**Impact Resulting from Optimization of Pickering Station End-of-Life Dates Deferral**		(45.0)	0.0	(45.0)	0.0	(45.0)	30	(9.0)	(18.0)	(18.0)	(45.0)	0.0
25	**Pickering Closure Costs Deferral**	3	2.8	0.0	2.8	2.8	0.0		0.0	0.0	0.0	0.0	2.8
26	**Total**		1,019.1	274.4	744.6	523.4	221.2		44.2	88.5	88.5	221.2	523.4
27	**Tax on Pension & OPEB Cash Versus Accrual Differential Deferral - Nuclear - Post-2019 Additions**	4			54.9	0.0	54.9	30	11.0	22.0	22.0	54.9	0.0
28	**Total Recoverable Amount**				799.6	523.4	276.2		55.2	110.5	110.5	276.2	523.4
29	**Forecast Production (TWh)**	5							17.0	31.1	21.9		
30	**Nuclear Payment Rider ($/MWh)** (line 28 / line 29)								3.25	3.55	5.04		

Notes:
1 From Ex. H1-1-1 Table 1, col (d).
2 From EB-2020-0290 Payments Amounts Order, App. D, Table 1, sum of cols. (i), (j), (k), (l).
3 Clearance of the balance is proposed to be deferred, in part or in full, to a future application.
4 Calculated as: line 16 * tax rate / (1 - tax rate). Tax rate as shown in EB-2020-0290 Payments Amounts Order, App A, Table 19, line 32, col. (c).
5 From EB-2020-0290 Payment Amounts Order, App. D, Table 1, line 31: col. (j) * 6/12 for 2024, col. (k) for 2025 and (l) for 2026.

REGULATED HYDROELECTRIC AND NUCLEAR PAYMENT RIDERS

1.0 PURPOSE

This evidence presents OPG's requested payment riders for the regulated hydroelectric and nuclear facilities.

2.0 PAYMENT RIDERS

OPG is seeking approval of a payment rider for the purposes of clearing regulated hydroelectric deferral and variance account balances approved in this application, effective July 1, 2024. The requested regulated hydroelectric payment rider is $2.75/MWh for the period July 1, 2024 to December 31, 2026, as calculated in Ex. H1-2-1, Table 1.

OPG is seeking approval of a payment rider for the purposes of clearing nuclear deferral and variance account balances approved in this application, effective July 1, 2024. The requested nuclear payment rider is $3.25/MWh for the period July 1, 2024 to December 31, 2024, $3.55/MWh for the period January 1, 2025 to December 31, 2025, and $5.04/MWh for the period January 1, 2026 to December 31, 2026, as calculated in Ex. H1-2-1, Table 2.

Numbers may not add due to rounding.

Table 1
Annualized Residential Consumer Impact
EB-2020-0290 to EB-2023-0336

Line No.	Description	Note	July - Dec 2024 Amount	2025 Amount	2026 Amount
			(a)	(b)	(c)
1	**Typical Consumption (kWh/Month)**	1	737	737	737
2	**Typical Usage of OPG Generation (kWh/Month)** (line 1 x line 10)		354	339	291
3	**Typical Bill ($/Month)**	1	126.65	126.65	126.65
4	**Typical Bill Impact ($/Month)** (line 2 x line 7 / 1000)		**1.06**	**0.05**	**0.15**
5	**Typical Bill Impact (%)** (line 4 / line 3)		**0.8%**	**0.0%**	**0.1%**
6	Incremental Weighted Average Payment Amount	2	3.00	3.14	3.66
7	Year-over-year Change in Incremental Weighted Average Payment Amount		3.00	0.14	0.52
8	Total OPG Regulated Production (TWh)	3	67.0	64.1	54.9
9	Forecast of 2024 Provincial Demand (TWh)	4	139.2	139.2	139.2
10	OPG Proportion of Consumer Usage (line 8 / line 9)		48.1%	46.0%	39.4%

Notes:

1 Typical monthly consumption (700 kWh) and typical monthly bill are based on the OEB "Bill Calculator" for estimating monthly residential electricity bills (using Time of Use pricing), available at: https://www.oeb.ca/_html/calculator/en/electricity/res/, accessed November 2, 2023
Typical Consumption includes line losses (Assumed loss factor of 1.0525)

2 From Ex. I1-1-1 Table 2, line 13.

3 From Ex. I1-1-1 Table 2: line 4 + line 8.

4 Based on forecast demand for 2024 (139.2 TWh) from Table 3-1 of IESO Reliability Outlook Update from October 2023 to March 2025, released September 2023.

Numbers may not add due to rounding.

Table 1A

Annualized Bill Impact for Typical Alectra (PowerStream) Business & Industrial Consumers 2024-2026

Line No.	Description	Note	July - Dec 2024		2025		2026	
			Medium/Large Business	Large Industrial	Medium/Large Business	Large Industrial	Medium/Large Business	Large Industrial
			(a)	(b)	(c)	(d)	(e)	(f)
1	**Typical Consumer Usage (kWh/Month)**	1	82,952	2,840,600	82,952	2,840,600	82,952	2,840,600
2	**Total OPG Regulated Production (TWh)**	2	67.0	67.0	64.1	64.1	54.9	54.9
3	**OPG Portion of Consumer Usage**	3	48.1%	48.1%	46.0%	46.0%	39.4%	39.4%
4	**Consumer Usage of OPG Generation (kWh/Month)** (line 1 x line 3)		39,912	1,366,758	38,178	1,307,356	32,709	1,120,067
5	**Typical Monthly Consumer Bill ($)**	1	12,666	423,047	12,666	423,047	12,666	423,047
	EB-2020-0290 to EB-2023-0336:							
6	**Incremental Weighted Average Payment Amount ($/MWh)**	4	3.00	3.00	0.14	0.14	0.52	0.52
7	**Percentage Increase in Consumer Bills** (line 6 x (line 4/1000) / line 5)		0.95%	0.97%	0.04%	0.04%	0.13%	0.14%
8	**Dollar Increase in Consumer Bills ($)** (line 5 x line 7)		119.74	4,100.28	5.34	183.03	17.01	582.43

Notes:

1 Current Approved Rates and Usage (adjusted for line losses) are taken from the Alectra EB-2022-0185 proceeding, Excel File: Alectra_RGM PRZ_20221122_20221208
GS > 50 customer, consumption 80,000 kWh, loss factor 3.69%
Large User customer, consumption 2,800,000 kWh, loss factor 1.45%

2 From Ex. I1-1-1 Table 2: line 4 + line 8.

3 From Ex. I1-1-1 Table 1, line 10.

4 From Ex. I1-1-1 Table 1, line 7.

Numbers may not add due to rounding.

Table 1B

Annualized Bill Impact for Typical Hydro One Networks Business & Industrial Consumers 2024-2026

Line No.	Description	Note	July - Dec 2024		2025		2026	
			Medium/Large Business	Large Industrial	Medium/Large Business	Large Industrial	Medium/Large Business	Large Industrial
			(a)	(b)	(c)	(d)	(e)	(f)
1	**Typical Consumer Usage (kWh/Month)**	1	36,428	1,420,140	36,428	1,420,140	36,428	1,420,140
2	**Total OPG Regulated Production (TWh)**	2	67.0	67.0	64.1	64.1	54.9	54.9
3	**OPG Portion of Consumer Usage**	3	48.1%	48.1%	46.0%	46.0%	39.4%	39.4%
4	**Consumer Usage of OPG Generation (kWh/Month)** (line 1 x line 3)		17,528	683,302	16,766	653,604	14,364	559,971
5	**Typical Monthly Consumer Bill ($)**	1	8,245	227,999	8,245	227,999	8,245	227,999
	EB-2020-0290 to EB-2023-0336:							
6	**Incremental Weighted Average Payment Amount ($/MWh)**	4	3.00	3.00	0.14	0.14	0.52	0.52
7	**Percentage Increase in Consumer Bills** (line 6 x (line 4/1000) / line 5)		0.64%	0.90%	0.03%	0.04%	0.09%	0.13%
8	**Dollar Increase in Consumer Bills ($)** (line 5 x line 7)		52.58	2,049.91	2.35	91.50	7.47	291.18

Notes:

1 Current Approved Rates and Usage (adjusted for line losses) are taken from EB-2021-0110, Excel file: HONI_JRAP_Settlement Proposal_Attachment Update_Attachment 2_Schedule 7.1_20221116
Medium/Large Business: GSd_Avg customer, consumption 34,334 kWh, loss factor 6.1%
Large Industrial: ST_Avg customer, consumption 1,373,443 kWh, loss factor 3.4%

2 From Ex. I1-1-1 Table 2: line 4 + line 8.

3 From Ex. I1-1-1 Table 1, line 10.

4 From Ex. I1-1-1 Table 1, line 7.

Numbers may not add due to rounding.

Table 1C

Annualized Bill Impact for Typical Toronto Hydro Business & Industrial Consumers 2024-2026

Line No.	Description	Note	July - Dec 2024		2025		2026	
			Medium/Large Business	Large Industrial	Medium/Large Business	Large Industrial	Medium/Large Business	Large Industrial
			(a)	(b)	(c)	(d)	(e)	(f)
1	**Typical Consumer Usage (kWh/Month)**	1	81,331	4,170,520	81,331	4,170,520	81,331	4,170,520
2	**Total OPG Regulated Production (TWh)**	2	67.0	67.0	64.1	64.1	54.9	54.9
3	**OPG Portion of Consumer Usage**	3	48.1%	48.1%	46.0%	46.0%	39.4%	39.4%
4	**Consumer Usage of OPG Generation (kWh/Month)** (line 1 x line 3)		39,132	2,006,651	37,432	1,919,438	32,069	1,644,463
5	**Typical Monthly Consumer Bill ($)**	1	12,500	643,955	12,500	643,955	12,500	643,955
	EB-2020-0290 to EB-2023-0336:							
6	**Incremental Weighted Average Payment Amount ($/MWh)**	4	3.00	3.00	0.14	0.14	0.52	0.52
7	**Percentage Increase in Consumer Bills** (line 6 x (line 4/1000) / line 5)		0.94%	0.93%	0.04%	0.04%	0.13%	0.13%
8	**Dollar Increase in Consumer Bills ($)** (line 5 x line 7)		117.40	6,019.95	5.24	268.72	16.68	855.12

Notes:

1 Current Approved Rates and Usage (adjusted for line losses) are taken from EB-2022-0065, excel file THESL_2023 Bill Impacts_20221208
Medium/Large Business: GS 50-999 customer, consumption 79,000 kWh, loss factor 2.95%
Large Industrial: Large Use customer, consumption 4,100,000 kWh, loss factor 1.72%

2 From Ex. I1-1-1 Table 2: line 4 + line 8.

3 From Ex. I1-1-1 Table 1, line 10.

4 From Ex. I1-1-1 Table 1, line 7.

Numbers may not add due to rounding.

