

ONTARIO POWER GENERATION INC.
MANAGEMENT'S DISCUSSION AND ANALYSIS

DECEMBER 31, 2016

[DRAFT]



2016 YEAR-END REPORT

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ONTARIO POWER GENERATION INC.

MANAGEMENT'S DISCUSSION AND ANALYSIS

This Management's Discussion and Analysis (MD&A) should be read in conjunction with the audited consolidated financial statements and accompanying notes of Ontario Power Generation Inc. (OPG or Company) as at and for the year ended December 31, 2016. OPG's consolidated financial statements are prepared in accordance with United States generally accepted accounting principles (US GAAP) and are presented in Canadian dollars.

As required by *Ontario Regulation 395/11*, as amended, a regulation under the *Financial Administration Act* (Ontario) (FAA), OPG adopted US GAAP for the presentation of its consolidated financial statements, effective January 1, 2012. The Ontario Securities Commission (OSC) approved an exemption that allows OPG to apply US GAAP up to January 1, 2019. The term of the exemption is subject to certain conditions, which may result in the expiry of the exemption prior to January 1, 2019. For details, refer to the heading, *Exemptive Relief for Reporting under US GAAP*, in the section *Critical Accounting Policies and Estimates*. This MD&A is dated March 10, 2017.

FORWARD-LOOKING STATEMENTS

The MD&A contains forward-looking statements that reflect OPG's current views regarding certain future events and circumstances. Any statement contained in this document that is not current or historical is a forward-looking statement. OPG generally uses words such as "anticipate", "believe", "foresee", "forecast", "estimate", "expect", "schedule", "intend", "plan", "project", "seek", "target", "goal", "strategy", "may", "will", "should", "could", and other similar words and expressions to indicate forward-looking statements. The absence of any such word or expression does not indicate that a statement is not forward-looking.

All forward-looking statements involve inherent assumptions, risks, and uncertainties, including those set out under the section, *Risk Management*, and forecasts discussed under the section, *Core Business, Strategy and Outlook*. All forward-looking statements could be inaccurate to a material degree. In particular, forward-looking statements may contain assumptions such as those relating to OPG's generating station performance and availability, fuel costs, surplus baseload generation (SBG), cost of fixed asset removal and nuclear waste management, performance and earnings of investment funds, refurbishment of existing facilities, development and construction of new facilities, pension and other post-employment benefit (OPEB) obligations and funds, income taxes, proposed new legislation, the ongoing evolution of Ontario's electricity industry, environmental and other regulatory requirements, health, safety and environmental developments, business continuity events, the weather, financing and liquidity, applications to the Ontario Energy Board (OEB) for regulatory prices, the impact of regulatory decisions by the OEB, and forecasts of earnings, cash flows, Funds from Operations (FFO) Adjusted Interest Coverage, Return on Common Equity Excluding Accumulated Other Comprehensive Income (ROE Excluding AOCI), and capital expenditures. Accordingly, undue reliance should not be placed on any forward-looking statement. The forward-looking statements included in this MD&A are made only as of the date of this MD&A. Except as required by applicable securities laws, OPG does not undertake to publicly update these forward-looking statements to reflect new information, future events, or otherwise.

THE COMPANY

OPG is an Ontario-based electricity generation company whose principal business is the generation and sale of electricity in Ontario. OPG was established under the *Business Corporations Act (Ontario)* (OBCA) and is wholly owned by the Province of Ontario (Province or Shareholder).

As at December 31, 2016, OPG's electricity generation portfolio had an in-service capacity of 16,177 megawatts (MW). OPG operates two nuclear generating stations, 65 hydroelectric generating stations, three thermal generating stations, and one wind power turbine. In addition, OPG and TransCanada Energy Ltd. co-own the 550 MW Portlands Energy Centre (PEC) gas-fired combined cycle generating station (GS). OPG and ATCO Power Canada Ltd. co-own the 560 MW Brighton Beach gas-fired combined cycle GS (Brighton Beach). OPG's 50 percent share of the in-service capacity and generation volume of these co-owned facilities is included in the generation portfolio statistics set out in this report. The income from the co-owned facilities is accounted for using the equity method of accounting, and OPG's share of income is presented as income from investments subject to significant influence in the Contracted Generation Portfolio segment.

OPG also owns two other nuclear generating stations, the Bruce A GS and the Bruce B GS, which are leased on a long-term basis to Bruce Power LP (Bruce Power). Income from these leased stations is included in revenue under the Regulated – Nuclear Generation segment. The leased stations are not included in the generation portfolio statistics set out in this report.

All of OPG's owned and co-owned generating facilities are located in Ontario.

OPG's Reporting Structure

The composition of OPG's reportable business segments is as follows:

- Regulated – Nuclear Generation
- Regulated – Nuclear Waste Management
- Regulated – Hydroelectric
- Contracted Generation Portfolio
- Services, Trading, and Other Non-Generation.

OPG receives regulated prices for electricity generated from most of its hydroelectric facilities and all of the nuclear facilities that it operates (collectively, prescribed facilities or regulated facilities). This includes the following facilities:

- the six hydroelectric generating stations prescribed for rate regulation prior to 2014, as follows:
 - Sir Adam Beck 1, 2 and Pump hydroelectric generating stations
 - DeCew Falls 1 and 2 hydroelectric generating stations
 - R.H. Saunders hydroelectric GS
- the 48 hydroelectric generating stations prescribed for rate regulation effective in 2014
- Pickering Nuclear GS (Pickering GS)
- Darlington Nuclear GS (Darlington GS).

The operating results related to these regulated facilities are described under the Regulated – Nuclear Generation, Regulated – Nuclear Waste Management, and Regulated – Hydroelectric segments. For the remainder of OPG's operating generating facilities, the operating results are described under the Contracted Generation Portfolio segment. A description of all OPG's segments is provided under the section, *Business Segments*.

In-Service Generating Capacity

OPG's in-service generating capacity by business segment as of December 31 was as follows:

(MW)	2016	2015
Regulated – Nuclear Generation ¹	5,728	6,606
Regulated – Hydroelectric	6,421	6,428
Contracted Generation Portfolio ²	4,028	4,021
Total	16,177	17,055

¹ The in-service generating capacity as of December 31, 2016 excludes Unit 2 of the Darlington GS. The unit, which has a generating capacity of 878 MW, was taken offline mid-October 2016 and is currently undergoing refurbishment.

² Includes OPG's share of in-service generating capacity of 275 MW for PEC and 280 MW for Brighton Beach.

The total in-service capacity as at December 31, 2016 decreased by 878 MW compared to 2015. The decrease was primarily due to the commencement of the refurbishment of the first Darlington GS unit, Unit 2, which was taken offline in mid-October 2016. In addition, during 2016, the capacity of the regulated hydroelectric units at the Abitibi Canyon GS and the Sir Adam Beck 1 GS was reduced to reflect unit limit capability. This decrease in in-service capacity was partially offset by an increase in capacity of the Contracted Generation Portfolio segment, reflecting the completion of an upgrade and rehabilitation of Unit 2 of the Harmon hydroelectric GS during 2016.

REVENUE MECHANISMS FOR REGULATED AND NON-REGULATED GENERATION

Regulated Generation

The OEB sets the prices for electricity generated from OPG's regulated nuclear and regulated hydroelectric facilities. The following are the OEB-authorized regulated prices for electricity generated from these facilities:

	2016	2015 January 1 to June 30	2015 July 1 to December 31
(\$/MWh)			
Regulated – Nuclear Generation			
Base regulated price	59.29	59.29	59.29
Rate riders	10.84 ¹	1.33	12.17 ¹
	70.13	60.62	71.46
Regulated – Hydroelectric			
<i>Hydroelectric generating stations prescribed for rate regulation prior to 2014</i>			
Base regulated price	40.20	40.20	40.20
Rate riders	3.19 ¹	6.04	9.23 ¹
	43.39	46.24	49.43
<i>Hydroelectric generating stations prescribed for rate regulation effective in 2014</i>			
Base regulated price	41.93	41.93	41.93
Rate rider	3.19 ¹	-	3.19 ¹
	45.12	41.93	45.12

¹ The increase in the 2015 rate riders effective July 1, 2015 was implemented by the OEB effective October 1, 2015. As such, the OEB authorized interim period rate riders for the period from October 1, 2015 to December 31, 2016 to allow for the recovery of the increase in the riders for the period from July 1, 2015 to September 30, 2015. The revenue from the new riders for the July 1, 2015 to September 30, 2015 period was accrued in 2015. The nuclear interim period rate rider was \$2.17 per megawatt hour (MWh) and the regulated hydroelectric interim period rate rider was \$0.64/MWh. These interim period rate riders have not been included in the above table. All rate riders in effect during 2016 expired on December 31, 2016.

The base regulated prices in effect during 2015 and 2016 were established by the OEB's November 2014 decision and December 2014 order, effective November 1, 2014, using a forecast cost-of-service methodology based on the OEB-approved revenue requirements for the 2014 to 2015 period, taking into account the OEB-approved forecasts of production and operating costs for the regulated facilities and a return on rate base. Rate base for OPG represents the average net level of investment in regulated fixed and intangible assets in service and an allowance for working capital.

In accordance with *Ontario Regulation 53/05* under the *Ontario Energy Board Act, 1998*, OPG's nuclear regulated prices are reduced by the amount of OPG's revenues, net of costs, from leasing the Bruce nuclear generating stations to Bruce Power. As directed by the OEB, OPG's revenues and costs related to the Bruce nuclear generating stations are determined in accordance with US GAAP for the purposes of establishing OPG's nuclear regulated prices and are subject to the Bruce Lease Net Revenues Variance Account in accordance with *Ontario Regulation 53/05*. This includes OPG's costs related to its obligations for nuclear waste management and nuclear facilities decommissioning associated with the Bruce nuclear generating stations and the corresponding portion of earnings on the nuclear fixed asset removal and nuclear waste management segregated funds (Nuclear Segregated Funds) established pursuant to the Ontario Nuclear Funds Agreement (ONFA) between OPG and the Province.

Rate riders for OPG are established to recover or repay approved balances in OEB-authorized regulatory variance and deferral accounts. Variance and deferral accounts typically capture differences between actual costs and revenues and the corresponding forecast amounts approved by the OEB in setting regulated prices, or record the impact of items not reflected in the approved regulated prices. The rate riders in effect during 2015 included those established by the OEB's December 2014 order for the period from January 1, 2015 to December 31, 2015, as well as those authorized by the OEB's October 2015 order on OPG's 2014 application to recover the December 31, 2014 variance and deferral account balances, for the period from July 1, 2015 to December 31, 2016. The rate riders in effect during 2016 were those authorized by the October 2015 order.

Non-Regulated Generation

Electricity generated from most of OPG's non-regulated assets is subject to Energy Supply Agreements (ESAs) with the Independent Electricity System Operator (IESO). Effective January 1, 2015, the Ontario Power Authority (OPA) merged with the IESO. The new entity continued under the name Independent Electricity System Operator. As such, the IESO was substituted as the counterparty of ESAs and other agreements that were previously executed with the OPA.

During 2016, ESAs were in effect for the following thermal generating facilities:

- Lennox GS: Capacity provided by, and production from, the station are subject to an ESA for the period from January 1, 2013 to September 30, 2022
- Atikokan GS: Capacity provided by, and production from, the station are subject to a 10-year ESA expiring in July 2024
- Thunder Bay GS: Capacity provided by, and production from, the station are subject to a 5-year ESA expiring in January 2020.