Filed: 2023-12-13
EB-2023-0336
Exhibit I1
Tab 1
Schedule 1
Table 2

Table 2
Calculation of Change in Weighted Average Payment Amount
EB-2020-0290 to EB-2023-0336

Line No.	Description	Note	2023	July - Dec 2024	2025	2026
			(a)	(b)	(c)	(d)
1	**Hydroelectric Payment Amount (HPA) ($/MWh)**	1	43.88	43.88	43.88	43.88
2	**Hydroelectric Payment Rider EB-2020-0290 (HPRA) ($/MWh)**	2	1.03	1.03	0.69	0.69
3	**Hydroelectric Payment Rider EB-2023-0336 (HPRB) ($/MWh)**	3		2.75	2.75	2.75
4	**Hydroelectric Production Forecast (HPF) TWh**	4	33.0	33.0	33.0	33.0
5	**Nuclear Payment Amount (NPA) ($/MWh)**	5	107.79	103.48	102.85	111.33
6	**Nuclear Payment Rider EB-2020-0290 (NPRA) ($/MWh)**	6	1.25	1.15	5.34	7.58
7	**Nuclear Payment Rider EB-2023-0336 (NPRB) ($/MWh)**	7		3.25	3.55	5.04
8	**Nuclear Production Forecast (NPF) TWh**	8	31.2	34.0	31.1	21.9
9	**Weighted Average Payment Amount ($/MWh)** ((NPA + NPRA + NPRB) x NPF + (HPA + HPRA + HPRB) x HPF) / (NPF + HPF)		76.10	78.23	78.58	77.91
10	**EB-2020-0290 Weighted Average Payment Amount ($/MWh)**	9	76.10	75.23	75.44	74.25
11	**Incremental Weighted Average Payment Amount ($/MWh)** (line 10 - line 9)		0.00	3.00	3.14	3.66
12	**Percentage Change in Weighted Average Payment Amount (Year over Year)**			2.8%	0.4%	-0.9%

Notes:

1 From EB-2020-0290 Payment Amounts Order, p. 4.
2 From EB-2020-0290 Payment Amounts Order, p. 7.
3 From Ex. H1-2-1, Table 1, line 20.
4 From EB-2020-0290 Payment Amounts Order, App. B, Table 3, line 3.
5 From EB-2020-0290 Payment Amounts Order, p. 5.
6 From EB-2020-0290 Payment Amounts Order, p. 8.
7 From Ex. H1-2-1, Table 2, line 30.
8 From EB-2020-0290 Payment Amounts Order, p. 4.
9 From EB-2020-0290 Payment Amounts Order, App. B, Table 3, line 9.

CONSUMER IMPACT

1.0 PURPOSE

This evidence describes the impact of the proposed payment amounts and payment rider changes on a residential electricity consumer consuming 700 kWh per month (the "typical consumer").

2.0 CONSUMER IMPACT

OPG has estimated the impact on consumers in a manner that is consistent with previous OPG proceedings, based on the incremental annual changes in OPG's weighted average of regulated hydroelectric and smoothed nuclear payment amounts and payment amount riders ("weighted average total payments") that would result from the 2024-2026 deferral and variance account payment riders proposed in this application.

OPG has applied the annual changes in weighted average total payments to the typical consumer's usage of OPG generation, after adjusting for line losses and accounting for OPG's share of the province's generation. Typical consumer data is based on the average electricity distributor bill information provided on the OEB's website at:
https://www.oeb.ca/_html/calculator/en/electricity/res/

The estimated monthly consumer bill impacts associated with the deferral and variance account payment riders proposed in this application are reflected in Chart 1, as calculated in Ex. I1-1-1, Table 1.

Chart 1
Annualized Residential Consumer Impact

	July - Dec 2024	2025	2026
Typical Bill ($/Month)	$126.65	$126.65	$126.65
Typical Bill Impact ($/Month)	$1.06	$0.05	$0.15
Typical Bill Impact (%)	0.8%	0.0%	0.1%

MARKET RENEWAL PROGRAM

1.0 OVERVIEW

In this application, OPG is requesting approvals in three areas based on expected changes to Ontario's electricity market that will be made under the Independent Electricity System Operator's ("IESO") Market Renewal Program ("MRP"). Specifically, OPG proposes:

i. changes to the calculation of amounts for the Hydroelectric Surplus Baseload Generation Variance Account ("SBGVA"),
ii. changes to the Hydroelectric Incentive Mechanism ("HIM"), and
iii. to establish a treatment for real-time make whole payments ("MWP").

OPG's base payment amounts for the 2022-2026 period were set, pursuant to *Ontario Regulation 53/05*, in EB-2020-0290 for OPG's regulated hydroelectric and nuclear facilities. Pursuant to section 78.1 of the *Ontario Energy Board Act, 1998*, the IESO makes payments with respect to the output of OPG's prescribed facilities. The IESO is currently in the implementation phase of its MRP, which is scheduled to be in effect in May 2025.

The approvals sought in this application will align certain ratemaking methodologies related to production from OPG's prescribed hydroelectric generating facilities as approved by the OEB ("Regulated Framework") with the new market structure, including those necessary to compensate the company for those changes associated with the new market design that will cause insufficient revenue recovery at these facilities as a result of market conditions outside of OPG's control. These changes are appropriate for the period following the implementation of the MRP.

This section provides background on areas of the IESO's MRP that impact OPG's Regulated Framework and that are necessary to be addressed concurrent with the introduction of MRP and outlines the approvals OPG is seeking in this application. The sections that follow explain the detailed impacts of MRP on OPG's Regulated Framework and how OPG proposes to address them.

1.1 Overview of the Market Renewal Program

This section provides a brief overview of MRP. While the MRP covers a broad scope of changes, the impacts on OPG's Regulated Framework that are addressed in this application are primarily due to:

- Replacement of the current two-schedule market with a single schedule market ("SSM") and the introduction of a Locational Marginal Price ("LMP");
- Introduction of a financially binding day-ahead market ("DAM"); and
- Changes to MWPs.

Each of these aspects of the MRP involve a number of changes that will fundamentally redesign Ontario's electricity markets, impacting pricing, scheduling and market settlements for participants. A complete list and scope of changes can be found in the IESO's high-level design documents.[1] A mapping of MRP changes that affect elements of OPG's Regulated Framework is provided in Figure 1, with a brief description of the changes provided below.

Figure 1: Mapping of MRP Design Elements to impacted OPG Regulated Framework Addressed in this Application

MRP Changes		Impacts to OPG Regulated Framework: SBGVA	HIM	Other Revenues	MWP/CMSC
Single Schedule Market	Uniform price to Locational Prices	☑	☑	☑	
	Eliminate Unconstrained schedule	☑		☑	☑
	Changes to MWP				☑
DAM & RTM	DAM & RTM Settlement		☑	☑	

Replacement of the two-schedule market with a single schedule market

The current market has a "two-schedule" structure because the IESO uses two dispatch algorithms, one to determine prices and another to schedule and dispatch resources to meet

[1] https://www.ieso.ca/en/Market-Renewal/Energy-Stream-Designs/High-Level-Designs

demand.[2] The IESO sets a uniform, market-wide price ("market clearing price" or "MCP") using an "unconstrained" dispatch algorithm that assumes there are no restrictions to the flow of power for supply to meet demand. The IESO takes transmission constraints and losses on the electricity system into account in a second, "constrained" dispatch algorithm, which is used to schedule and dispatch resources.

Congestion management settlement credits ("CMSC") are used in the current market to keep participants whole when they are dispatched uneconomically in relation to the payments received under the uniform price.

The MRP will introduce a single schedule market that utilizes the same dispatch algorithm for both market pricing and dispatch scheduling. As such, the current unconstrained dispatch algorithm and associated uniform market clearing price will be eliminated. The new dispatch algorithm will publish LMPs that incorporate the cost of congestion and losses to reflect the marginal cost of energy at each electrical node on the system. These prices will typically reflect dispatch schedules received at each resource and will be used for market settlement. While CMSCs will not exist in the new market, MWPs will exist to make participants whole for any uneconomic dispatches or schedules, which as discussed below the IESO expects to be infrequent.

Introduction of a day-ahead market and real-time balancing market

Ontario's current electricity market consists of a day-ahead commitment process ("DACP") and a real-time market ("RTM"). Aside from certain guarantees applicable only to non-quick start generators, the DACP offers no financial or scheduling guarantees to generators. Instead, resources are scheduled and settled in the real-time market at the real-time market clearing price.

In alignment with neighboring jurisdictions, the IESO's MRP includes a financially binding day-ahead market ("DAM") and a real-time market. The IESO's stated benefits of a financially

[2] For purposes of this exhibit, a 'resource' refers to a single or group of generating units that connect to the IESO-controlled grid at a specific node.

binding day-ahead market relative to today's market include: certainty for participating resources through a guaranteed schedule and price in the day-ahead timeframe; and greater market scheduling certainty for the market operator by shifting scheduling of supply quantities to the day-ahead timeframe.[3] The RTM will be used to balance any deviations that occur between the DAM and RTM caused by changing supply or demand conditions.

In the new market, resources scheduled in the DAM will receive a DAM settlement payment, based on their schedules and the day-ahead LMPs. A real-time balancing settlement is calculated for deviations between a resource's day-ahead schedule and its real-time output, based on the real-time LMP.

Changes to make whole payments

Make whole payments ensure market participants are compensated appropriately when resources are dispatched uneconomically in relation to the market payments they receive. According to the IESO's high-level design,[4] relative to the current two schedule market, the need for MWPs in the new market is expected to be infrequent and immaterial. The IESO states this to be due to the introduction of a single schedule market and locational pricing which will eliminate the most significant cause of divergence between dispatch and price (congestion and losses) that results in out-of-market payments today. In the new market, the IESO expects that there will be isolated instances in the day-ahead and real-time timeframe where resources are needed to be dispatched uneconomically in relation to the applicable LMP thereby requiring a MWP to keep participants financially whole. MWPs will therefore exist in both the DAM and RTM.

1.2 Overview of Impacts of MRP on OPG's Regulated Framework Addressed in this Application

The key areas of OPG's Regulatory Framework impacted by MRP's implementation are:

---

[3] Day-Ahead Market High-Level Design ("DAMHLD"), IESO, August 2019, p. 3. Retrieved here: https://www.ieso.ca/en/Market-Renewal/Stakeholder-Engagements/Market-Renewal-Day-Ahead-Market

[4] Single Schedule Market High-Level Design, IESO, August 2019 ("SSMHLD"), p. 55. Retrieved at https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/ssm/SSM-High-Level-Design-Aug2019.ashx

- **SBGVA:** Transition to a single schedule market will affect the calculation of surplus baseload generation ("SBG") spill amounts with the elimination of the uniform market clearing price used in the current methodology. Proposed changes to the methodology to determine SBG spill are discussed in Section 2.0.
- **HIM:** The HIM and HIM adjustment for unintended benefit (due to SBG spill) will need to be revised to reflect new market features including LMP and settlement of the new day-ahead and real-time markets. Proposed changes to the HIM are discussed in Section 3.0.
- **Make Whole Payments:** MRP will make changes to MWPs that are not currently considered in OPG's Regulated Framework. The impacts of MWPs are discussed in Section 4.0.