In addition, long-term hydroelectric ESAs are in place for the following facilities, with expiry dates for currently operating stations ranging from 2059 to 2064:

- Lac Seul and Ear Falls generating stations
- Healey Falls GS
- Sandy Falls, Wawaitin, Lower Sturgeon, and Hound Chute generating stations
- Little Long, Harmon, Smoky Falls, and Kipling generating stations (collectively the Lower Mattagami River generating stations)

- Peter Sutherland Sr. GS which is being commissioned. **[MONITOR]** Payments under this ESA will commence when the station achieves commercial operation. Further details on the Peter Sutherland Sr. GS project are found under the heading, *Project Excellence* in the *Core Business, Strategy, and Outlook* section.

HIGHLIGHTS

Overview of Results

This section provides an overview of OPG's operating results for 2016 and 2015.

<i>(millions of dollars – except where noted)</i>	2016	2015
Revenue	5,653	5,476
Fuel expense	727	687
Gross margin	4,926	4,789
Operations, maintenance and administration	2,747	2,783
Depreciation and amortization	1,257	1,100
Accretion on fixed asset removal and nuclear waste management liabilities	929	895
Earnings on nuclear fixed asset removal and nuclear waste management funds	(746)	(704)
Income from investments subject to significant influence	(37)	(39)
Property taxes	46	45
Restructuring	6	6
	4,202	4,086
Income before other (income) loss, interest, and income taxes	724	703
Other (income) loss	(17)	14
Income before interest and income taxes	741	689
Net interest expense	120	180
Income before income taxes	621	509
Income tax expense	168	92
Net income	453	417
Net income attributable to the Shareholder	436	402
Net income attributable to non-controlling interest ¹	17	15
<i>Electricity production (TWh) ²</i>	78.2	78.0
<i>Cash flow</i>		
Cash flow provided by operating activities	1,705	1,465

¹ Relates to the 25 percent interest of the Amisk-oo-Skow Finance Corporation, a corporation wholly owned by the Moose Cree First Nation, in the Lower Mattagami Limited Partnership.

² Includes OPG's share of generation volume from its 50 percent ownership interests in PEC and Brighton Beach.

Net income attributable to the Shareholder was \$436 million for 2016, an increase of \$34 million compared to 2015. Income before interest and income taxes was \$741 million for 2016, an increase of \$52 million compared to 2015.

The following summarizes the significant factors which contributed to the variance:

Significant factors that increased income before interest and income taxes:

- Higher generation of 1.1 terawatt hours (TWh) from the Regulated – Nuclear generation segment, resulting in an increase in revenue of \$65 million from the nuclear base regulated price. The year-over-year increase

in revenue from the higher nuclear rate riders in effect during the first half of 2016, compared to the same period in 2015, was primarily offset by an increase in the amortization expense related to regulatory balances.

- Higher earnings on the Nuclear Segregated Funds of \$42 million, primarily due to a higher rate of return on the portion of the Used Fuel Segregated Fund that is subject to a consumer price index (CPI) adjusted rate of return guarantee by the Province pursuant to the ONFA. This increase in Nuclear Segregated Funds earnings was partially offset by an accounting adjustment recognized in the fourth quarter of 2016 to limit the fund asset values recorded in OPG's consolidated financial statements to the lower underlying obligations reflected in the updated ONFA reference plan, approved by the Province in December 2016
- Increase in earnings from the Services, Trading, and Other Non-Generation segment of \$24 million, primarily due to lower operations, maintenance and administration (OM&A) expenses
- A gain of \$22 million recorded during the first quarter of 2016, reflecting the OEB's January 2016 decision on OPG's motion asking the OEB to review and vary parts of its November 2014 decision on OPG's regulated prices
- Increase in earnings of \$20 million from the Contracted Generation Portfolio segment, mainly as a result of an increase in the gross margin due to higher revenues from the Lower Mattagami River generating stations, the Lennox GS and the Atikokan GS.

Significant factors that reduced income before interest and income taxes:

- Higher financing expense of \$32 million, which represents an increase in the present value of the nuclear fixed asset removal and nuclear waste management liabilities (Nuclear Liabilities). The financing expense, known as accretion expense, is added to the Nuclear Liabilities balance over time
- A decrease in nuclear non-electricity revenue of \$21 million, primarily due to a decrease in nuclear detritiation services revenue and lower isotope sales
- Higher OM&A expenses, fuel expense and depreciation expense for the Regulated – Nuclear Generation segment. The increase in OM&A expenses of \$14 million reflected higher expenses related to materials and supplies obsolescence recognized in 2016. The increase in fuel expense of \$14 million reflected higher uranium costs and higher generation in 2016. Depreciation and amortization expense, excluding amortization expense related to regulatory balances, increased by \$12 million, primarily due to new assets in service in 2016. The increase in amortization expense related to regulatory balances was largely offset by the increase in nuclear revenue related to rate riders
- Lower earnings before other gains from the Regulated – Hydroelectric segment of \$28 million, primarily due to lower hydroelectric incentive mechanism revenue and the income impact of OEB-approved variance accounts.

Net interest expense decreased by \$60 million in 2016, compared to 2015, primarily due to a higher amount of interest costs capitalized for the Darlington Refurbishment project and a higher amount of interest costs deferred in regulatory variance and deferral accounts.

Income tax expense increased by \$76 million in 2016, compared to 2015, primarily due to higher income before income taxes and lower amount of tax expense deferred in regulatory assets.

Segment Results

The following table summarizes OPG's income before interest and income taxes by business segment. Significant factors which contributed to the higher income during 2016, compared to 2015, are discussed above. A detailed discussion of OPG's performance by reportable segment is included in the section, *Discussion of Operating Results by Business Segment*.

<i>(millions of dollars)</i>	2016	2015
<i>Income (loss) before interest and income taxes</i>		
Regulated – Nuclear Generation	4	2
Regulated – Hydroelectric	642	648
Contracted Generation Portfolio	282	262
Total electricity generation business segments	928	912
Regulated – Nuclear Waste Management	(174)	(186)
Services, Trading, and Other Non-Generation	(13)	(37)
	741	689

Electricity Generation

Electricity generation for 2016 and 2015 was as follows:

<i>(TWh)</i>	2016	2015
Regulated – Nuclear Generation	45.6	44.5
Regulated – Hydroelectric	29.5	30.4
Contracted Generation Portfolio ¹	3.1	3.1
Total OPG electricity generation	78.2	78.0
Total electricity generation by other generators in Ontario ²	72.7	76.1

¹ Includes OPG's share of generation volume from its 50 percent ownership interests in PEC and Brighton Beach.

² Non-OPG generation is calculated as the Ontario electricity demand plus net exports, as published by the IESO, minus OPG electricity generation.

The higher electricity generation from the Regulated – Nuclear Generation segment in 2016 was primarily a result of a lower number of non-refurbishment outage days at the Darlington GS due to the planned Vacuum Building Outage (VBO) in 2015 and a decrease in unplanned outages at the station in 2016. The VBO is a unique outage to inspect and maintain specific safety and other systems common to all four units of the station. The 2015 VBO required the shutdown of the four units for 47 days. Vacuum building outages are currently required every 12 years at the Darlington GS. The year-over-year increase in electricity generation was partially offset by a decrease in generation from the Pickering GS, primarily due to an increase in the number of unplanned outage days, and the removal from service of Unit 2 at the Darlington GS for the duration of the unit's refurbishment beginning on October 15, 2016.

Lower electricity generation from the Regulated – Hydroelectric generating segment was primarily due to a higher volume of water spilled as a result of higher SBG conditions during 2016.

Electricity generation from the Contracted Generation Portfolio segment was 3.1 TWh for each of 2016 and 2015. Electricity generation in 2016 reflected higher production from the Lennox and Atikokan generating stations, primarily due to increased market demand. The increase was offset by a higher volume of water spilled at the contracted hydroelectric stations as a result of higher SBG conditions during 2016, and transmission system constraints in northeastern Ontario in 2016. **[CONFIRM]**

OPG's operating results are affected by changes in grid-supplied electricity demand resulting from variations in seasonal weather conditions, changes in economic conditions, the impact of small scale generation embedded in distribution networks, and the impact of conservation efforts in the province. Ontario's electricity demand as reported by the IESO was 137.0 TWh in each of 2016 and 2015, which excludes electricity exports out of the province.

Baseload generation supply surplus in Ontario was more prevalent in 2016 than in 2015, mainly due to higher water flows in the province during 2016 and limitations on the export of surplus power out of the province, primarily due to transmission constraints in the state of New York. Power that is surplus to the Ontario market is managed by the IESO, mainly through generation reductions at hydroelectric and nuclear stations and other grid-connected renewable resources. Reducing hydroelectric production, which often results in spilling of water, is the first measure used by the IESO to manage SBG conditions. During 2016 and 2015, OPG lost 4.7 TWh and 3.2 TWh of hydroelectric generation due to SBG conditions, respectively. The gross margin impact of production forgone at OPG's regulated hydroelectric stations due to SBG conditions in 2016 and 2015 was offset by a regulatory variance account authorized by the OEB. OPG did not forego any electricity production at its nuclear stations due to SBG conditions.

Average Sales Prices

The majority of OPG's generation is from the Regulated – Nuclear Generation and Regulated – Hydroelectric segments. The regulated prices authorized by the OEB for electricity generated from OPG's nuclear and regulated hydroelectric generating stations are discussed in the section *Revenue Mechanisms for Regulated and Non-Regulated Generation*.

The average sales price for the Regulated – Nuclear Generation segment during 2016 was 6.9 cents per kilowatt hour (¢/kWh), compared to 6.5 ¢/kWh during 2015. The average sales price in 2016 reflected the higher OEB-authorized nuclear rate rider of \$10.84/MWh for recovery of variance and deferral account balances in effect during the year. The average sales price for the Regulated – Hydroelectric segment was 4.4 ¢/kWh, compared to 4.7 ¢/kWh during 2015. The decrease was primarily due to a lower rate rider in effect during 2016 related to the recovery of variance and deferral account balances for the hydroelectric facilities prescribed for rate regulation prior to 2014. These rate riders were established to recover approved balances recorded in OEB-authorized regulatory variance and deferral accounts in prior years.

As such, the year-over-year changes in revenue from rate riders were largely offset by changes in amortization expense related to regulatory balances.

Cash Flow from Operations

Cash flow provided by operating activities for 2016 was \$1,705 million, compared to \$1,465 million for 2015. The increase in cash flow provided by operating activities for 2016, compared to 2015, was primarily due to higher generation revenue receipts reflecting higher nuclear rate riders and higher nuclear generation in 2016. The increase in cash flow was also due to lower pension plan contributions in 2016 reflecting an updated actuarial valuation of the OPG registered pension plan. The increase in cash flow was partially offset by higher OM&A expenditures during 2016, compared to 2015, and the payment of a supplemental rent rebate to Bruce Power in the first quarter of 2016 in relation to the period from January 1, 2015 to December 4, 2015. The rebate was made pursuant to a provision under the lease agreement for the Bruce nuclear generating stations. This provision was eliminated effective December 4, 2015 as part of the 2015 amendments to the lease agreement.

Funds from Operations Adjusted Interest Coverage

FFO Adjusted Interest Coverage is an indicator of OPG's ability to meet interest obligations from operating cash flow. The indicator is measured over a 12-month period. The FFO Adjusted Interest Coverage was 5.1 times for 2016, compared to 5.0 times for 2015. The modest increase in the FFO Adjusted Interest Coverage in 2016 reflected an increase in FFO before interest for 2016, compared to 2015, as a result of the year-over-year increase in cash flow provided by operating activities.

Return on Common Equity Excluding Accumulated Other Comprehensive Income

ROE Excluding AOCI is an indicator of OPG's performance consistent with its strategy to provide value to the Shareholder. ROE Excluding AOCI is measured over a 12-month period. ROE Excluding AOCI for 2016 was 4.2 percent, compared to 4.0 percent for 2015. ROE Excluding AOCI increased for 2016, compared to 2015, primarily due to higher net income attributable to the Shareholder. OPG's ROE Excluding AOCI reflects regulated prices established by the OEB in 2014. These prices were lower than requested by OPG based on submitted forecast cost and production levels, which has negatively affected OPG's ability to earn the OEB-prescribed rate of return on the Shareholder's investment in the regulated assets.

ROE Excluding AOCI also reflects the relatively higher equity component in the Company's capital structure, compared to the deemed capital structure used by the OEB in determining OPG's regulated prices. The OEB establishes the allowed return on OPG's investment in regulated assets, which represent the majority of the Company's operations, using the OEB's generic prescribed rate of return and an OPG-specific deemed capital structure. In setting the regulated prices in 2014, the OEB applied a deemed capital structure of 45 percent equity and 55 percent debt. OPG's actual capital structure (excluding AOCI) contains approximately 65 percent equity. The higher equity component in OPG's actual capital structure, compared to the deemed capital structure applied by the OEB, results in a reduced actual ROE Excluding AOCI. In its application for new regulated prices filed with the OEB in May 2016, OPG is seeking an increase in the deemed capital structure to 49 percent equity and 51 percent debt. For further discussion on OPG's application, refer to the heading *Recent Developments* in the section *Highlights*.

Enterprise Total Generating Cost per MWh

The Enterprise Total Generating Cost (TGC) per MWh was \$48.10 for the year ended December 31, 2016, compared to \$50.46 for the same period in 2015. The improvement in 2016, compared to 2015, was primarily a result of lower OM&A expenses, excluding the impact of regulatory variance and deferral accounts, and higher electricity generation as adjusted for foregone generation due to SBG conditions during 2016.

Nuclear Total Generating Cost per MWh

The Nuclear TGC per MWh was \$62.30 for the year ended December 31, 2016, compared to \$66.20 for the same period in 2015. The improvement in 2016, compared to 2015, was primarily a result of lower OM&A expenses excluding the impact of regulatory variance and deferral accounts, and higher electricity generation during 2016.

Hydroelectric Total Generating Cost per MWh

The Hydroelectric TGC per MWh was \$25.57 for the year ended December 31, 2016, which was comparable to \$25.26 for the same period in 2015.

ROE Excluding AOCI, FFO Adjusted Interest Coverage, Enterprise TGC per MWh, Nuclear TGC per MWh and Hydroelectric TGC per MWh are not measurements in accordance with US GAAP and should not be considered alternative measures to net income, cash flow from operating activities, or any other performance measure under US GAAP. OPG believes that these non-GAAP financial measures are effective indicators of its performance and are consistent with the Company's strategic imperatives and related objectives. The definition and calculation of ROE Excluding AOCI, FFO Adjusted Interest Coverage, Enterprise TGC per MWh, Nuclear TGC per MWh and Hydroelectric TGC per MWh are found in the section, *Supplementary Non-GAAP Financial Measures*.

Recent Developments

Darlington Refurbishment

In October 2016, OPG commenced the refurbishment of the first Darlington GS unit, Unit 2, as planned, as part of the Darlington Refurbishment project. The unit was taken offline safely on October 15, 2016. De-fuelling of the reactor, the first critical refurbishment activity undertaken once the unit is removed from service, was safely completed in

January 2017, with a total of 480 fuel channels de-fuelled. Preparatory work in the reactor vault to support the removal of feeder tubes and fuel channel assemblies commenced immediately after de-fuelling was completed. The unit is scheduled to be returned to service in the first quarter of 2020. The project is tracking on budget with de-fuelling, the first critical path activity, completed ahead of schedule.

In April 2016, the Federal Court of Appeal unanimously dismissed the request by certain intervenors for a judicial review of the 2013 Environmental Assessment (EA) decision for the Darlington Refurbishment project by the Canadian Nuclear Safety Commission (CNSC) and Fisheries and Oceans Canada. The EA decision had confirmed that, taking into account identified mitigation measures, the project was not likely to cause significant adverse environmental effects. In dismissing the appeal, the Federal Court of Appeal determined that there were no gaps in the EA, that there was nothing unreasonable about the discretionary determinations made by the responsible authorities, and that the intervenors' arguments were not borne out by the evidence. OPG was also awarded its costs of the appeal, as the successful party.

The Darlington Refurbishment project is discussed further under the heading, *Project Excellence* in the *Core Business, Strategy and Outlook* section.

OPG's Application for New Regulated Prices

In May 2016, OPG filed a 5-year application with the OEB for new base regulated prices for production from its regulated hydroelectric and nuclear facilities, with a proposed effective date of January 1, 2017. For the first time since OPG's prescribed assets became subject to rate regulation, the new prices are expected to be determined on the basis of an incentive regulation ratemaking methodology for the hydroelectric operations and a custom incentive regulation framework for the nuclear operations. Rate-setting under incentive regulation is typically more formulaic and involves greater de-coupling of a regulated entity's allowed revenues or prices from its costs than under a cost-of-service rate-setting methodology.

For the hydroelectric facilities, OPG's May 2016 application proposes to escalate the existing base regulated prices, with some adjustments, for each of the years 2017 to 2021 based on a formula that considers an industry specific inflation factor less a productivity improvement factor and less a stretch factor intended to incent additional innovation and efficiency. For the nuclear operations, the application proposes revenue requirements for each of the years 2017 to 2021 based on OPG's forecast of operating costs, reduced by a stretch factor amount, as well as a return on rate base and an annual forecast of production.

The proposed nuclear revenue requirements reflect OPG's plans to pursue Pickering extended operations until 2024, as well as the projected impact of the scheduled return to service of the first refurbished Darlington unit in the first quarter of 2020. OPG is also seeking an increase in the deemed capital structure applied to its total regulated rate base to 49 percent equity and 51 percent debt from 45 percent equity and 55 percent debt applied by the OEB in setting the existing regulated prices.

Consistent with the November 2015 amendment to *Ontario Regulation 53/05*, OPG's application incorporates a nuclear rate smoothing proposal. This proposal would result in OPG deferring a portion of the approved nuclear revenue requirements in a deferral account for future collection, with a view of making more stable year-over-year changes in OPG's nuclear regulated prices for the period from January 1, 2017 to the end of the Darlington Refurbishment project. The regulation stipulates that the deferral account will record interest at a long-term debt rate reflecting OPG's cost of long-term borrowing approved by the OEB, compounded annually, and that the OEB shall authorize recovery of the balance in the account on a straight line basis over a period not to exceed 10 years following the end of the Darlington Refurbishment project. OPG expects to recognize the deferred amounts as income in the period to which the approved revenue requirements relate.

OPG's application also requests new rate riders, effective January 1, 2017, to recover or repay the December 31, 2015 balances in all of the Company's OEB-authorized variance and deferral accounts, with the exception of the

Pension & OPEB Cash Versus Accrual Differential Deferral Account, less amounts previously approved for recovery or repayment in 2016 through rate riders in effect to December 31, 2016. The application also requests the continuation of all applicable existing variance and deferral accounts. The Pension & OPEB Cash Versus Accrual Differential Deferral Account is discussed in the section *Critical Accounting Policies and Estimates*, under the heading, *Rate Regulated Accounting*.

In December 2016, the OEB issued an order granting OPG's request to declare the existing base regulated prices interim, effective January 1, 2017. This preserves the OEB's ability to make new regulated prices effective as early as January 1, 2017, which would allow OPG to recover the difference between the approved new regulated prices and the existing prices for the period between the effective date of the new regulated prices and their implementation date based on the OEB's order. The OEB's decision on the application, including the effective date of the new regulated prices, is expected in the second half of 2017, following a public proceeding. The public proceeding is in progress, with the oral hearing portion having commenced in February 2017. Considering the timing of OPG's application and OPG's procedural adherence to date, the Company believes that the OEB could make the new regulated prices effective January 1, 2017.

In February 2017, the OEB approved a settlement agreement reached by OPG and intervenors on certain limited elements of OPG's application (Settlement Agreement). Among other elements, the Settlement Agreement accepts a number of year-end 2015 variance and deferral account balances totaling \$419 million, allows for continuation of all applicable existing variance and deferral accounts, and confirms methodologies for calculating amounts to be recorded in most of the continuing accounts once new regulated prices take effect, as proposed by OPG. The balances of, and methodologies for recording future amounts in the Nuclear Liability Deferral Account, the Bruce Lease Net Revenues Variance Account and the Capacity Refurbishment Variance Account are excluded from the Settlement Agreement. The agreement also results in approval of OPG's proposed adjustments to the existing regulated hydroelectric base regulated prices for the purposes of determining the starting point for an incentive regulation formula for the 2017-2021 period. The Settlement Agreement does not impact OPG's 2016 financial results. **[MONITOR]**

OEB's Decision on OPG's December 2014 Motion

In January 2016, the OEB issued its decision on OPG's December 2014 motion asking the OEB to review and vary the parts of its November 2014 decision related to the disallowance of the Niagara Tunnel project expenditures, and the application of the 2013 regulatory tax loss to reduce the 2014/2015 revenue requirement. In its decision, the OEB reversed a portion of the original disallowance of the Niagara Tunnel project expenditures, and upheld the original tax loss decision. In the first quarter of 2016, OPG recorded a gain of \$22 million to recognize the expected future recovery from customers of the portion of the disallowance reversed by the OEB's motion decision.

The original disallowance of the Niagara Tunnel project expenditures resulted in a write-off of \$77 million that was charged to operations in 2014. The original tax loss decision resulted in a reduction of the 2014/2015 revenue requirement by approximately \$70 million. As OPG's financial results have previously reflected the effect of the OEB's original tax loss decision, the motion decision on the tax loss did not impact OPG's 2016 financial results.

Ontario Nuclear Funds Agreement Reference Plan Update

In the fourth quarter of 2016, a comprehensive update of the estimate for OPG's obligations for nuclear waste management and nuclear facilities decommissioning as at December 31, 2016 was finalized as part of the required process to update the reference plan under the ONFA. As at December 31, 2016, the update resulted in a decrease of approximately \$1,570 million in OPG's Nuclear Liabilities with a corresponding decrease to the asset retirement costs capitalized as part of the carrying value of the nuclear generating stations to which the liabilities relate. OPG undertakes to perform a comprehensive review of the underlying assumptions and baseline cost estimates for nuclear waste management and nuclear facilities decommissioning at least once every five years, in line with the required ONFA reference plan update process.