1.3 Summary of Approvals Requested

In this application, OPG seeks the following specific approvals:

1. The approval to revise the calculation of amounts booked in the SBGVA to record the financial impact of forgone production due to SBG conditions based on LMP as described in Section 2.0.

2. The approval of revisions to the HIM to incorporate separate incentives for the day-ahead timeframe and real-time timeframe, settled on LMP, and to replace the monthly production averaging currently used with a daily average as described in Section 3.0.

3. The approval to revise the HIM adjustment for spill (unintended benefit) to align with proposed changes to the calculation of SBG spill amounts and the HIM as described in Section 3.3.

4. The approval to continue to retain real-time make whole payments as described in Section 4.0.

2.0 SURPLUS BASELOAD GENERATION

2.1 Surplus Baseload Generation Overview

Surplus generation, in relation to demand net of economic exports to interconnected jurisdictions, can cause some of OPG's hydroelectric resources to forgo generation in the form of hydroelectric spill.

In the IESO's 2012 Renewable Integration Stakeholder Engagement ("SE-91"), the IESO described that SBG conditions can occur on both a global and local level. It defined *global SBG*[5], as:

> A condition that occurs when Ontario's electricity production from baseload facilities, if not managed, would otherwise be greater than demand.

The IESO also defined *local SBG,* as:

> A condition that occurs when a region's electricity production from baseload facilities, if not managed, would otherwise be greater than the local demand and the transmission system's ability to move the excess generation out of the area.

While both global SBG and local SBG can lead to hydroelectric spill, this section explains why global SBG conditions are used as the basis for quantifying SBG spill for calculating SBGVA entries in today's market; why global SBG conditions can no longer be differentiated from local SBG conditions post MRP implementation; and details OPG's proposal to quantify SBG spill and make entries to the SBGVA on a total SBG basis that includes spill as a result of both global and local SBG conditions.

2.2 Surplus Baseload Generation Variance Account

2.2.1 Origins of Surplus Baseload Generation and SBG Variance Account

OPG recovers its regulated hydroelectric revenue requirement entirely on a variable basis with

[5] SE-91 Document "Surplus Baseload Generation (SBG)", August 7, 2012.

no fixed cost recovery. Aside from the Hydroelectric Water Conditions Variance Account which records production revenue impacts arising from differences in actual water conditions relative to forecasts used to determine the approved payment amounts, when OPG is unable to generate, whether due to surplus conditions, transmission constraints or other reasons, OPG's ability to recover its revenue requirement is reduced. To address the impact of SBG on OPG's regulated hydroelectric production, the OEB approved the SBGVA in EB-2010-0008 and each subsequent payment amounts proceeding. Additions to the SBGVA are based on forgone production attributable to the presence of SBG conditions in the IESO market.

2.2.2 Current Method to Determine Spill Amounts for SBG Variance Account Addition

As detailed in EB-2013-0321[6] and most recently set out in the EB-2020-0290 Payment Amounts Order, OPG currently calculates forgone production due to SBG by starting with the total volume of spill and subtracting the volume of spill due to:

- water conveyance constraints (e.g., Sir Adam Beck Generating Stations tunnel capacity constraints);
- production capability constraints (e.g., unit outages; operating regulatory requirements etc.);
- market constraints[7] (i.e., IESO dispatch constraints: market or transmission system); and
- contractual obligations (e.g., regulation service).

The remaining spill volume is identified as potential SBG spill. SBG conditions are considered to be present when the uniform market price falls below the gross revenue charge ("GRC") price threshold.[8] The SBGVA entries are calculated using the volume of spill remaining after excluding the spill amounts incurred by OPG that are not attributable to the impact of SBG conditions.

[6] EB-2013-0321, Ex. E1-2-1, Section 3.2 and Ex. L-5.4-17 SEC-070.

[7] Where spill is incurred as a result of market constraints, the term 'market constraints' and 'local SBG' are generally equivalent and are used interchangeably in this exhibit.

[8] In practice, there is some minor variability around the GRC price threshold used at some of the hydroelectric facilities. This is because OPG needs to create small differences between the generation offers from its various units to achieve an orderly dispatch and meet operational requirements at its hydroelectric facilities.

2.2.3 Surplus Baseload Generation Study

In EB-2018-0243, OPG committed to preparing a forward-looking study, in consultation with the IESO, to assess the management of its generating facilities in relation to surplus baseload generation conditions. While the study was filed with OPG's application in EB-2020-0290, the OEB determined[9] to defer consideration of the study until this proceeding. The SBG study is filed as Attachment 1 to this exhibit. As described in the study, SBG is a system condition managed by the IESO. The study concluded that the actions OPG has taken in relation to SBG conditions are appropriate and consistent with the physical constraints of OPG's generation facilities, relevant water management plans, the IESO's reliability requirements and market dispatch order, and economic signals in line with the approved HIM. The study also concluded that other potential strategies (e.g., physical or market based) discussed therein in relation to SBG conditions would have a significant, negative impact on the efficiency of the electricity market and erode the economic benefits associated with the current dispatch order to the disadvantage of consumers.

2.2.4 Reporting of Additions to SBG Variance Account

Pursuant to reporting requirements set out in EB-2020-0290,[10] OPG provides annual reporting of all SBG claimed amounts and the resultant calculation of amounts booked in the variance account. OPG also provides information in relation to the usage of Sir Adam Beck Pump Generating Station ("PGS"). Finally, OPG reports on deferral and variance account balances to the OEB, including the SBGVA, on a quarterly basis.

2.3 Impacts of MRP on Surplus Baseload Generation Spill Calculation

MRP's transition to a single schedule market with locational marginal pricing will necessitate a new methodology for calculating forgone production due to SBG spill conditions and the resultant entries to the SBGVA.

[9] EB-2020-0290, Decision on Issues List dated May 20, 2021, p. 6.
[10] EB-2020-0290, Decision and Order, Schedule A, Ex. O, Appendix A, p. 1.

2.3.1 Surplus Baseload Generation Spill Calculation – Challenges Introduced by Market Renewal Program

The transition to LMPs impacts the calculation of SBG-related spill in two ways. First, entries to the SBGVA are currently based on global SBG-related spill. Global SBG is identified in the market by the uniform market price, which the IESO determines using the unconstrained market supply and demand, absent any transmission constraints and resulting congestion. The new single schedule market will not have a system-wide price, eliminating OPG's ability to evaluate market conditions absent market constraints as we do today, significantly limiting OPG's ability to accurately determine if spill is attributable to global or local SBG conditions.

Second, the change to a single schedule market impacts the calculation of SBG-related spill. As described in Section 2.3.2, under the current market structure, OPG isolates global SBG-related spill from other market constraints (local SBG conditions) that can cause spill. This ensures that forgone generation due to market constraints, which are presently compensated via CMSCs, are not also booked in the SBGVA. Market constraints are quantified by comparing the unconstrained schedule (or "market schedule") against actual production. The elimination of the two-schedule system in MRP means that the new market will not publish a market schedule, preventing identification of spill attributable to market constraints in the new market.

CMSCs are the current market mechanism to recover revenue for forgone production due to local curtailment. In EB-2007-0905, the OEB accepted OPG's proposal to retain CMSC payments as they are designed to compensate for "losses which OPG incurs in constrained on and constrained off situations [which] are mostly related to opportunity costs – the reduced production or less efficient production which results in lost revenues."[11] Without a mechanism to address the elimination of CMSCs under MRP,[12] OPG would necessarily be under-compensated for such foregone production under the existing Regulated Framework. Accordingly, OPG is seeking an amendment to the SBGVA to address the impact of spill resulting from local curtailment, as described in the following sub-section.

---

[11] EB-2007-0905 Decision with Reasons, November 3, 2008 ("EB-2007-0905 Decision"), p. 50.

[12] OPG expects that, under the new market design, MWPs will be limited to compensation for losses incurred by a dispatched resource when the LMP does not reflect its offered costs and therefore not provide compensation for forgone production due to local curtailment (as in such instances the LMP would reflect the dispatch received).

2.3.2 Spill Calculation – Proposed Structure

To address the MRP impacts on compensation for foregone production, OPG proposes to modify the SBGVA to recover the revenue impacts of all SBG spill (i.e., both global and local SBG spill) as described below.

OPG proposes that entries to the SBGVA continue to be made using a similar process to that used currently. OPG proposes comparing the market price with a price threshold to determine when the revenue impact of forgone production attributable to IESO curtailment is eligible to be recorded in the account. Since there will no longer be a uniform market price absent transmission constraints under MRP, the LMP will be the appropriate indicator of SBG conditions. As noted, the LMP differs from the uniform market prices as it signals the presence of both global and local SBG conditions without distinction.

The determination of SBG spill would continue to begin with the total actual volume of water that is spilled, from which the following types of spill would be removed:

- Water conveyance constraints;
- Production capability constraints; and
- Contractual obligations

The remaining spill volume would be identified as potential SBG spill. SBG conditions would be considered to be present when the applicable RT LMP for the resource as published by the IESO falls below the applicable GRC price threshold.[13] SBGVA entries would be calculated using the volume of spill remaining after excluding spill amounts incurred by OPG not attributable to the impact of the presence of SBG conditions. This would result in SBGVA additions considering all market related curtailment.[14]

[13] Per IESO's SSMHLD, p. 8, footnote 4, the applicable LMP by location is based on the connection point (node) of a market participant supplier.
[14] OPG would accordingly report these amounts for purposes of SBG-related reporting and record keeping requirements, including information in relation to the usage of the PGS on the basis of LMPs.

Under this proposal, in the new market OPG would only be compensated for curtailment that results in forgone generation. Currently, CMSCs compensate market participants for any differences between the unconstrained schedule and constrained schedule. For OPG's hydroelectric generation, this necessarily includes compensation for both forgone generation due to curtailment and inefficient use of water that occurs when a generator is uneconomically dispatched away from its efficiency point.[15] CMSCs also compensate for curtailments based on the uniform market price. OPG's proposal would compensate local SBG curtailments in the same way as global SBG curtailments, at the hydroelectric payment amount less GRC.

3.0 HYDROELECTRIC INCENTIVE MECHANISM

This section provides an overview of the HIM. It explains the impacts of MRP, OPG's proposal to revise the HIM methodology, the HIM adjustment for spill to account for MRP, and how the revised HIM would continue to benefit ratepayers.

3.1 Hydroelectric Incentive Mechanism Overview

The HIM supports the efficiency of the wholesale electricity market by providing OPG's regulated hydroelectric generators with the appropriate drivers to follow market signals while receiving a regulated payment for its output. This mechanism ultimately benefits customers by creating an economic driver for OPG to shift hydroelectric generation from low-price hours to high-price hours. As described below, revisions to the HIM are necessary to reflect the changes in market design made by MRP. OPG proposes an updated HIM calculation that will create the same incentives for efficient use of the company's regulated hydroelectric facilities in the new market.