The updated estimate of the obligations was reflected in a new ONFA reference plan, for years 2017 to 2021, which was approved by the Province in December 2016, effective January 1, 2017 (the 2017 ONFA Reference Plan). Based on the lower life cycle liability estimates per the 2017 ONFA Reference Plan, starting in 2017, OPG is not currently required to make overall contributions to the Used Fuel Segregated Fund or the Decommissioning Segregated Fund established under the ONFA. Prior to 2017, OPG made contributions to the Used Fuel Segregated Fund every year, including a one-time special payment in earlier years, as required by the ONFA. These contributions reflected ONFA requirements to fund the majority of the underlying used fuel liability by the end of the estimated useful lives of the nuclear stations in effect at OPG's inception in 1999, resulting in significantly higher contributions to the Used Fuel Segregated Fund in the earlier years of OPG's existence. OPG has not been required to make contributions to the Decommissioning Segregated Fund, which was fully funded at its inception and at the time of every subsequent approved ONFA reference plan. Contributions to either or both funds may be required in the future should the funds be in an underfunded position when a new reference plan is prepared. Such may be the case as a result of variability in asset performance due to volatility inherent in financial markets and Ontario CPI changes. Future contribution levels are also dependent on changes in cost estimates and planning assumptions used to establish the underlying obligations in subsequent ONFA reference plans.

The decrease in the Nuclear Liabilities and associated capitalized asset retirement costs recognized on the consolidated balance sheet as at December 31, 2016 did not impact OPG's income for 2016. Under the current OEB-approved cost recovery methodologies, these changes also are not expected to materially affect OPG's income in 2017, as the associated impact on expenses is expected to be largely offset by the Nuclear Liability Deferral Account and the Bruce Lease Net Revenues Variance Account until such time as the OEB implements corresponding changes to OPG's nuclear regulated prices, and subsequently by the impact of the new regulated prices. In accordance with *Ontario Regulation 53/05*, the OEB is required to ensure that OPG recovers the revenue requirement impact of its nuclear waste management and nuclear decommissioning liabilities arising from the current approved ONFA reference plan. For further discussion on the accounting for Nuclear Liabilities, refer to the section, *Critical Accounting Policies* under the heading, *Asset Retirement Obligation*.

In the fourth quarter of 2016, OPG recorded a reduction of \$88 million in the Nuclear Segregated Funds assets related to the 2017 ONFA Reference Plan, through a reduction in earnings from the Nuclear Segregated Funds and an increase in the amount due to the Province. This accounting adjustment represented the overfunded position of Used Fuel Segregated Fund and the Decommissioning Segregated Fund as at December 31, 2016 relative to the value of the corresponding present value life cycle liabilities per the 2017 ONFA Reference Plan. This excess amount was recorded as due to the Province as OPG does not have the right to withdraw the amount from the Nuclear Segregated Funds and as any excess funding in the Nuclear Segregated Funds upon termination of the ONFA accrues to the Province. Of the \$88 million reduction in Nuclear Segregated Funds earnings, \$43 million was offset by the impact of the Bruce Lease Net Revenues Variance Account.

For further discussion of the accounting for the Nuclear Segregated Funds, refer to the section, *Critical Accounting Policies* under the heading, *Nuclear Fixed Asset Removal and Nuclear Waste Management Funds*. For further discussion of OPG's risks with respect to nuclear waste management and nuclear decommissioning obligations and Nuclear Segregated Funds, refer to the section, *Risk Management* under the headings, *Nuclear Waste Management and Nuclear Decommissioning Obligations*, and *Nuclear Segregated Funds and Financial Markets*.

Shareholder Declaration and Resolution to Sell Certain Real Estate Properties

In December 2015, OPG received a Shareholder Declaration and a Shareholder Resolution that required the Company to sell its head office premises and associated parking facility located at 700 University Avenue and 40 Murray Street in Toronto, Ontario. The assets are reported under the Services, Trading and Other Non-Generation segment. An active program to locate a buyer for these real estate assets was initiated in October 2016, and a purchase and sale agreement was executed in December 2016. The sale is expected to be completed during the second quarter of 2017. An estimated after-tax gain on sale in excess of \$200 million is expected to be

recognized upon completion of the transaction. Pursuant to the December 2015 Shareholder Declaration and Resolution, and as prescribed in the *Trillium Trust Act (2014)*, OPG is required to transfer a portion of the proceeds from this disposition into the Province's Consolidated Revenue Fund.

In June 2016, OPG received a Shareholder Declaration and a Shareholder Resolution that requires the Company to sell its former Lakeview GS site located in Mississauga, Ontario, an asset reported under the Services, Trading and Other Non-Generation segment. OPG is currently in the process of preparing the site for sale. Pursuant to the June 2016 Shareholder Declaration and Resolution, and as prescribed in the *Trillium Trust Act (2014)*, OPG is required to transfer a portion of the proceeds from this disposition into the Province's Consolidated Revenue Fund.

Neither the former Lakeview GS site nor the Company's head office premises and associated parking facility are considered core assets to OPG's business.

Contract Award for Nanticoke Solar Facility

In March 2016, Nanticoke Solar LP, then a partnership between OPG, SunEdison Canadian Construction LP (SECCLP) and a subsidiary of the Six Nations of the Grand River Development Corporation, was selected through the first phase of the IESO's Large Renewable Procurement (LRP) program to develop a 44 MW solar facility at OPG's Nanticoke GS site and adjacent lands in Haldimand County, Ontario. The LRP program was a competitive bidding process for procuring large renewable energy projects in Ontario. In March 2016, Nanticoke Solar LP and the IESO executed a 20-year LRP contract, which formalized the terms and conditions for the development and operation of the new solar facility. In the first quarter of 2017 **[MONITOR]**, OPG purchased SECCLP's interests in Nanticoke Solar LP and is working to obtain approvals and permits required to enable the commencement of construction planned for the first half of 2018.

The 20-year term of the LRP contract takes effect once the station achieves commercial operation, which is expected in the first quarter of 2019. For further discussion, refer to the section, *Core Business, Strategy and Outlook* under the heading, *Project Excellence*.

Decommissioning of the Lambton GS

In November 2016, the Company announced the decommissioning of the Lambton GS, which ceased coal-fired generation in 2013, as it was determined that continuing to preserve the station beyond 2016 for future conversion was no longer economically feasible. OPG is currently developing a decommissioning plan for the Lambton GS, which will ensure that the station is closed safely, securely, and in an environmentally responsible manner.

Canadian Nuclear Safety Commission Safety Rating for the Pickering GS and the Darlington GS

The CNSC publishes an annual report on the safety performance of Canada's nuclear power plants. The report assesses how well plant operators are meeting regulatory requirements and program expectations in the areas of operational performance, safety analysis, radiation protection, waste management and conventional health and safety. In its 2015 annual report, the CNSC gave both the Pickering GS and the Darlington GS the highest possible safety rating of "Fully Satisfactory". The Pickering GS received this rating for the first time, while the Darlington GS achieved the rating for the seventh year in a row.

Acquisition of Hydro One Limited Shares

In April 2016, OPG acquired nine million common shares of Hydro One Limited (Hydro One) at \$23.65 per share as part of a secondary share offering by the Province through a syndicate of underwriters. OPG paid the same price as other investors in the offering. The acquisition was made for investment purposes to mitigate the risk of future price volatility related to OPG's future share delivery obligations under the collective agreements with the Power Workers' Union (PWU) and The Society of Energy Professionals (The Society) renewed in 2015. Changes to these agreements included increases to employee pension plan contributions and provisions for existing employees represented by the PWU and The Society with eligibility to annually receive common shares of Hydro One for up to 15 years starting in

the third year of the respective agreements, as long as these employees continue to make contributions to the OPG pension plan and have less than 35 years of pensionable service. The shares acquired in the April 2016 transaction represent the substantial majority of OPG's currently anticipated purchases of Hydro One shares.

CORE BUSINESS, STRATEGY AND OUTLOOK

The discussion in this section is qualified in its entirety by the cautionary statements included in the section, *Forward-Looking Statements*, at the beginning of the MD&A.

OPG's mission is to provide low cost power in a safe, clean, reliable and sustainable manner for the benefit of its customers and its Shareholder. OPG also seeks to pursue, on a commercial basis, generation development projects and other business growth opportunities to the benefit of the Shareholder.

OPG's four key strategic imperatives are as follows:

- Operational Excellence
- Project Excellence
- Financial Strength
- Social Licence.

Operational Excellence

Operational excellence at OPG is accomplished by the safe and environmentally responsible generation of reliable and cost-effective electricity from the Company's generating assets through a highly trained and engaged workforce.

Workplace Safety and Public Safety

Workplace safety and public safety are fundamental core values at OPG. OPG is committed to operating all of its facilities in a safe, secure, and reliable manner that minimizes risks to a reasonably achievable level. Safety is an overriding priority in all activities performed at OPG's generating and other facilities, and all employees and contractors are expected to conduct themselves in manner that ensures workplace safety and public safety in line with the Company's safety culture.

In the area of workplace safety, OPG is committed to achieving excellent safety performance through continuous improvement and a strong safety culture, with the ultimate goal of zero injuries. OPG utilizes an integrated health and safety management system and set of operational risk control procedures to ensure continued monitoring of health and safety performance and to support continuous learning and improvement in this area. Overall, OPG's workplace safety performance has been one of the best amongst its comparator Canadian electrical utilities. In 2016, OPG received the Canadian Electricity Association (CEA) President's Gold Award recognizing three consecutive years, 2013 to 2015, of sustained top quartile safety performance within the comparator group.

Workplace safety performance is measured using two primary indicators at OPG, All Injury Rate (AIR) and Accident Severity Rate (ASR). OPG's AIR and ASR results for employee workplace safety were as follows for the year ended December 31:

	2016	2015
AIR (injuries per 200,000 hours worked)	0.56	0.39
ASR (days lost per 200,000 hours)	2.59	0.50

In 2016, OPG's AIR and ASR safety performance was worse than in 2015. OPG's analysis of the underlying events indicated that major contributors to the injuries and near misses included inadequate situational awareness and attention to detail, and suboptimal risk-based decisions, rather than missing or inadequate standards or programs.

OPG is implementing a number of initiatives to target the injury trends based on the analysis of the safety events, with a focus on the use of human performance tools including increased field supervisory oversight, situational awareness, communication, and procedural use and adherence.

In 2016, OPG launched an organization-wide “iCare Enough to Act” initiative aimed at renewing employees’ commitment to their own and each other’s safety and well-being. Plans to further strengthen safety as a foundational element of the Company’s values-based culture are being developed through leadership forums and other engagement activities.

Contractors are required to conduct work safely at OPG sites. In support of this requirement, OPG utilizes an independent contractor pre-qualification process, provides on-site safety support for many of OPG’s major projects, and works with contract partners to improve their health and safety programs to meet OPG’s requirements. To further strengthen contractors’ safety performance, in 2016, OPG updated its contractor’s safety requirements and related governance, and implemented additional oversight and field monitoring to ensure ongoing compliance. In the past eight years, OPG has consistently shown a better than average Construction Contractor AIR as compared to the Health and Safety Association Contractor AIR, a metric of construction contractor safety performance across Ontario.

To ensure continued public safety, radiation exposure to members of the public resulting from the operation of OPG’s nuclear generating stations is estimated on an annual basis for those individuals who live or work near the stations. The annual dose to the public resulting from operations of each nuclear facility is expressed in microsieverts (μSv), which is an international unit of radiation dose measurement. For 2015, the annual public doses resulting from the Darlington GS operations and the Pickering GS operations were 0.5 μSv and 1.2 μSv , respectively, which is approximately 0.1 percent of the annual legal limit of 1,000 μSv . While the public doses from OPG’s nuclear operations for the 2016 operating year will not be finalized until the second quarter of 2017, they are not expected to differ significantly from the 2015 levels.

In June 2016 and August 2016, the CNSC released sampling results from its independent environmental monitoring program, which confirmed that the public and the environment around OPG’s nuclear generating stations continued to be safe. Also in 2016, the CNSC published its 2015 annual report on the safety performance of Canada’s nuclear power plants, which gave both the Pickering GS and the Darlington GS the highest possible safety rating of “Fully Satisfactory”. For further details, refer to the CNSC safety rating discussion under the heading, *Recent Developments* in the *Highlights* section.

OPG remains committed to high standards of public safety on waterways around hydroelectric dams and generating stations. A Dam Safety Review Panel comprised of internationally recognized experts has previously concluded that OPG’s dam and public safety program is comparable with international best practices in a number of areas related to maintaining safe dam operations. OPG continues to develop a new risk-informed approach on behalf of the Ontario Ministry of Natural Resources and Forestry (MNRF) to prioritize and manage risks identified through dam safety assessments. In 2016, OPG continued its water safety campaign with a series of public service announcements illustrating the danger of water near hydroelectric dams and hydroelectric generating stations.

Electricity Generation Production and Reliability

Key strategic initiatives in support of operational excellence, specific to each of OPG’s core generating operations, are discussed below. Generation and reliability performance for 2016 is discussed by operating segment in the section, *Discussion of Operating Results by Business Segment*.

Nuclear Operations

OPG is pursuing a number of strategic initiatives aimed at the continued safe and reliable operation of the Pickering GS and targeting top performance at the Darlington GS.

OPG's nuclear operations are regularly benchmarked against top performing nuclear facilities around the world. This allows OPG to identify, develop and implement initiatives to further improve performance. During 2016, OPG participated in two World Association of Nuclear Operators (WANO) peer evaluations to compare its stations against standards of excellence through an in-depth, objective review by an international panel of industry experts. In May 2016, OPG hosted a WANO peer evaluation for the Darlington GS. The review maintained Darlington's excellent standing as one of the top performing nuclear plants in the world. In September 2016, OPG hosted a team of experts from the International Atomic Energy Agency at the Pickering GS to conduct a standard Operational Safety Review Team mission. The team conducted an in-depth review of performance and adherence to international safety standards. A report on the mission is expected to be released in the second quarter of 2017.

In January 2016, OPG announced its plan to pursue continued safe and reliable operation of the Pickering GS beyond 2020. OPG's objective is to maximize the operating life of the Pickering units. Under OPG's current plan, all six operating units at the station would operate until 2022, at which point two units would be shut down and the remaining four units would continue to operate until 2024. The Province announced its approval of OPG's plan to pursue continued operation of the Pickering GS beyond 2020 up to 2024 in January 2016. Extending operations at the Pickering GS will provide continued employment to approximately 3,000 regular employees at OPG, and will help reduce approximately 17 million tonnes of carbon dioxide emissions, which is the equivalent to removing 3.4 million cars from Ontario's roads.

As part of the plan to extend Pickering operations, OPG is continuing to undertake further technical work to confirm that the station's pressure tubes, a key life-limiting component of the station, will achieve the additional life necessary to operate to 2024. OPG is also conducting component condition assessments to identify the work required to support the continued operation of the station. The accounting end of life assumptions for the Pickering GS, currently established as the end of 2020, are expected to be reassessed when OPG's further technical work confirms the longer fuel channel life and the units' fitness to operate beyond 2020, taking into account the requirement for the CNSC's approval, discussed below.

OPG's current five-year operating licence for the Pickering GS was approved by the CNSC in 2013 and expires on August 31, 2018. This licence was issued assuming that the station would shut down in 2020. By June 30, 2017, OPG is required to confirm to the CNSC the end date of commercial operations of all operating Pickering units. OPG has started work on the Pickering licence renewal application, which is expected to be filed in mid-2017 for the CNSC's approval in 2018. The requested licence renewal spans the planned extended operations period, through to the end of the planned period to de-fuel, de-water, and place the station in a safe state condition after shutdown. A Periodic Safety Review and an Integrated Implementation Plan (IIP) for the station will be submitted to the CNSC as part of the application.

OPG strives to operate and maintain its nuclear facilities to optimize equipment, performance, availability and electricity generation, while improving the reliability and predictability of the fleet. Improved equipment reliability generally results in fewer generation interruptions. OPG continues to make investments in the performance of the Pickering GS, with a focus on improving plant reliability and maximizing the value of the asset through implementing equipment modifications and fuel handling reliability improvements, reducing equipment maintenance backlogs, and completing critical and high priority work.

Nuclear inspection and testing programs are largely driven by maintenance and regulatory requirements, and are designed to ensure that equipment is performing safely and reliably. Execution of this and other outage work continues to be a high priority. As part of its commitment to operational excellence, OPG continues to focus on improving the planning, execution, monitoring, and reporting of outage work.

Work continues to ensure the integration of life cycle management and refurbishment programs at the Darlington GS. This includes developing staffing strategies to support both ongoing station operations and the refurbishment project, planning and incorporating pre-requisite work for the refurbishment into the station's work schedule, and identifying life cycle and aging management work to sustain safe and reliable station operations for the next three decades.

OPG's longer-term efforts are aimed at positioning the Darlington GS for industry leading operating and cost performance.

Delivering solutions that provide the best combination of safety, cost and effectiveness, as well as establishing challenging financial targets based on comprehensive benchmarking continues to be a vital part of OPG's strategy to improve performance of the nuclear business unit. Financial and staffing targets continue to be reviewed and adjusted where necessary to reduce operating costs, while ensuring safety is not compromised.

In 2016, OPG submitted applications with the CNSC seeking a ten-year licence renewal for the Western Waste Management Facility (WWMF), located at the Bruce generating stations' site, to May 31, 2027, and a ten-year licence renewal for the Pickering Waste Management Facility (PWMF) to August 31, 2028. The licence renewal applications will be presented to the CNSC at a public hearing in April 2017. The current licence for the WWMF expires on May 31, 2017 and for the PWMF on March 31, 2018.

Hydroelectric Operations

The objectives of OPG's hydroelectric operations include operating and maintaining the generating facilities in an efficient and cost-effective manner, while enhancing their reliability and availability. OPG continues to evaluate and implement plans to increase capacity, maintain and improve performance, and extend the operating life of its hydroelectric generating assets.

OPG's plans for its existing hydroelectric generating stations are accomplished through multi-year capital investment and other programs, including replacements and upgrades of turbine runners, and refurbishment or replacement of existing generators, transformers, and controls. The aim of OPG's runner replacement and upgrade program is to increase hydroelectric station capacity by leveraging efficiency enhancements in runner design. Where economical and practical, OPG pursues opportunities to refurbish, expand or redevelop its existing hydroelectric stations. Over the next three years, OPG plans to increase the total capacity of its hydroelectric generating fleet by approximately 135 MW, which, in addition to the runner replacement and upgrade program, includes the Peter Sutherland Sr. GS project and the Ranney Falls GS projects. Both of these projects are discussed in the section, *Core Business, Strategy and Outlook*, under the heading, *Project Excellence*. OPG is also planning to repair, rehabilitate, or replace a number of aging civil hydroelectric structures.

As part of its commitment to operational excellence, OPG continues to make investments in its existing hydroelectric generating fleet. During 2016, OPG continued to execute a number of projects, including:

- Completion of major equipment overhauls and rehabilitation work on Unit 5 of the Sir Adam Beck Pump GS, and Unit 2 of the Whitedog Falls GS
- Completion of a runner upgrade, headgate replacement and rehabilitation of Unit 2 of the Harmon GS
- Completion of headgate replacement at Units 1 and 2 of the Kipling GS
- Completion of concrete rehabilitation of the main dam at Chats Falls GS
- Continued work on the rehabilitation of Unit 10 of the Sir Adam Beck 1 GS, Unit 5 of the DeCew Falls 1 GS, Unit 1 of the Harmon GS, and the replacement of the Shebandowan Lake Control Dam at the Kakabeka Falls GS.

OPG plans to commence several major sustaining hydroelectric projects during 2017, including the overhaul and upgrade of Unit 2 of the DeCew Falls 2 GS, the upgrade of Unit 2 of the Lower Notch GS, and the upgrade of Unit 2 of the Little Long GS. **[MONITOR]**

Thermal Operations

OPG's thermal operations consist of biomass-fuelled generating units at each of Atikokan GS and Thunder Bay GS, and the oil/gas dual-fuelled Lennox GS.

These stations, which operate as peaking facilities, provide Ontario's electricity system with the flexibility to meet changing daily system demand and capacity requirements and enable the system to accommodate the expansion of Ontario's renewable generation portfolio. The continued operation of these stations during the initial years of the refurbishment of the Darlington GS and Bruce nuclear facilities is expected to provide Ontario with over 2,000 MW of peaking generation.

During the third quarter of 2016, the Atikokan and Thunder Bay generating stations provided renewable generation when called upon to meet system requirements while utility maintenance was being conducted on a local transformer station. As a result of utility maintenance, the Atikokan GS operated continuously from late July 2016 to early September 2016, while the Thunder Bay GS operated as needed. To meet the increased demand for biomass fuels at Atikokan GS, OPG coordinated the acceleration of biomass fuel deliveries with suppliers while continuing to operate the plant safely.

As part of OPG's ongoing strategy to reduce costs and increase efficiency, the operations of the Company's hydroelectric and thermal assets have been combined into one organization. OPG continues to evaluate opportunities to consolidate departments within the stations and across regions.

Thermal stations that are no longer available to generate electricity are included in the Services, Trading and Other Non-Generation segment once they are removed from service. This includes the Lambton GS and Nanticoke GS sites, which ceased coal-fired generation in 2013. In 2015, OPG announced the decommissioning of the Nanticoke GS, as it could not commercially support continued preservation costs.

In November 2016, OPG announced the decommissioning of the Lambton GS, as further discussed in the section, *Highlights* under the heading, *Recent Developments*. OPG is currently developing decommissioning plans for the Lambton and Nanticoke generating stations, which will ensure that they are closed safely, securely and in an environmentally responsible manner. The decommissioning plan for the Nanticoke GS will accommodate the construction and operation of the Nanticoke solar facility. The costs of decommissioning the stations will be charged to a previously established decommissioning provision. OPG expects to review the decommissioning provision estimates for these sites in 2017.

Environmental Performance

OPG's Environmental Policy states that "OPG shall meet all legal requirements and any environmental commitments that it makes, with the objective of exceeding these legal requirements where it makes business sense". This policy commits OPG to:

- establish and maintain an environmental management system (EMS)
- work to prevent or mitigate adverse effects on the environment with a long-term objective of continual improvement
- manage sites in a manner that strives to maintain, or enhance where it makes business sense, significant natural areas and associated species of concern.

In 2016, OPG maintained the ISO 14001 registration of its company-wide EMS. Within the EMS, OPG has planning, operational control, and monitoring programs to manage the Company's positive and negative impacts on the environment. Significant environmental aspects of OPG's operations include: spills, chemical and thermal emissions to water, water flow and level changes, radioactive emissions, low and intermediate level radioactive waste (L&ILW), wildlife habitat, displacement of fossil fuels, and fish impingement and entrainment. Further details regarding OPG's environmental risks can be found in the section, *Risk Management* under the heading, *Environmental Risk*.