Since the HIM was first approved in EB-2007-0905, OPG receives the regulated hydroelectric payment amount for the average hourly net energy produced ("hourly volume") from its regulated hydroelectric facilities. If OPG produces more energy than the hourly volume in a given hour, it is compensated at market prices for the incremental amount of energy above this

[15] EB-2007-0905, Undertaking J3.1, p. 2, lines 1-3.

hourly volume. If OPG's actual energy production from its regulated hydroelectric facilities is less than the hourly volume in a given hour, the amount payable to OPG at the regulated hydroelectric payment amount is reduced by the production shortfall multiplied by the market price.

The current HIM formula is:

$$\sum_{t}(MW(t) - MW_{avg}) \times MCP(t)$$

Where:

MW(t): net energy production supplied to the IESO market for each hour, *t*, of the month

MW_{avg}: average of hourly net energy production over the month

MCP(t): market clearing prices for each hour of the month

t: all hours of the month

In EB-2010-0008, the OEB required that 50% of the forecast amount of HIM proceeds be returned to customers and incorporated this as a reduction of the revenue requirement. OPG was allowed to retain 50% of the HIM revenue with any excess above the retained amount tracked in the Hydroelectric Incentive Mechanism Variance Account and shared equally between OPG and ratepayers.[16] The OEB also required OPG to address the interaction between HIM revenues and the SBGVA in its next application. In EB-2013-0321, the HIM was expanded to include the newly prescribed facilities, using the same formula. The OEB also increased the variance account threshold to reflect the inclusion of the newly regulated facilities, maintaining a 50% revenue requirement offset and a 50% sharing of additional revenues above the threshold.[17] In the same decision, the OEB directed OPG to include an offset to the HIM to reflect the interaction between the HIM and the SBGVA. This is detailed in Section 3.4.2.

[16] EB-2010-0008, Decision with Reasons, March 10, 2011 ("EB-2010-0008 Decision"), p. 147.
[17] EB-2013-0321 Decision with Reasons, November 20, 2014 ("EB-2013-0321 Decision"), p. 13.

3.2 Impact of MRP on Current Hydroelectric Incentive Mechanism

The HIM is designed in accordance with the current market structure. As described above, MRP will introduce a fundamentally different single-schedule market and a DAM in addition to the RTM, with both markets settled on a LMP basis. The DAM will provide financially binding schedules and prices for generating resources a day in advance of operation based on the resources' market offers and forecasted market conditions, while the RTM will balance deviations that occur between the day-ahead and real-time timeframe.

It is necessary to revise the current HIM to ensure OPG's regulated hydroelectric resources have the appropriate operational drivers that align with the MRP market design. The proposed HIM, outlined in Section 3.3 below, reflects the changes in MRP market design and also proposes that the new market HIM apply to a daily timeframe, relative to the current monthly resolution, which would better align with the IESO's market scheduling timeframe and reflect OPG's physical ability to shift water.

3.3 Revised Hydroelectric Incentive Mechanism Proposal

In proposing a revised HIM, OPG's objective is to maintain a similar design as currently approved while incorporating features and drivers of the new market. The HIM is designed to tie OPG's operational decisions to market drivers while receiving a regulated payment amount. OPG proposes a new HIM that includes the following:

- A formula that incorporates a separate day-ahead ("DA") and real-time ("RT") incentive to reflect the new financially binding day-ahead and real-time balancing settlement design;
- Settlement on LMPs in place of the uniform market clearing price; and
- Daily production averaging, rather than monthly averaging, to better align the HIM with daily market scheduling timeframes and operational storage horizons.

OPG proposes the following formula:

$$Incentive\ Payment = DA\ Incentive + RT\ Incentive$$

$$= \sum_{t} \left(MW_{DA}(t) - MW_{DAavg}\right) \times LMP_{DA}(t)$$

$$+ \sum_{t} \left(MW_{diff}(t) - MW_{diff,avg}\right) \times LMP_{RT}(t)$$

Where:

$$MW_{diff}(t) = MW_{RT}(t) - MW_{DA}(t)$$

$$MW_{diff,avg} = MW_{RTavg} - MW_{DAavg}$$

Where:

$MW_{DA}(t)$: hourly production schedule from the IESO day-ahead market for each hour, *t*, of the day

MW_{DAavg}: average of hourly energy schedule from the IESO day-ahead market over the day

$LMP_{DA}(t)$: the day-ahead LMP for the resource for each hour, *t*, of the day

$MW_{RT}(t)$: net energy production supplied to the IESO real-time market for each hour, *t*, of the day

MW_{RTavg}: average of hourly net energy production over the day

$LMP_{RT}(t)$: the real-time LMP for the resource for each hour, *t*, of the day

3.3.1 Day-Ahead Incentive

The IESO expects the new market's DAM to schedule most of the supply, with the intention to provide greater operational certainty to the IESO and greater financial and scheduling certainty to participants. Accordingly, OPG's HIM proposal incorporates a DA component that would drive OPG to time-shift energy to high-price periods in the DA timeframe in a similar manner as the current HIM does in the RT timeframe. OPG proposes the DA incentive to settle based on the DA LMP.

3.3.2 Real-Time Incentive

In response to the design of the new RTM which will be used to balance deviations that occur between the day-ahead schedule and real-time conditions, OPG proposes a RT incentive that

would create an economic driver for OPG to respond to market changes between DA and RT, while ensuring that OPG only receives an incentive for incremental changes in the RT. The proposed RT incentive compares the RT production to the production scheduled in DA. As a result, it mimics the real-time balancing market settlement that the IESO will establish with MRP. OPG proposes the RT incentive to settle based on the RT LMP. This approach would incentivize OPG to generate in a manner that follows the RTM price signals, mimicking the real-time balancing market settlement.

3.3.3 Locational Marginal Prices

To reflect the future market's settlement of resources on a locational basis using LMPs instead of the current uniform market clearing price, OPG proposes that the incentive mechanism settle on a locational/resource basis.

3.3.4 Daily Averaging

OPG proposes that the calculation of the incentive mechanism be changed from monthly production averaging to daily averaging. While the HIM could continue to settle using monthly production averaging in the new market, there are merits to implementing this change now, along with other changes to HIM.

First, daily averaging better aligns with the IESO's daily scheduling timeframe of resources in the new market. The IESO's scheduling optimization and settlement of the market will be on a daily resolution.

Second, the current monthly averaging implies a monthly storage capability, which overestimates the storage capability at the majority of OPG's regulated hydroelectric resources. The typical storage horizon of OPG's regulated hydroelectric resources is in the range of one to five days. Daily production averaging more closely reflects OPG's storage and time shifting capabilities. This change would therefore better align the production averaging term within the HIM formula with the time horizon for which the resources operate.

3.4 Hydroelectric Incentive Mechanism Spill Adjustment (Unintended Benefit)

3.4.1 Unintended Benefit Overview

In EB-2013-0321, OPG described the interaction of SBG spill and how it gives rise to the appearance of time-shifting, generating an incentive payment under the HIM, while the spill is also compensated through the SBGVA.[18] This interaction between the HIM and the SBGVA is referred to as the "unintended benefit". In its decision, the OEB directed OPG to address this interaction by adding the equivalent of the SBG spill to the actual production in the HIM settlement.[19] The presence of an unintended benefit is expected to continue in the new market. As such, OPG's proposed changes to the HIM include an unintended benefit adjustment similar to that currently in place, as discussed below.

3.4.2 Interaction of SBG Variance Account and Hydroelectric Incentive Mechanism

SBG curtailment occurs in low-priced periods, typically during off-peak hours. If the water is stored, it will be shifted to high-priced time periods, and incentive payments will be appropriately awarded. When the water cannot be stored, however, SBG spill cannot be avoided and the water is irrevocably lost. As a result, the monthly average production that is used in the HIM formula to calculate incentive payments will decrease while the hourly production profile will still follow the profile of the market prices. Forgone production due to SBG spill is compensated through an entry to the SBGVA. The resulting hourly production profile, reduced by the SBG spill volume, will also generate incentive payments under the HIM. This is the unintended benefit that results due to the interaction between the HIM and SBGVA.

In the EB-2013-0321 Decision, the OEB directed OPG to address the unintended interaction between the SBGVA and the HIM as per OEB staff's proposal in that proceeding.[20] The OEB staff's proposal resulted in an adjustment applied to the HIM, referred to as the Unintended Benefit Adjustment, which is currently used .

As an adjustment that is applied to the HIM, the unintended benefit adjustment formula mirrors

[18] EB-2013-0321, Ex. E1-2-1, Attachment 1, p. 4.
[19] EB-2013-0321, Decision with Reasons ("EB-2013-0321 Decision"), pp. 12-13.
[20] EB-2013-0321, Ex. L-5.3-1, Staff-061, part a).

the HIM formula presented in 3.3; however, where the HIM compares hourly production against the average hourly production over a month, the unintended benefit adjustment is calculated by comparing hourly spill against the average hourly spill over a month. The current formula for the unintended benefit adjustment is presented as follows:

$$Unintended\ Benefit\ Adjustment = \sum_{t} (MW_{Spill}(t) - MW_{Spillavg}) \times MCP(t)$$

Where:

$MW_{Spill}(t)$: hourly forgone production due to spill for each hour, *t*, of the month

$MW_{Spillavg}$: average of hourly spill over the month

$MCP(t)$: the market price in the hour, *t*

3.4.3 Impacts to the Unintended Benefit from the Market Renewal Program

The presence of SBG spill and the HIM post MRP implementation require that an adjustment for the unintended benefit be continued. OPG evaluated the impacts of MRP on the unintended benefit adjustment considering the interaction between its new proposed SBG spill calculation methodology discussed in Section 2.3.2, and the HIM proposal set out in Section 3.3. As such, OPG's proposed changes to the unintended benefit adjustment account for both the newly proposed SBG spill methodology and the daily averaging proposed in the revised HIM.

Fundamentally, spill is an event that occurs only in the RT and can only be quantified after it has occurred. While spill may be forecasted in the DA timeframe, the actual spill that occurs in RT may vary for reasons such as changing market conditions between DA and RT impacting production and changes to inflows and forebay storage levels. Accordingly, OPG's proposed revised unintended benefit calculation is based on the RT LMP.

3.4.4 Revised Unintended Benefit Proposal

OPG proposes the following revised formula for the unintended benefit adjustment:

$$Unintended\ Benefit\ Adjustment = \sum_{t} \left(MW_{Spill\ RTM}(t) - MW_{Spill\ RTM\ Avg}\right) \times LMP_{RTM\ Hourly}(t)$$

Where:

$MW_{Spill\ RTM}(t)$: hourly forgone production due to spill for each hour, *t*, of the real-time market day

$MW_{Spill\ RTM\ Avg}$: average of hourly spill over the real-time market day

$LMP_{RTM\ Hourly}$ (*t*): the real-time market LMP for the resource in the hour, *t*

For reasons discussed under OPG's HIM proposal, the unintended benefit adjustment formula uses daily averaging and LMPs for settlement.

3.5 Customer Benefit

The purpose of the HIM is to provide OPG with an incentive to operate its regulated hydroelectric facilities, through time-shifting, to the benefit of consumers.[21] The importance of a clear and consistent incentive for OPG to follow market signals was recognized by the Market Surveillance Panel.[22] Consumers benefit from time shifting through reductions to total customer costs as illustrated below.

The following analysis demonstrates a modelled consumer benefit based on 2023's supply mix and OPG's understanding of the future market. OPG has conducted a modelling analysis to illustrate the proposed incentive mechanism and its benefits were the new market in place over the modelled period. This analysis is based on OPG's understanding of the new market design through IESO published design documents and IESO engagements as of the time of this application. However, until the new market is in place, the exact implementation of market design features within the new dispatch engines remains uncertain. Furthermore, market participant behavior in the new market is inherently unknown. While the presented values are not intended to forecast expected market outcomes, they aim to provide directional results on how time-shifting hydroelectric resources, a relatively low-cost generation source, can displace the need for more expensive generation sources during high price periods, and minimize

[21] EB-2010-0008 Decision, pp. 143-144.

[22] Market Surveillance Panel Monitoring Report 32: Monitoring Report on the IESO-Administered Electricity Markets dated July 16, 2020, p. 4, retrieved from: https://www.oeb.ca/sites/default/files/msp-monitoring-report-20200716.pdf.

system needs to curtail other sources during low price periods.

OPG's assessment of consumer benefits from the HIM concludes that economic time-shifting of its regulated hydroelectric generation reduces modelled consumer costs before OPG incentive payments by an average of $50M per year from 2023 to 2026. This modelled time-shifting of production results in a modelled net incentive payment to OPG of $21M per year. The average annual net customer benefit over the modelled period is therefore $29M. The analysis accounts for the market effects of time shifting: the displacement of more expensive generation (i.e., on-peak gas and imports) by hydroelectric production; increases in production and consequent GRC payments for additional on-peak generation at the regulated hydroelectric facilities; reduced payments for SBG-related forgone generation (as determined under OPG's proposal); and changes in exporter payments[23] made to the IESO for off-peak exports that result in changes in customer costs.

Chart 1 shows OPG's modelled changes in customer costs arising from the relevant factors for the modelled period, demonstrating that the cost of the incentive provides a net customer benefit. These figures represent "all-in" customer costs including changes in Global Adjustment payments, which is an important consideration as the majority of other suppliers receive contracted rates.

Chart 1: Forecast Change in Customer Costs Arising from Economic Time-shifting

Line No.	Customer Cost Changes in M$	2023	2024	2025	2026
1	Payments for Non-OPG Supplier Generation	(73)	(56)	(38)	(48)
2	Payments for OPG Generation (excluding incentive payment)	24	14	11	11
3	Payments for SBG-related Generation Curtailment	(10)	(9)	(18)	(13)
4	Export Revenues	1	(4)	1	0
5	**Change in Customer Cost excl. OPG Incentive (line 1+ line 2 + line 3 - line 4)**	**(61)**	**(47)**	**(46)**	**(49)**

[23] Sales of exports in the off-peak are typically made from contracted generation sources with contract prices that are independent of market prices. These volumes are effectively "take or pay". The consumer benefit arises from increasing the off-peak price for export sales so as to generate additional revenues that, in turn, reduce Global Adjustment payments by consumers.

Line No.	Customer Cost Changes in M$	2023	2024	2025	2026
6	**Additional Payments to OPG**				
7	DA HIM	29	21	25	28
8	RT HIM	0.3	0.0	0.1	(0.1)
9	Unintended Benefits Adjustment	(4)	(3)	(5)	(4)
10	**Total Additional Payments to OPG (line 7 + line 8 + line 9)**	**25.3**	**18**	**20.1**	**23.9**
11	**Net Customer Cost Change (line 5 + line 10)**	**(36)**	**(29)**	**(26)**	**(25)**

4.0 MAKE WHOLE PAYMENTS

In the current market, when resources are dispatched uneconomically at the uniform price relative to offered costs, resources receive MWPs (in the form of CMSCs) to compensate for operating cost loss (if scheduled to run when price is uneconomic) or an opportunity cost loss (if held back when price was economic to run). MWPs will continue in the new market as there will be instances when participant resources are scheduled or dispatched higher or lower than is economical at their LMP relative to their offered costs, in both the DAM and the RTM.

4.1 Impacts of MRP on Make Whole Payments

According to the IESO's SSM high-level design, relative to the current two schedule market, the need for MWPs in the new market is expected to be infrequent and immaterial.[24] This is due to the introduction of a single schedule market and locational pricing which the IESO expects will eliminate the most significant cause of divergence between dispatch and price (congestion and losses) that results in out-of-market payments presently. CMSCs, as a current form of MWPs, will be eliminated under MRP. However, there may continue to be conditions in the new market where resources are needed to be scheduled or dispatched out-of-merit that would result in lost cost or lost opportunity requiring MWPs. The introduction of a DAM and RTM will result in both DA MWPs and RT MWPs.

[24] SSMHLD, p. 50.

Per the DAM high-level design, in the DA timeframe, conditions that could trigger out-of-merit scheduling include: “constraint violations, co-optimization of energy with operating reserve or the commitment of an NQS [Non-quick start] resource in the reliability pass of the DAM engine.”[25] Per the SSM high-level design, RT MWP can result from special instructions for “constraint violations, multi-interval optimization, co-optimization with operating reserve or emergency control actions. These dispatch instructions may be generated automatically by the IESO’s optimized dispatch, or manually by the control room based on real-time system operation.”[26] The IESO will be introducing new settlement codes for MWPs.

4.2 Continuation of Current Treatment of Make Whole Payments

OPG proposes that the current treatment of MWPs under OPG's Regulated Framework continue in the new market structure. In EB-2007-0905, the OEB accepted OPG’s evidence that the CMSC payments, a form of MWP, are designed to compensate for losses that are not otherwise incorporated into the revenue requirement as they are difficult to forecast and small in magnitude.[27] As the new settlement coded MWPs under MRP are effectively a continuation of the current MWPs for forgone generation (but less frequent), OPG proposes to continue to retain any real-time MWPs, net of any adjustments,[28] separate from the regulated payment amounts structure. Such payments are not reflected in the existing payment amounts and would serve to compensate OPG for an identified loss resulting from IESO dispatches. OPG's proposal to retain RT MWPs is consistent with the principle that OPG is compensated with respect to output generated at its regulated facilities, in accordance with Section 78.1 of the *Ontario Energy Board Act, 1998*.[29]

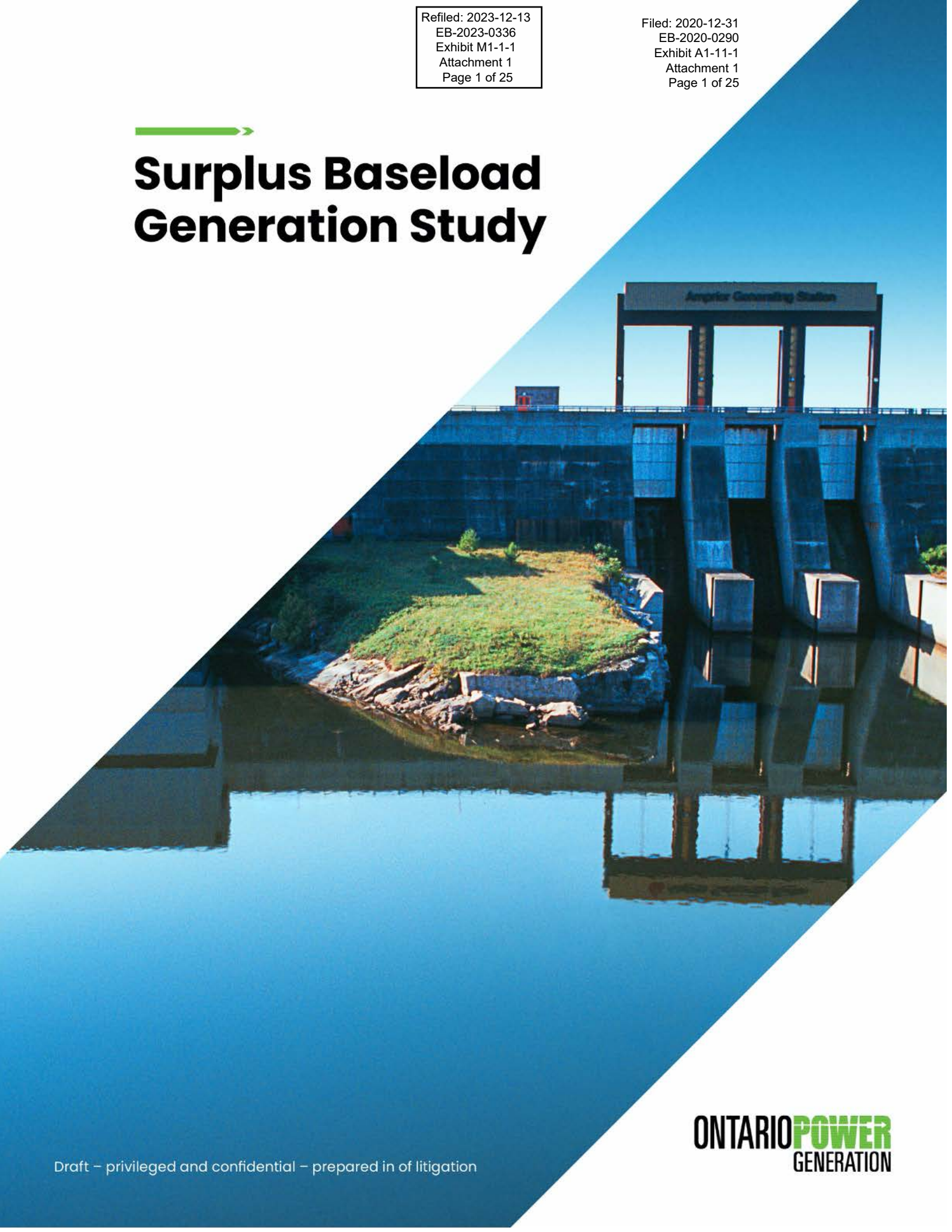
[25] DAMHLD, p. 51.
[26] SSMHLD, p. 50.
[27] EB-2007-0905 Decision, p. 50.
[28] Under the new market design, the IESO may adjust MWPs in accordance with identified eligibility criteria.
[29] OPG is not seeking approval with respect to the treatment of DA MWPs as they will form part of the day-ahead market settlement and have no impact on OPG's actual output.

ATTACHMENTS

Attachment 1: Surplus Baseload Generation Study

Attachment 2: List of Acronyms

Surplus Baseload Generation Study



ONTARIO POWER GENERATION

Contents

1. Introduction and Purpose of Study 3
2. Surplus Baseload Generation Conditions 5
2.1. Definition of SBG Conditions 5
2.2. IESO Forecasts of SBG Conditions 6
2.3. Current IESO Long Term Forecast of SBG 7
2.4. The IESO and the Development of a Dispatch Order 9
2.5 The Economic Benefits of the Current Dispatch Order 14
2.6 The SBG Variance Account 15
2.7 SBG Spill Forecast 16
3. OPG's Management of Facilities in Response to SBG Conditions 17
3.1 Long Term 18
3.2 Near Term 18
3.3 Short term 20
4. Potential Other Actions that OPG could take in Response to SBG Conditions 23
5. Conclusion 24

1. Introduction and Purpose of Study

In EB-2018-0243, OPG applied to the Ontario Energy Board ("OEB") for approval to dispose of the balances in certain deferral and variance accounts, including the Surplus Baseload Generation Variance Account ("SBG Variance Account").