Environmental performance targets are set as part of the annual business planning process. OPG met or outperformed its 2016 targets for spills, environmental infractions, and carbon-14 emissions to air. An increase in the volume of waste generated from work activities at the Darlington GS and preparation for the Darlington Refurbishment project led to a higher than expected volume of L&ILW produced in 2016. Performance for tritium

emissions to air and water during 2016 remained less than one percent of the regulatory limit. There were no significant environmental events during 2016.

In 2016, the Government of Ontario passed the *Climate Change Mitigation and Low-Carbon Economy Act, 2016* and the associated *Cap and Trade Program Regulation*. The legislation provides the foundation for regulating greenhouse gas (GHG) emissions in Ontario and establishes a cap and trade program, with the first compliance period being from January 1, 2017 to December 31, 2020.

The cap and trade program is a market mechanism intended to give Ontarians an incentive to reduce GHG emissions by putting a price on carbon. The program requirements are expected to result in increased fuel costs for some OPG-owned and co-owned generating facilities. Fuel costs for these stations are generally recovered from the electricity market. With OPG's low GHG emitting fleet, the program is not expected to have a material adverse financial impact on the Company. OPG has established the necessary processes to comply with the cap and trade program requirements.

OPG is monitoring actions being taken by the Government of Ontario and the Government of Canada to reduce GHG emission levels and transition to a low-carbon economy. In support of efforts to mitigate climate change, the Company continues to evaluate and implement plans to increase the generation capacity of its hydroelectric generating fleet, where economic, and invest in other low-carbon technologies.

OPG communicates its environmental performance internally to employees and to external stakeholders, including the Ontario Ministry of the Environment and Climate Change, Environment and Climate Change Canada, the CNSC, and local communities. Details of OPG's environmental performance and initiatives to fulfill the Company's Environmental Policy can be found in OPG's 2015 Sustainability Report, available on the Company's website at www.opg.com.

Improving Efficiency and Reducing Costs

As part of its commitment to operational excellence, OPG remains focused on reducing costs by pursuing efficiency and productivity improvements across operating business units and support functions, while ensuring that there is no adverse impact on the safety, reliability and environmental sustainability of the Company's operations. This includes streamlining of processes, simplifying governance, upgrading information technology, optimizing service delivery models, and, where appropriate, leveraging attrition to achieve human resource targets aligned with business requirements. Initiatives to improve cost performance and organizational capability are being implemented at the enterprise and business unit level.

To drive efficiency and performance improvement, the Company continues to leverage a more scalable, centre-led organizational model. In 2016, the reduction in OPG's regular headcount from ongoing operations, since the beginning of 2011, reached over 2,800. Improving organizational performance and building on these efficiency gains remains a key priority for the Company. OPG continues to review its cost structure, identify cost improvement strategies and embed an outcomes-driven culture that reinforces low cost, efficiency, and organizational agility as part of business decision-making. In order to enhance the overall focus on productivity, in 2016 OPG adopted Enterprise TGC per MWh as a measure of OPG's overall organizational cost performance and Hydroelectric TGC per MWh as a measure of cost performance of OPG's hydroelectric generating assets, in addition to the existing Nuclear TGC per MWh measure. Further details regarding these measures are included in the sections, *Highlights*, *Key Operating and Financial Performance Indicators* and *Supplemental Non-GAAP Measures*.

People and Culture

A well trained and engaged workforce is fundamental to the achievement of OPG's strategic imperatives. To succeed in a demanding business environment, OPG is focused on building a diverse, healthy, engaged workforce and fostering a culture of collaboration, accountability and innovation. OPG also continues to communicate and

implement the values and behaviours expected from its employees in order to maintain a strong focus on safety, performance excellence, continuous improvement, and corporate citizenship.

The Company continues to focus on improving the capability of its workforce through leadership development, knowledge management, diversity and inclusion programs, and hiring in key areas. Ability to secure the right talent mix in order to effectively meet the Company's immediate and longer term business needs on a timely basis is supported through workforce planning, resourcing and on-boarding strategies, both to acquire external talent into the organization and to develop existing employees. The goal of workforce planning and resourcing strategies is to ensure that the Company's workforce is diverse and has the right skill set and capability for the safe and effective operation of the generating facilities and successful delivery of major projects, including the refurbishment of the Darlington GS. These strategies are being designed to take into account anticipated staffing requirements to the end of planned commercial operations of the Pickering GS, through to the end of the planned period to de-fuel, de-water and place the station in a safe state condition.

As part of the strategy to develop and engage employees and to build leadership talent, the Company has an active succession planning program with a focus on accelerating development. OPG also has a talent management monitoring process to proactively assess staffing risks, challenges and opportunities. Since 2015, OPG offers a company-wide high-potential leadership development program to qualified internal candidates. This 18-month cross-functional, competitive-entry program is designed to identify and develop candidates for future leadership positions while they are still relatively early in their career.

Electricity generation involves complex technologies that require highly skilled and trained workers. Many positions at OPG have significant educational prerequisites and rigorous requirements for continuous training and periodic requalification. In addition to maintaining its internal training infrastructure, OPG relies on partnerships with government agencies, other electrical industry partners and educational institutions to meet the required level of qualification. Training delivery models are evaluated for effectiveness and efficiency.

Effective January 1, 2017, OPG implemented a new Executive Compensation Program that is compliant with *Ontario Regulation 304/16: Executive Compensation Framework*, introduced in September 2016. The regulation sets out how all employers designated under the *Broader Public Sector Executive Compensation Act, 2014*, including OPG, must establish and post compensation programs for executives. The program must include the compensation philosophy, salary and performance-related pay caps, comparative analysis details, and a description of other elements of compensation. OPG's new Executive Compensation Program, which applies to employees at the Vice President level and higher, is designed to provide compensation that is at the 50th percentile of the market and focused on at-risk, performance based pay. The program will better enable OPG to attract, align and retain the executive talent critical to delivering Shareholder and customer value, while ensuring continued safe and reliable operations.

Project Excellence

OPG is pursuing a number of generation development and other major projects in support of Ontario's electricity planning initiatives. OPG also continues to plan and execute maintenance and capital improvement projects related to its existing assets. OPG strives for excellence in the planning and delivery of all projects across the Company.

OPG's vision for project excellence is to be an industry leader in project management capability and performance. As part of its commitment to project excellence, OPG continues to enhance and streamline its approach to project planning and execution, with the goal of delivering all projects safely, on time, on budget, and with high quality. Achieving project excellence at OPG involves, among other things, putting in place a common, scalable project delivery model across all business units, establishing qualified project management teams, optimizing contracting strategies, engaging qualified and experienced vendors, and effectively monitoring and controlling performance. The status updates for OPG's major projects as of December 31, 2016 are outlined below.

Project	Capital	Approved	Expected	Current status
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(millions of dollars)	expenditures		budget	in-service date	
	Year-to-date	Life-to-date			
Darlington Refurbishment	1,019	3,185	12,800 ¹	First unit - 2020 Last unit - 2026	The refurbishment of Unit 2 commenced in October 2016, as planned. De-fueling of Unit 2, the first critical path activity, was completed in January 2017, ahead of schedule. The project is tracking on budget. See update below.
Peter Sutherland Sr. Hydroelectric GS	141	236	300	2017	Commissioning of the generating station began in February 2017 and the station is expected to be in service in the spring of 2017, ahead of the originally planned schedule. [MONITOR] See update below.
Sir Adam Beck Pump GS Reservoir Refurbishment	39	46	58	2017	The refurbishment was completed and the reservoir was returned to service in February 2017, ahead of the originally planned in-service date and below the approved budget. See update below.
Ranney Falls Hydroelectric GS	2	3	77 [MONITOR]	2019	Project design work was completed in 2016 and construction is expected to commence in 2017. See update below. [MONITOR]
Nanticoke Solar Facility	1	1			Project definition work is in progress and construction is planned to commence in the first half of 2018. See update below.
Deep Geologic Repository for L&ILW	9 ²	195 ²			OPG has completed the additional studies required by the Canadian Environmental Assessment Agency (CEAA) and the federal Minister of Environment and Climate Change and submitted this information in December 2016. See update below.

¹ The total project budget of \$12.8 billion is for the refurbishment of all four units at the Darlington GS.

² Expenditures are charged against the Nuclear Liabilities.

Darlington Refurbishment

The Darlington generating units are forecast to be approaching their originally designed end-of-life. Refurbishment of the four generating units is expected to extend the operating life of the Darlington GS by approximately 30 years. The Darlington Refurbishment project is a multi-phase program comprising the following five major sub-projects:

- **Retube and Feeder Replacement (RFR)**, which includes the removal and replacement of fuel channel assemblies and feeder tubes in each reactor

- **Turbines and Generators**, which consists of inspections and repairs of turbine generator sets and the replacement of analog control systems with digital control systems
- **De-fuelling and Fuel Handling**, which involves the de-fuelling of the reactors and the refurbishment of the fuel handling equipment
- **Steam Generators**, which includes mechanical cleaning, water lancing, and inspection and maintenance work on the generators
- **Balance of Plant**, which consists of work on smaller projects to replace or repair certain other station components.

In January 2016, the Government of Ontario's support for the Darlington Refurbishment project was affirmed through the Ontario Minister of Energy's announcement endorsing OPG's plan to refurbish the four Darlington units at a total project budget of \$12.8 billion, including capitalized interest and escalation. The Province's announcement followed the approval of the project budget and schedule by OPG's Board of Directors in November 2015. The refurbishment of the last unit is scheduled to be completed by 2026. OPG's current operating licence for the Darlington GS spans most of the planned duration of the Darlington Refurbishment project, expiring in November 2025.

In 2016, the Darlington Refurbishment project transitioned from the planning phase to the execution phase, as OPG commenced the refurbishment of the first unit, Unit 2, in October 2016, as planned. The unit was taken offline on October 15, 2016. De-fuelling of the reactor, the first critical refurbishment activity undertaken once the unit is removed from service, was safely completed in January 2017, with a total of 480 fuel channels de-fuelled. Preparatory work in the reactor vault to support the removal of feeder tubes and fuel channel assemblies commenced immediately after de-fuelling was completed. The project is tracking on budget with de-fuelling, the first critical path activity, completed ahead of schedule.

Once refurbished, Unit 2 is scheduled to be returned to service in the first quarter of 2020, at which time capital expenditures of approximately \$4.8 billion are planned to be placed in service. This includes expenditures incurred during the definition and planning phase of the project. *Ontario Regulation 53/05* requires the OEB to accept the need for the Darlington Refurbishment project in light of Ontario's 2013 Long-Term Energy Plan (LTEP) and the related policy of the Province endorsing the need for nuclear refurbishment. It also requires the OEB to ensure that OPG recovers capital and non-capital costs and firm financial commitments in respect of the Darlington Refurbishment project, if the OEB is satisfied that the costs were prudently incurred and that the firm financial commitments were prudently made.

A number of pre-requisite projects, including construction of facilities, infrastructure upgrades and installation of safety enhancements, in support of the execution phase of the project have been completed, with the remaining projects continuing to track for completion in line with the refurbishment execution schedule.

All major contracts for the Darlington Refurbishment project that OPG expected to award were in place prior to proceeding with the Unit 2 refurbishment. This included the RFR execution phase contract awarded in January 2016 and valued at approximately \$2.75 billion for work to be executed on all four units. All of the major contracts contain suspension and termination provisions.