The parties reached a Settlement Proposal in respect of OPG's application. By Decision and Order dated February 21, 2019, the OEB approved the Proposal. As part of the Settlement, OPG agreed to prepare and file in the next rebasing application a forward-looking study to assess the management of its generating facilities in relation to SBG conditions ("Study"):

> OPG undertakes to prepare a forward looking study to assess OPG's management of its generating facilities in relation to surplus baseload generation conditions, including any opportunities OPG can take to help the system respond to surplus baseload generation conditions in order to mitigate the associated cost to customers. In preparing the study, OPG will consult with the IESO and take into consideration IESO forecasts. Such study will be filed as part of OPG's next rebasing application. [1]

This Study is in response to the OEB-approved Settlement Proposal. It addresses the following main questions:

- What constitutes SBG conditions and how are such conditions managed by the Independent Electricity System Operator ("IESO")?
- How much SBG is expected in the IESO planning horizon?

[1] EB-2018-0243, Settlement Proposal dated January 30, 2019, p. 15.

- How does OPG manage its generating facilities in response to SBG conditions?
- What other potential actions could OPG take in response to SBG conditions and are those actions any more appropriate than those being currently taken?

The IESO was consulted in the development of this Study and provided the following comments:

> The IESO reviewed the draft report and did not have concerns with the following conclusions noted in the report:
>
> a. SBG conditions are expected to decline, as illustrated by the Surplus Baseload Generation ("SBG") forecast in the IESO's Annual Planning Outlook – December 2020.
>
> b. IESO will continue to use economic dispatch order to respond to SBG conditions that were established as a result of (SE-91) *A Discussion Paper for Stakeholder Engagement 91 (Renewable Integration)*[2] in 2013 and the Floor Price Review completed in 2015.
>
> c. The current dispatch order continues to yield economic benefits, based on the principles and conclusions outlined in SE-91.
>
> d. OPG's presented alternative consideration in scheduling hydroelectric outages is not preferred as it will reduce available supply and may create a need for replacement energy and higher system costs.
>
> e. OPG's presented potential other actions in response to SBG conditions, under section 4, would be at odds with the approach the IESO has taken to establish an economic merit order for dispatch during periods of SBG.

[2] IESO, Dispatch Order for Baseload Generation, A Discussion Paper for Stakeholder Engagement 91 (Renewable Integration), dated November 2, 2011.

2. Surplus Baseload Generation Conditions

This section of the Study discusses system conditions that lead to SBG, outlines the role of the IESO in forecasting and managing SBG conditions through the use of a dispatch order, summarizes the economic and environmental benefits of the current dispatch order, and reviews the OEB's approach to SBG impacts in setting OPG's hydroelectric payment amounts.

2.1. Definition of SBG Conditions

According to the IESO, SBG is a system condition that occurs when electricity production that can be generated from baseload facilities exceeds demand.[3] Electricity from baseload facilities is made up of generation from nuclear facilitates, variable generators such as wind and solar, baseload hydroelectric energy, and other electricity generation sources that may contribute to baseload supply such as self-scheduling resources, gas plant minimums, and commissioning units. Surplus generation, in relation to demand net of economic exports to interconnected jurisdictions, can cause some of OPG's hydroelectric resources to forgo generation in the form of hydroelectric spill.

The frequency and duration of SBG conditions is largely driven by the magnitude of baseload generation online, economic intertie activity, and the various factors that impact the demand for electricity.

[3] EB-2010-0008 Ex. E1-1-1, p. 5, line 16.

2.2. IESO Forecasts of SBG Conditions

The IESO issues forecasts of demand and supply for the electricity market, including forecasts of SBG, over a variety of time frames ranging from balance of current day to decades into the future. Specifically, the current IESO forecast horizons are long term, near term and short term. The IESO describes the functions of these forecasts, including the Reliability Outlook and the Ontario Annual Planning Outlook ("APO"), as follows:

> The results of our reliability assessments drive decision making, whether short term – as in when to schedule outages – or, over the long term, which allows developers and investors to respond to the needs and price signals, invest accordingly.[4]

Long Term (up to 20 years) - Longer term forward studies such as the APO include SBG forecasts as part of an energy adequacy outlook. The purpose of the adequacy outlook is to assess Ontario's ability to meet its own electricity needs and better characterize the nature of future needs.[5]

Near-term (up to 18 months) – The IESO uses its near-term forecast to make market participants aware of potential SBG conditions, so they can assess and react to potential impact on their facilities.[6]

[4] IESO Reliability Outlook, From January 2020 to December 2024, p. 1.

[5] Annual Planning Outlook, December 2020, Section 3.3, p 44

[6] Market Manual 7.2, Near Term Assessments and Reports, Section 4.2, p. 8.

Short-term (real time or current day to days ahead) – The IESO publishes short-term forecasts hourly, daily, and days ahead. The IESO describes the purpose of the short term SBG forecast as follows:

> The IESO endeavours to provide as much information in advance so that market participants are aware of potential SBG conditions and can plan their business and respond appropriately.[7]

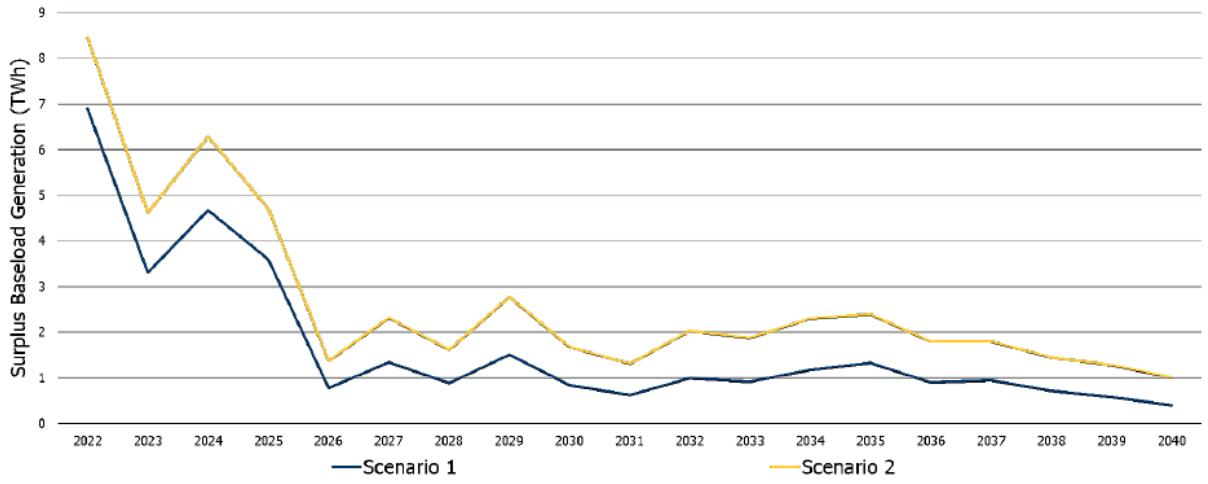
2.3. Current IESO Long Term Forecast of SBG

The most recent long term forecast of SBG available at the time of this Study was released as part of the IESO's Annual Planning Outlook issued in December 2020.[8] With the emergence of the COVID-19 global pandemic, the 2020 Annual Planning Outlook forecasts demand using two scenarios based on different assumptions for the pace of economic recovery. Scenario 1 assumes a shallow economic recession in 2020 and early 2021 followed by a rapid economic recovery in 2021 and 2022, with demand expected to reach pre-pandemic levels by the end of 2022. Scenario 2 assumes a deep economic recession until the end of 2021, followed by a slow multi-year economic recovery starting in 2022, with demand not expected to reach pre-pandemic levels until 2024.

[7] http://www.ieso.ca/en/Power-Data/Data-Directory, See SBG Forecast Report.

[8] IESO Annual Planning Outlook December 2020, p. 47.

Figure 1 – IESO Annual Planning Outlook-Dec 2020: SBG Forecast



The IESO's forecast extends to the year 2040 and shows SBG conditions declining through to 2026 and remaining at a much lower level than recently experienced going forward to 2040. The IESO attributes the decrease in SBG conditions to nuclear refurbishments and retirements, as well as rising demand, and explains that over the next 20 years, SBG is expected to be managed using existing market mechanisms, such as exports, variable generation curtailment, and nuclear manoeuvers/curtailment. The IESO has also noted that demand is expected to rebound past levels forecast in the previous APO due to growth in electric vehicles, and in the agricultural and residential sectors.[9]

[9] "2020 APO Addresses Impacts of COVID-19, and Shifting Energy Landscape", IESO News Release, December 17, 2020

2.4. The IESO and the Development of a Dispatch Order

The IESO is responsible for ensuring the reliability and efficiency of Ontario's power grid.[10] The IESO manages the power system in real-time, plans the province's future energy needs, enables conservation, and facilitates the efficient operation of the electricity market in order to support sector evolution.

IESO dispatches generators in a manner seeking to achieve an efficient and lowest cost dispatch to meet demand.[11] During periods of SBG, the IESO-administered market utilizes a "dispatch order for baseload generation which will produce real-time dispatch outcomes that promote market efficiency, achieve cost-effectiveness, [and] minimize environmental impacts".[12] The current concept of dispatch order and the relevant Market Rules and Market Manuals were developed as a result of IESO initiated consultation activities beginning in late 2010. At the time, SBG had recently emerged as a market condition. As the IESO explained:

> Since 2008, we have seen a significant increase in the frequency and duration of surplus baseload generation events. These events are typically associated with negative market and locational prices and the need to spill water at hydroelectric stations or to reduce the output of, or completely shut down, nuclear units. In anticipation of these events, we initiate

[10] IESO 2019-2021 Business Plan, p. 3.

[11] Renewable Integration Stakeholder Engagement SE-91, p. 8.

[12] Dispatch Order for Baseload Generation, A Discussion Paper for Stakeholder Engagement 91 (Renewable Integration) dated November 2, 2011, p. 3.

> communications with baseload generation operators in order to assess their dispatch flexibility should we encounter SBG. Through these conversations, and through operating experience under SBG conditions, we have come to better understand the technical, regulatory and public safety restrictions that place limits on how hydroelectric and nuclear generation operators manoeuvre the output of their units when the electricity system is faced with a generation oversupply.[13]

It was further anticipated by the IESO that the pending elimination of coal fired units and the increase in natural gas generation could increase the frequency of SBG conditions.

> With the retirement of the coal fleet, which typically has low minimum loading points and broad dispatch capability, and the building of a larger natural gas fleet, which typically has higher minimum loading points and less dispatchable range, bringing gas generation online to meet increasing demand and replace decreasing wind generation can lead to surplus generation conditions. In these instances, it may be necessary to reduce the output from wind generation a few hours in advance in order to avoid oversupply conditions, either globally or locally.[14]

In response, the IESO launched multiple electricity market stakeholder initiatives under the umbrella of *Stakeholder Engagement SE 91 – Renewable Integration*. The purpose of the initiative was to integrate new renewable generation (wind and solar) into system and

[13] IESO Dispatch Order for Baseload Generation, A Discussion Paper for Stakeholder Engagement 91 (Renewable Integration), November 2, 2011, p. 6.