Other key activities related to the project in 2016 included the following:

- Fabrication of the major reactor components including fuel channels and feeder tubes is in progress, with the first set of feeder tubes delivered in the fourth quarter of 2016. The remaining components have planned deliveries tracking in line with the project schedule.
- The specialized tooling for removal and replacement of feeder tubes and fuel channel assemblies in each reactor was delivered to OPG's reactor training and mock-up facility in the second quarter of 2016, as planned, and testing of the tooling has been completed.

- All 28 storage tanks have been installed in the Heavy Water Storage and Drum Handling Facility, which will provide storage and processing capability for the removal of heavy water from the units during refurbishment, as well as for continued station operations.
- The RFR Island Support Annex was completed in February 2016. The facility houses RFR field preparatory, contractor management, and project oversight activities.

In addition to the de-fuelling of the Unit 2 reactor completed in January 2017, milestones for the Darlington Refurbishment project in 2017 include:

- Completion of reactor vault preparation activities to support RFR work.
- Continued refurbishment task rehearsals for the specialized tooling to be used for removal and replacement of feeder tubes and fuel channel assemblies at OPG's reactor training and mock-up facility.
- Removal of Unit 2 feeder tubes and commencement of the fuel channel removal series.
- Completion of the Third Emergency Power Generator and Containment Filtered Venting System safety enhancement projects, which were originally scheduled to be placed in-service in 2016. Remediation measures are in progress and OPG expects both projects to be placed in-service during the first quarter of 2017. These delays will not impact the overall Darlington Refurbishment project schedule, as neither of the two projects is on the critical path.
- Completion of the Re-tube Waste Processing Building and the Heavy Water Storage and Drum Handling Facility.
- Commencement of the major turbine generator overhaul and fuel handling power track replacement.
- Continued execution of work to support the requirements set out in the CNSC-approved IIP for the Darlington GS.

In addition to the execution of refurbishment activities for Unit 2, OPG has commenced planning for the refurbishment of the second unit, Unit 3, at the Darlington GS and is entering into associated commitments to procure major components that require long-lead times. As of December 31, 2016, \$31 million has been invested in planning activities related to the refurbishment of the second unit. These planning activities are being undertaken in accordance with the refurbishment project schedule.

Peter Sutherland Sr. Hydroelectric GS

The project to construct the 28 MW Peter Sutherland Sr. hydroelectric GS is in the process of testing and commissioning the turbine and generator units, as well as operator training and document turnover. Work also continues on demobilization efforts, as well as site reclamation. Commissioning of the generating station began in February 2017 and the station is expected to be in service in the spring of 2017, well ahead of the originally planned schedule of the first half of 2018. The project's schedule was accelerated to take advantage of favourable weather conditions. **[MONITOR]** The project is tracking within the approved budget of \$300 million.

Sir Adam Beck Pump GS Reservoir Refurbishment

The Sir Adam Beck Pump GS refurbishment construction began in April 2016 and the 300-hectare reservoir was returned to service in February 2017 upon completion of the reservoir commissioning program. The Sir Adam Beck Pump GS facility allows OPG to pump and store water diverted from the Sir Adam Beck generating complex during periods of low electricity demand to be used to generate up to 600 MW of electricity during subsequent periods of high electricity demand. The construction work on the project included installation of a partial new liner and construction of a grout curtain in the bedrock foundation of the reservoir dyke. The refurbishment is expected to add approximately 50 more years to the reservoir's life. The project was completed ahead of the originally planned in-service date of April 2017 and below the approved budget of \$58 million.

Ranney Falls Hydroelectric GS

During 2016, OPG completed project design work for the construction of an additional 10 MW single-unit powerhouse on the existing Ranney Falls GS site. The new unit will replace an existing unit that reached its end of life in 2014. Capital expenditures for project definition work completed as of December 31, 2016 were \$3 million. OPG plans to commence construction work in 2017, with an expected in-service date in the fourth quarter of 2019 and a budget of \$77 million. **[MONITOR]**

Nanticoke Solar Facility

The project to construct a 44 MW solar facility at OPG's Nanticoke GS and adjacent lands is planned to commence in the first half of 2018. It is expected to be completed in early 2019. Capital expenditures for project definition work completed as of December 31, 2016 were \$1 million.

Deep Geologic Repository for Low and Intermediate Level Waste

OPG has proposed a deep geologic repository as the preferred solution for the safe long-term management of the L&ILW produced from the continued operation of OPG-owned nuclear generating stations. Agreement has been reached with local municipalities for OPG to develop the L&ILW Deep Geologic Repository (DGR) on lands adjacent to the WWMF in Kincardine, Ontario.

In 2012, the CNSC and the CEAA appointed a three-member Joint Review Panel (JRP) for OPG's proposed L&ILW DGR. The JRP examined the environmental effects of the proposed L&ILW DGR to meet the requirements of the *Canadian Environmental Assessment Act*. In May 2015, the JRP submitted its report and recommendations on the EA to the federal Minister of Environment. The report concluded that, given mitigation, there is unlikely to be significant environmental impact from the project and recommended that the Minister approve the EA. The report suggested that the project should be implemented expeditiously.

In August 2015, OPG responded to the CEAA's list of potential environmental conditions relating to the JRP report. In February 2016, the federal Minister of Environment and Climate Change requested additional information on certain aspects of the EA, including information related to alternate locations for the project and the impact on environmental effects if Canada's planned used fuel deep geologic repository being developed by the Nuclear Waste Management Organization (NWMO) were located in close proximity to OPG's proposed L&ILW DGR. OPG has completed the requested studies and submitted the requested information in December 2016, as planned. Following a review by the CEAA and a period of public comment, an EA Decision Statement by the Minister is expected by the third quarter of 2017. Based on the information submitted to the Minister, the L&ILW DGR Project at the WWMF site remains OPG's preferred solution for the safe long-term management of the L&ILW, based on a relative consideration of environmental effects, transportation risks, transportation and other project-related costs and uncertainties, and the absence of certainty of improved safety or environmental quality at an alternate location.

In 2013, OPG suspended design activities on the project pending receipt of a site preparation and construction licence. If the decision on the EA is positive, the licensing process will resume. Upon receipt of the site preparation and construction licence, OPG will complete detailed design and development of a project schedule and a budget. In parallel, OPG will continue its engagement with the Saugeen Ojibway Nations toward securing community support for the L&ILW DGR. The approval of OPG's Board of Directors must also be obtained in order to proceed with construction. The in-service date of the L&ILW DGR is expected to be approximately six to seven years from the start of construction.

New Nuclear Units

The 2013 LTEP also indicated that the Ontario Ministry of Energy would work with OPG to maintain the site preparation licence granted by the CNSC in relation to the potential construction of these reactors. As such, OPG has been undertaking activities required to support the CNSC Power Reactor Site Preparation Licence and the

Darlington New Nuclear Project EA. The JRP Report on the EA had concluded that the project was not likely to cause significant adverse environmental effects, given mitigation. In April 2016, the Supreme Court of Canada dismissed the application for leave to appeal filed by the parties that had challenged the Darlington New Nuclear Project EA through a judicial review, concluding the litigation on the matter. The CNSC site preparation licence expires in 2022.

Financial Strength

As a commercial enterprise, OPG's financial priority is to achieve a consistent level of strong financial performance that delivers an appropriate level of return on the Shareholder's investment and positions the Company for future growth. Inherent in this priority are three objectives:

- Increase revenue, reduce costs and achieve appropriate return
- Ensure availability of cost effective funding for operational needs, generation development projects and long-term obligations
- Pursue opportunities to expand the existing core business and capitalize on new growth paths.

Increase Revenue, Reduce Costs and Achieve Appropriate Return

In line with its commercial mandate, OPG is focused on increasing revenue and achieving an appropriate rate of return on the Shareholder's investment, while taking into account the impact on Ontario electricity customers.

In order to achieve the above objectives with respect to the regulated operations, OPG is focused on clearly demonstrating in its rate applications to the OEB that the costs required to operate and invest in the assets are reasonable and being prudently incurred, and should be fully recovered, and that the Shareholder's investment in these assets should earn an appropriate rate of return. OPG's existing base regulated prices, which came into effect in November 2014, were lower than requested by OPG based on its forecast costs. This has negatively affected OPG's ability to earn the OEB-prescribed rate of return on the Shareholder's investment in the regulated assets.

To improve the financial strength of the regulated operations going forward, OPG has been focused on providing appropriate, transparent evidence in support of its OEB rate requests, aligning organizational resources to support an effective rate application process, and continuing to identify opportunities for further efficiencies in the Company's cost structure. To date, OPG's focus on cost reduction and efficiency improvement initiatives has resulted in significant changes across the Company. This includes over \$1 billion in cumulative savings realized across the Company since the beginning of 2011 from reductions in ongoing operations regular headcount through Business Transformation and other initiatives. OPG's cost and productivity improvement efforts are discussed further under the heading, *Operational Excellence*.

In the second quarter of 2016, OPG filed a 5-year application with the OEB for new base regulated prices for production from its regulated hydroelectric and nuclear facilities, with a proposed effective date of January 1, 2017. The OEB's decision on the application, including the effective date of the approved new regulated prices, is expected in the second half of 2017. Consistent with *Ontario Regulation 53/05*, OPG incorporated a nuclear rate smoothing proposal into its application, with a view of making more stable year-over-year changes in the nuclear base regulated prices during the Darlington Refurbishment period. The application seeks to ensure that nuclear regulated prices under the rate smoothing approach allow for sufficient cash flow to meet the Company's liquidity needs, support cost effective funding for the Darlington Refurbishment project and other expenditures, and maintain the Company's investment grade credit rating, while taking into account both near-term and future impact on customers. In addition, the application will further challenge and incentivize OPG to find additional cost reductions and efficiencies within its operations, as a result of greater de-coupling of regulated prices from costs and a longer rate-setting period under the OEB's incentive ratemaking framework. The application also seeks an increase in the deemed capital structure applied to the regulated rate base to 49 percent equity and 51 percent debt from 45 percent equity and 55 percent

debt. If approved, this would improve OPG's return on Shareholder's investment. Further details on OPG's rate application can be found under the heading, *Recent Developments* in the *Highlights* section.

For generation development projects that do not form a part of the assets regulated by the OEB, OPG's strategy has been to secure appropriate long-term revenue arrangements prior to proceeding with the project. In line with this strategy, most of OPG's non-regulated operating facilities and assets under construction are subject to ESAs with the IESO. Based on these agreements, OPG expects its non-regulated generation operations, reported under the Contracted Generation Portfolio segment, to continue to provide a generally stable level of earnings and cash flow going forward.

OPG's capital structure currently reflects lower levels of debt than the deemed capital structure reflected in the Company's existing or proposed regulated prices. OPG is evaluating strategies to enhance Shareholder returns by optimizing the Company's capital structure through better alignment with the deemed capital structure, taking into account the overall financial strength of the Company and the potential impact on the Company's investment grade credit rating.

Ensure Availability of Cost Effective Funding

OPG actively monitors its funding requirements and forecasts availability of funds to ensure that it can meet the Company's operational needs, project commitments and long-term obligations. OPG utilizes multiple sources of funds, including funds from operations, commercial paper, securitization of assets, letters of credit, credit facilities, long-term corporate debt, and private placement project financing. The Company's financing strategy leverages the strength of its balance sheet to obtain cost effective long-term corporate debt. OPG also accesses the capital markets for private placement project financing, secured by the assets of the project, where the characteristics of the project support such financing. Maintaining an investment grade credit rating is critical to OPG's ability to access cost effective financing.