[14] Ibid, p. 5.

market operations,[15] with the expectation that the integration of renewables into the economic dispatch model should help resolve issues like SBG.[16]

Through its stakeholder engagement process, the IESO established a list of principles that formed the basis for the development of new Market Rules and Market Manuals, resulting in changes to the operations of the power system and the Energy Market. Design Principle 10 was particularly significant:

> The IESO may establish various floor prices for offers from baseload generators (e.g. wind, must-run hydro, nuclear, etc.) to ensure efficient dispatches during periods of local and/or global surplus baseload generation (SBG) events.[17]

In the process of establishing floor prices, the IESO acknowledged that hydroelectric facilities may be required to generate in order to meet various safety and regulatory obligations. In addition, based on economic, regulatory, and environmental analysis, the IESO concluded that using coarse hydroelectric spill and/or nuclear manoeuvres results in over-curtailment and requires replacement energy that results in higher cost and carbon emissions.[18] Ultimately, the IESO established a dispatch order by setting floor prices for the various forms of generation beginning with -$15/MWh and -$10/MWh for

---

[15] IESO letter, B. Campbell, "Re. Integrating Renewable Resources-Design Principles", December 9, 2010.

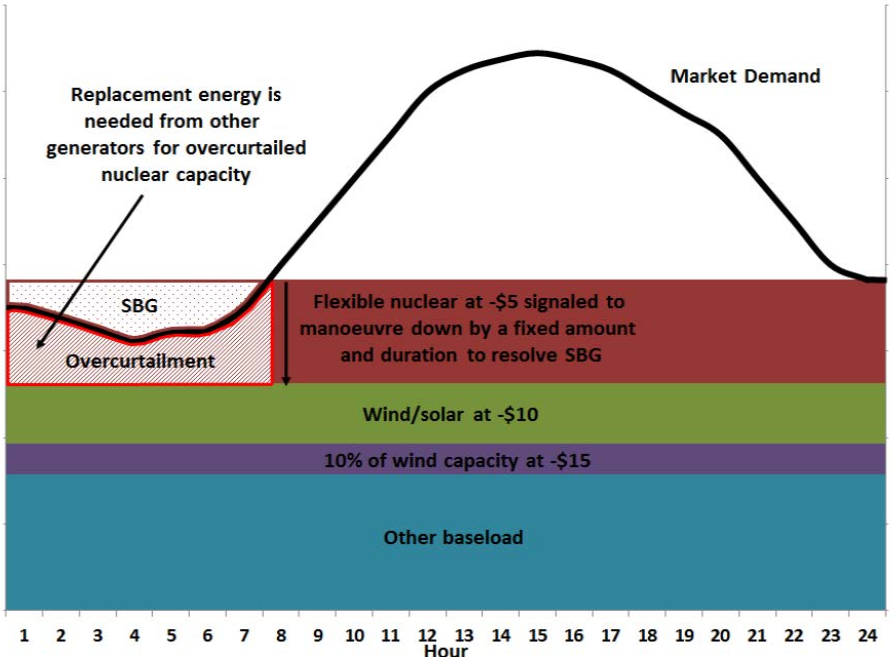
[16] Renewable Integration Stakeholder Engagement SE-91, p. 8.

[17] IESO, Renewable Integration SE 91.

[18] SE-91, Response to Stakeholder Feedback, April 26, 2012

10% and 90% of variable generation respectively, and -$5/MWh for flexible nuclear[19] generation as illustrated in Figure 2 below.

Figure 2 : IESO Dispatch Order – 2013 [20]



The IESO indicated that, "the implementation of floor prices will achieve an appropriate dispatch outcome, a more efficient market, while at the same time increasing the environmental benefit of Ontario's electricity system."[21] The above floor prices were implemented in September of 2013 and further revised in 2016[22], with the dispatch order

[19] Flexible nuclear is the maneuvering associated with Condenser Steam Discharge Valve (CSDV) reductions at the Bruce facilities.

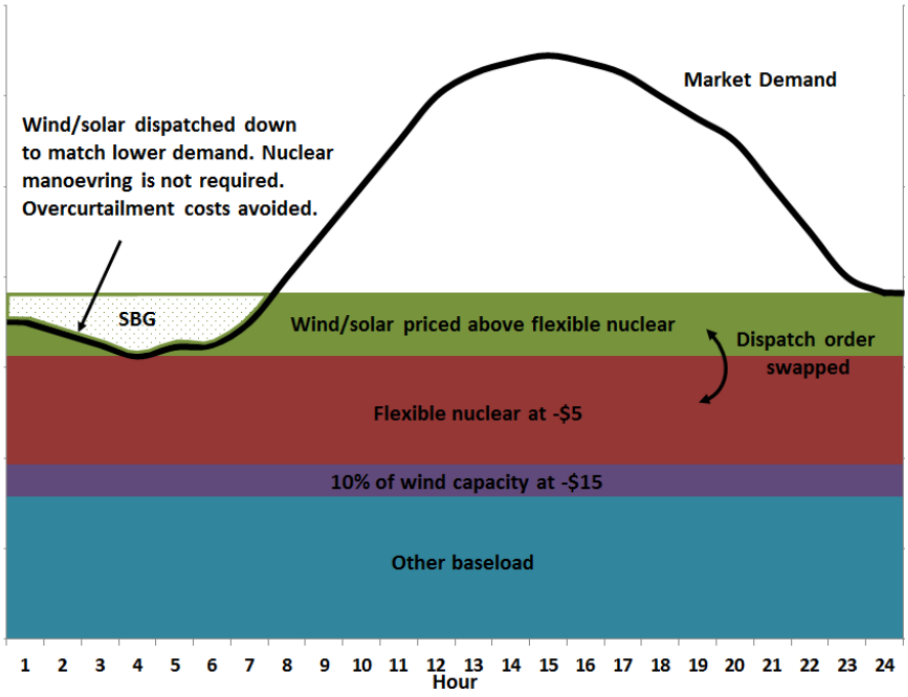
[20] IESO Floor Price Review Stakeholder Engagement, "Analyzing the Impact of Changing the Floor Price for Renewable Resources", July 2015.

[21] IESO Presentation SE-91 Aug 8, 2012.

[22] IESO Stakeholder Engagement Notification, "Floor Prices for Variable Generation – Update", December 2, 2015.

of flexible nuclear generation and 90% of variable generation reversed, as illustrated in Figure 3 below.

Figure 3: IESO Revised Dispatch Order - 2016



As highlighted previously, there is no mandated floor price for OPG's hydroelectric units. As OPG explained in previous OEB proceedings, its offer strategy for hydroelectric energy that is not must-run and where forebay[23] storage capability has been utilized based on

[23] Forebay is the area of upstream water that comes into contact with a dam.

market signals, is tied to its marginal cost of production. This cost is the Gross Revenue Charge ("GRC"). [24]

OPG's GRC based offers range approximately between $5 and $14.40/MWh reflecting the applicable GRC rates. There are few, if any, generating assets in the market that are dispatchable at prices between $0/MWh and OPG's highest GRC offer of $14.40/MWh. As a result, during periods of SBG, OPG's regulated hydroelectric units are dispatched down first (i.e., instructed to spill water) at locations where spill does not violate safety, environmental or regulatory restrictions.

2.5 The Economic Benefits of the Current Dispatch Order

There are significant economic and other benefits to the current dispatch order. In SE-91, the IESO indicated that the "environmental and financial savings achieved by incorporating wind into the 5-minute dispatch are estimated to be $180 - $225 million and 1.6 - 2.0 Mt of avoided CO2 emissions in 2014".[25] These benefits were largely attributed to the implementation of the dispatch order that minimizes over-curtailment utilizing OPG's hydroelectric assets offered at GRC followed by the above noted floor prices for other forms of electricity generation.

---

[24] GRC are payments made by OPG to the Province of Ontario and apply to hydroelectric facilities under section 92.1 of the *Electricity Act, 1998*. Further details are available in EB-2013-0321 Ex. F1-4-1

[25] SE-91 Presentation dated January 24, 2012, p. 9.

In 2015, in recommending that the relative order of flexible nuclear and solar/wind be switched to better reflect the marginal cost of renewable generation, the IESO indicated that this would result in further savings of $5 to $8 million for each year in the period 2016 to 2018, [26] in addition to the $180 - $225 million in savings estimated during SE-91.

2.6 The SBG Variance Account

At the time of OPG's EB-2010-0008 payment amounts proceeding, SBG had become a more prevalent market phenomenon due to reduced electricity demand, resulting from depressed economic conditions and an increase in available electricity supply, which had a material impact on the accuracy of OPG's hydroelectric production forecast absent an explicit adjustment for the impact of SBG conditions. In response, the OEB established the SBG Variance Account to record the financial impact of foregone production at OPG's regulated hydroelectric facilities due to SBG conditions.

In establishing the account, the OEB concluded that rather than reflecting the impact of SBG conditions in the forecast of regulated hydroelectric production as initially proposed by OPG, it was better to capture such impacts in a variance account, resulting in a production forecast being set on a pre-SBG basis.[27] The OEB also accepted that SBG was being addressed through market mechanisms implemented by the IESO, in addition to

[26] IESO Floor Price Review Stakeholder Engagement, "Analyzing the Impact of Changing the Floor Price for Renewable Resources", July 2015.

[27] EB-2010-0008 Decision with Reasons, p. 22.

acknowledging evidence that safety, environmental and other factors are taken into account by OPG when responding to SBG conditions.[28] OPG's evidence included an explanation that, from a safety and operational perspective, SBG is best managed at the Sir Adam Beck facilities where water associated with GRC offers at $14.40/MWh can generally be safely spilled over the Niagara Falls and that for other regulated hydroelectric facilities, spill may be subject to additional safety, environmental and regulatory considerations.[29]

Similarly, in EB-2013-0321, the OEB approved a regulated hydroelectric production forecast without a reduction for SBG conditions, and continued the SBG Variance Account, recognizing SBG forecast uncertainties.[30] The OEB also approved the SBG Variance Account balance.[31] Since EB-2013-0321, the account has been continued and the account balances have been approved in each subsequent OPG proceeding.

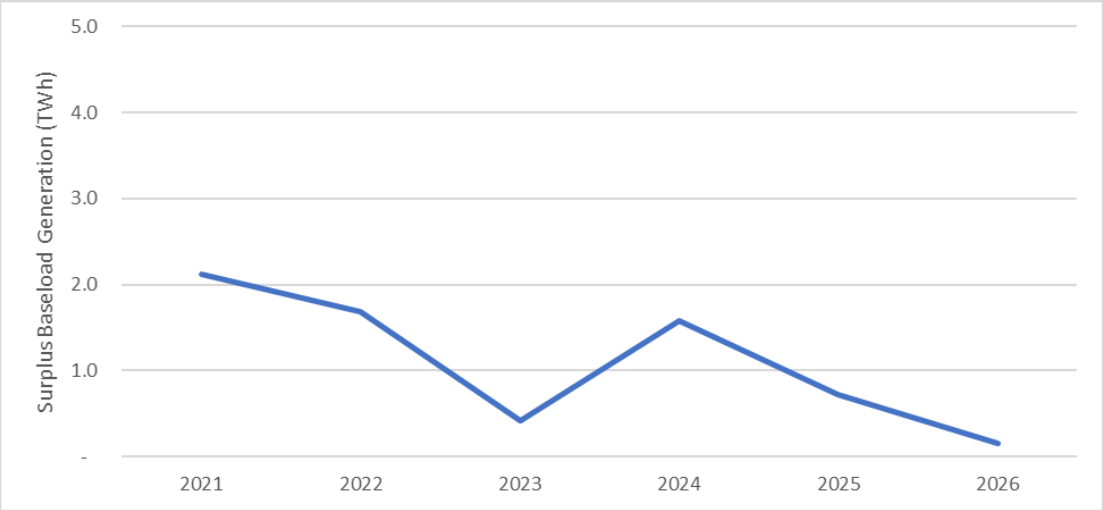
2.7 SBG Spill Forecast

As OPG explained in EB-2013-0321, SBG conditions impacting OPG's regulated hydroelectric facilities are deemed to be present when the prevailing market price is at, or falls below GRC at $14.40/MWh, which represents the minimum offer price that would allow OPG to cover its marginal production costs.[32]

---

[28] EB-2010-0008 Decision with Reasons, p. 23.
[29] Ibid
[30] EB-2013-0321 Decision with Reasons, p. 9.
[31] EB-2013-0321 Decision with Reasons, p. 119.
[32] EB-2013-0321 Ex. E1-2-1, p. 3, lines 24-29.

Figure 4 - OPG Regulated Hydroelectric SBG Spill (TWh)



As illustrated in Figure 4 above, and in alignment with IESO's long term outlook, OPG's forecast[33] of the declining presence of SBG conditions points to a significantly lower expected SBG spill over the 2021 to 2026 period. As noted previously, the drivers for lower SBG conditions are nuclear refurbishments and retirements, as well as rising demand. The declining SBG conditions will continue to be managed by the IESO using existing market tools, as discussed in Section 2.3.

3. OPG's Management of Facilities in Response to SBG Conditions

The following section describes actions and considerations OPG takes in managing its facilities in response to SBG conditions.

[33] Based on OPG's forecast of SBG spill as stated in OPG's 2020-2026 Business Plan.

3.1 Long Term

OPG uses forward-looking generation models for the purposes of business planning and these models include a forecast of hydroelectric spill as a result of SBG conditions. OPG considers IESO's long term forecasts, including IESO's SBG conditions forecast, in the calibration of these models.[34]

3.2 Near Term

On a near term basis OPG considers SBG forecasts, including the IESO's forecast, as an input to its hydroelectric storage management plans and outage decisions.

Seasonally, OPG puts in place hydroelectric storage drawdown plans which create room in station forebays, where practicable, in advance of freshet.[35] Given the typical seasonal pattern of precipitation related to rain and snowmelt, water levels in river system reservoirs are managed over a period of months to adhere to the hydrological limits, flows and elevations as specified by the respective regulation or water management plan. For example, during winter months, water in reservoirs is drawn down by generating, which creates storage capacity to accommodate expected higher levels of water inflows expected later in the spring period. This volumetric storage management (i.e., drawdown

[34] OPG may make changes to inputs or algorithms in the models to better align with IESO's data to help improve the quality and accuracy of OPG's forecasts.

[35] Freshet is the higher inflow of water into a lake or river system typically occurring in the spring during snow melt and/or heavy rain.

strategy), is based on hydrological criteria found in water management plans designed to mitigate the effects of flooding during higher spring flows.

While the purpose of hydroelectric storage management is not strictly to respond to market conditions, their implementation affords an opportunity to take SBG into consideration. In this respect, when implementing its water management plans, OPG factors in market signals by withdrawing from storage during days or hours of expected stronger Hourly Ontario Energy Price ("HOEP"). From a seasonal perspective, the increased forebay room has a favourable affect on SBG conditions, which are typically more prevalent during higher spring flows.

OPG recognizes that outage planning at its baseload generating facilities can impact SBG conditions. In particular, many of OPG's Nuclear outages are scheduled in low demand and high SBG fall and spring periods of the year, such that nuclear units are available to a greater extent during the high demand summer and winter periods. Scheduling nuclear outages during high SBG periods directly contributes to a reduction in SBG conditions through the decrease of baseload generation.

OPG's hydroelectric outage planning methodology continues to focus on reliability-based maintenance while taking into consideration water availability. As OPG stated in EB-2013-0321, the objective of hydroelectric production planning is achieving total utilization of available water and, as a result, outages for hydroelectric units are primarily

taken during lower flow periods.[36] This approach carries broader system benefits as hydroelectric energy is made available to the system. As SBG conditions are typically only experienced during the lower demand hours in the day, hydroelectric energy is available to offset the need for incremental resources dispatched during peak hours.

3.3 Short Term

As described previously, expectations of SBG conditions in the real time and day ahead markets are conveyed through market prices. OPG's hydroelectric assets respond differently to price signals depending on their operational and market behaviour type: *baseload*, *run of the river, intermediate,* and *peaking*.

Baseload hydroelectric stations operate at nearly constant output and have limited storage ability. At these facilities, hydroelectric energy must either be generated or will typically result in spill.

Run of the River hydroelectric stations have minimal forebay storage and pass some or all inflow through one or more turbines on a continuous basis, with the remainder (if any) going over an existing spillway.

Intermediate and *Peaking* stations have higher ability to time shift production by storing water compared to *baseload* stations. Storage capabilities vary at each hydroelectric

[36] EB-2013-0321, Ex. E-2-1, p. 3, lines 1-2.

station and are also significantly affected by water flows, where high flows limit flexibility of time shifting.

In operating its *intermediate* and *peaking* facilities, OPG follows market price signals based on OEB approved Hydroelectric Incentive Mechanism ("HIM"), which is designed to reward pricing behaviour that shifts generation into higher priced periods. Time-shifting is achieved through OPG's pricing of hydroelectric energy based on opportunity cost which reflects the value of energy over a forward-looking storage horizon. Hydroelectric energy with no remaining forebay storage opportunity is priced at GRC consistent with the basis for the IESO's dispatch order described above.

The current HIM was initially established by the OEB in EB-2010-0008. In last reviewing the HIM in EB-2013-0321, the OEB noted that "shifting production of relatively low cost hydroelectric power from periods of low demand to periods of high demand will generally benefit all consumers by lowering the market price during high demand period" and found that the HIM has "encouraged appropriate use of the regulated hydroelectric facilities to supply energy in response to market prices."[37]

Additionally, by using the HIM to move hydroelectric production to higher price periods, and flexibly pricing hydroelectric energy subject to forebay storage limitations at GRC, OPG uses market price signals to support the IESO's response SBG conditions in accordance with the established dispatch order.

[37] EB-2013-0321 Decision with Reasons, pp. 10, 12.

The Sir Adam Beck Pump Generation Station ("PGS") is OPG's largest hydroelectric storage facility and its operation is informed by the economic drivers associated with the HIM. As explained in EB-2010-0008, subject to operational constraints, the PGS is deployed based on a forecast of economic opportunities. While the IESO is responsible for responding to surplus conditions, when anticipating SBG, OPG establishes PGS offer prices so that output reductions are based on market economics and operational constraints.[38]

In addition to economic drivers and operational constraints, use of the PGS is also subject to the impact of water flows, with stronger water conditions, such as those experienced in recent years, reducing opportunities to time shift. OPG's current forecast of normalizing Great Lakes' hydrological conditions indicates that water flows will have a diminishing impact on PGS operations on a forward basis.

[38] EB-2018-0243, JT1.5.

4. Potential Other Actions that OPG could take in Response to SBG Conditions

This section discusses other potential actions OPG could take in response to SBG conditions, including an assessment as to whether such actions are any more appropriate than those currently being taken.

Two types of actions to respond to SBG conditions are considered: physical and market-based.

From a physical perspective, OPG could attempt to shift some hydroelectric unit outages to periods of high water flows, which historically have coincided with a presence of SBG conditions. OPG expects that such change will have an overall negative impact as it will remove hydroelectric energy from the system. As SBG conditions typically occur in hours with low demand, hydroelectric energy continues to contribute to a cost efficient dispatch of resources over the balance of the day. The removal of incremental hydroelectric energy as a result of additional outages during freshet would be expected to create a need for replacement energy, leading to additional system cost.

From a market-based perspective, there are two alternative offer strategies:

1. OPG could seek to minimize the SBG impact recorded in the SBG Variance Account by changing its GRC pricing strategy for hydroelectric resources to a price below flexible nuclear (given that hydroelectric resources are not subject to a floor price).

Under this scenario variable generation would be dispatched down first during SBG conditions, followed by flexible nuclear, with OPG hydroelectric facilities spilling last.

2. OPG could price its flexible hydroelectric resources between the minimum floor prices of variable generation and flexible nuclear. This would result in variable generation being curtailed before OPG hydroelectric but OPG hydroelectric would be dispatched down prior to flexible nuclear.

Both of these scenarios would be contrary to the existing dispatch order established by the IESO, which would erode the previously described economic benefits.[39] Therefore, while these strategies would reduce amounts recorded in the SBG Variance Account, they would have a significant negative impact on the system and increase the overall cost to consumers. OPG has not implemented these strategies.

In preparing this report, OPG reviewed and discussed its hydroelectric offer price strategy with the IESO, who has affirmed that it supports maintaining the current dispatch order established through the stakeholder engagement process and as part of SE-91.

5. Conclusion

OPG considers forecast of SBG conditions across all time horizons. The actions OPG currently takes in relation to such conditions are appropriate and consistent with the

[39] http://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/fpr/FRP-20150717-Navigant.pdf?la=en

physical constraints associated with OPG's generation facilities, relevant water management plans, IESO's reliability requirements and market dispatch order, and economic signals in line with the approved HIM. Other potential strategies in relation to SBG conditions would have a significant, negative impact on the efficiency of the electricity market and erode the economic benefits associated with the current dispatch order to the disadvantage of consumers.

List of Acronyms

CMSC: Congestion Management Settlement Credits
DA: Day-Ahead
DACP: Day-Ahead Commitment Process
DAM: Day-Ahead Market
GRC: Gross Revenue Charge
HIM: Hydroelectric Incentive Mechanism
IESO: Independent Electricity System Operator
LMP: Locational Marginal Price
MCP: Market Clearing Price
MRP: Market Renewal Program
MWP: Make Whole Payment
PGS: Sir Adam Beck Pump Generating Station
RT: Real-Time
RTM: Real-Time Market
SBG: Surplus Baseload Generation
SBGVA: Surplus Baseload Generation Variance Account
SSM: Single Schedule Market