In April 2016, DBRS Limited (DBRS) re-affirmed the long-term credit rating on OPG's debt at 'A (low)' and OPG's commercial paper rating at 'R-1 (low)'. All ratings from DBRS have a stable outlook. In July 2016, S&P Global Ratings (S&P) re-affirmed OPG's long-term credit rating at 'BBB+' with a stable outlook. S&P's commercial paper rating for OPG is 'A-1 (low)'.

OPG intends to continue to access the capital markets, where appropriate, to obtain cost effective financing for future generation development projects. The Company also continues to evaluate arrangements that would appropriately support its financing needs and capital expenditure programs. OPG's liquidity and capital resources are discussed under the section, *Liquidity and Capital Resources*.

Pursue Business Growth Opportunities

OPG pursues commercially-based business growth opportunities through investments in its core generation portfolio, as well as emerging renewable energy project opportunities. OPG's growth strategy considers the Company's financial position and anticipated future changes in the generating fleet, including the eventual end of Pickering commercial operations. The growth strategy is also informed by industry, technological, environmental, social, and economic external factors. Growth opportunities are evaluated using financial and risk-based analyses as well as strategic considerations.

OPG's core business growth strategy focuses on the renewal and expansion of the Company's generation portfolio of nuclear, hydroelectric and thermal generating assets in Ontario, including the redevelopment and expansion of existing sites and potential new developments. The strategy leverages OPG's operating and project development expertise as well as the Company's existing diverse physical asset base. OPG considers acquisition opportunities as they arise, taking into account operating synergies, strategic benefits, financial returns and risk profile. OPG's current major generation development projects and asset life extension initiatives are discussed under the headings, *Operational Excellence* and *Project Excellence* in the *Core Business and Strategy* section.

OPG seeks to continue to expand beyond its core generation business through investments in innovation and emergent low-carbon technologies, including selective solar generation, energy storage, micro-grid, electric vehicle infrastructure and other development. OPG is also considering longer-term growth paths that include broader electricity sector opportunities, within and outside Ontario. Growth opportunities may be pursued in partnership with other commercial entities where appropriate synergies exist and are aligned with OPG's business objectives.

In March 2016, Nanticoke Solar LP was selected, through the first phase of the IESO's LRP program, to develop a 44 MW solar facility at OPG's Nanticoke GS site and adjacent lands. The partnership and the IESO executed a 20-year LRP contract in March 2016, which formalized the terms and conditions for the development and operation of the new solar facility. In September 2016, the Government of Ontario suspended the second phase of the LRP program, which does not impact the project.

From October 2016 to December 2016, the Government of Ontario conducted a consultation process to update its LTEP. OPG made a formal submission as part of the consultation as it relates to OPG's core generation business and growth opportunities. The Ontario Ministry of Energy has indicated that the development of the updated LTEP, scheduled to be published in 2017, will balance the principles of affordability, reliability, clean energy, community and Indigenous engagement, as well as conservation and demand management. OPG's business growth opportunities may be affected by the results of the 2017 LTEP.

Social Licence

As the largest, publicly-owned electricity generator in Ontario with diverse operations across the province, OPG holds itself accountable to the public and its employees, and continues to focus on maintaining public trust. OPG is committed to maintaining high standards of public safety and corporate citizenship, including environmental stewardship, transparency, community engagement, and Indigenous relations. OPG's commitment to safety is discussed under the heading, *Workplace and Public Safety* in the *Core Business and Strategy* section.

OPG is focused on building long-term, mutually beneficial working relationships with Indigenous communities, businesses and organizations across Ontario, and continues to support procurement, employment and educational opportunities with its Indigenous community partners. The Company seeks to establish relationships with Indigenous communities based on a foundation of respect for their languages, customs, and political, social and cultural organizations. OPG's commitment in this area includes pursuing generation-related development partnerships on the basis of long-term commercial arrangements, and other joint projects. Recent examples of partnerships include the Peter Sutherland Sr. GS in partnership with the Taykwa Tagamou Nation, the development of the Nanticoke solar facility in partnership with the Six Nations of the Grand River, and two recently completed shoreline remediation projects. The Whitesand First Nation, working closely with OPG, completed a project to remediate nearly two kilometers of shoreline in 2016, while the Long Lake #58 First Nation undertook the management of a five-year shoreline remediation project. OPG also has been engaging proactively with Indigenous communities regarding the Company's nuclear operations, including both regularly scheduled meetings and an outreach effort in connection with OPG's proposed L&ILW DGR and the re-licensing of the PWWF and the WWMF. In November 2016, OPG was recognized for its ongoing commitment to engaging local Indigenous communities with the CEA's 2016 Sustainable Electricity award for Leadership in External Collaboration and Partnerships.

OPG is committed to being an open, transparent, and accountable company. With operations across Ontario, OPG works to maintain public trust with stakeholders by engaging site communities, sharing information, and being transparent about performance. In addition, OPG's operations are subject to extensive regulatory oversight, with public participation, by the CNSC, the OEB, and other bodies.

As part of its commitment to environmental sustainability, OPG works with community partners to support regional ecosystems and biodiversity. In 2016, OPG continued efforts to protect and restore habitat, promote biodiversity education and awareness, and help the recovery of species at risk. In addition, OPG helps contribute to the well-being of its host communities through the Company's Corporate Citizenship Program (CCP), which supports

charitable and non-profit grassroots initiatives in the areas of environment, education, and community, which includes support for including Indigenous initiatives. In 2016, OPG's CCP provided support to over 850 initiatives, of which 87 were Indigenous.

Further details regarding OPG's commitment to sustainable development, including information regarding the Company's environmental, social and economic performance and initiatives, are provided in OPG's 2015 Sustainability Report available on the Company's website at www.opg.com.

Outlook

The financial performance of OPG's regulated operations is driven, in large part, by the outcome of applications for regulated prices to the OEB. The existing base regulated prices were established by the OEB effective November 1, 2014 based on a forecast of revenue requirement and production for the regulated facilities for the 2014 to 2015 period. The future outcome of OPG's application for new base regulated prices submitted to the OEB in May 2016 is expected to provide substantial price certainty for the regulated business for the 2017 to 2021 period.

In its May 2016 application, OPG has requested January 1, 2017 as the effective date for the new regulated prices. In December 2016, the OEB issued an order declaring the existing base regulated prices interim, which preserves the OEB's ability to make the new regulated prices effective as early as January 1, 2017. The OEB's decision on the application, including the effective date of the new regulated prices, is expected in the second half of 2017. Considering the timing of OPG's application and OPG's procedural adherence to date, the Company believes that the OEB could make the new regulated prices effective January 1, 2017.

Until the OEB's decision on OPG's application is issued, the continuation of existing regulated prices is expected to contribute to lower income, particularly from the Regulated – Nuclear Generation segment, and lower ROE Excluding AOCI in 2017, compared to 2016. In large part, this is due to the expected year-over-year reduction in nuclear electricity generation resulting from the full year effect of the Unit 2 refurbishment outage at the Darlington GS, given that the existing nuclear regulated prices were determined based on a production forecast that reflected the operation of all four units at the station. As such, the OEB's decision on the effective date of the new regulated prices, as well as the timing of the decision's issuance could have a significant impact on OPG's financial results during 2017. The application for new regulated prices is further discussed in the *Highlights* section under the heading, *Recent Developments*.

Nuclear base regulated prices resulting from OPG's current application will be subject to a rate smoothing mechanism that defers collection of a portion of OEB-approved revenues. Combined with the expiry of rate riders in effect during 2016 and a year-over-year reduction in nuclear generation due to the Darlington Unit 2 refurbishment, as expected, OPG anticipates this to result in lower cash flow from operations and lower Adjusted FFO Interest Coverage ratio in 2017, compared to 2016. OPG expects to continue to have the necessary financial capacity and sufficient access to cost effective financing sources to continue to fund its capital requirements and other disbursements. In addition, the expected reduction in nuclear generation as a result of the planned outages at Darlington GS is expected to negatively impact the Enterprise TGC metric for the duration of the refurbishment project. Other factors that may impact the Enterprise TGC include potential hydroelectric generation losses due to surplus baseload generation conditions and planned capital expenditures.

Several OEB-authorized regulatory variance and deferral accounts currently in place contribute to reducing the relative variability of the Company's income and ROE Excluding AOCI. Among others, variance accounts include those related to the revenue impact of variability in water flows and SBG conditions at the regulated hydroelectric stations. There is no variance or deferral account in place related to the impact of generation performance of the nuclear stations on revenue from base regulated prices. Pursuant to the Settlement Agreement, these and all other applicable existing variance and deferral accounts have been approved to continue once new regulated prices take effect. Considering the impacts of these accounts, the Regulated – Hydroelectric segment generally is expected to produce overall more predictable earnings compared to the Regulated – Nuclear Generation segment. **[MONITOR]**

OPG continues to operate and maintain its nuclear facilities with a view to optimize their performance and availability, while focusing on improving the overall reliability and predictability of the fleet.

Electricity generated from most of OPG's non-regulated assets is subject to ESAs with the IESO. Based on these agreements, OPG expects the Contracted Generation Portfolio segment to continue to contribute a generally stable level of earnings and cash flow going forward.

OPG's forecast capital expenditures for 2017 are approximately \$1.8 billion. This includes amounts for the Darlington Refurbishment project, hydroelectric development projects including the completion of the Peter Sutherland Sr. GS and the expansion of the Ranney Falls GS, and sustaining capital investments across the generating fleet. OPG's major development projects are discussed in the *Project Excellence* section.

In addition to the operating and financial performance of the electricity generation business, OPG's results are affected by the earnings on the Nuclear Segregated Funds, which are reported in the Regulated – Nuclear Waste Management segment. While the Nuclear Segregated Funds are managed to achieve, in the long term, the target rate of return based on the discount rate specified in the ONFA, the rates of return earned in a given period can be subject to various external factors including financial market conditions and changes in the Ontario CPI, which, in the short term, can be volatile and cause fluctuations in the Company's income. This volatility has been partially mitigated by the impact of the Bruce Lease Net Revenues Variance Account. OPG is exposed to rate of return risk for the portion of the Nuclear Segregated Funds related to the Pickering and Darlington nuclear generating stations under the OEB-approved cost recovery methodologies for the Nuclear Liabilities.

As OPG limits the amount of Nuclear Segregated Funds assets reported on the balance sheet to the present value life cycle liabilities per the most recently approved ONFA reference plan, the volatility of earnings on the Nuclear Segregated Funds reflected in net income is reduced when the Nuclear Segregated Funds are in a fully funded or overfunded position. As at December 31, 2016, the Decommissioning Segregated Fund was overfunded by 21 percent, and the Used Fuel Segregated Fund was marginally overfunded by less than one percent, relative to the liabilities per the 2017 ONFA Reference Plan. Variability in asset performance due to volatility inherent in financial markets and changes in Ontario CPI may result in either or both funds becoming underfunded in the future, which would increase earnings volatility. The 2017 ONFA Reference Plan is discussed in the *Highlights* section, under the heading *Recent Developments*. The accounting for the Nuclear Segregated Funds is discussed in the section *Critical Accounting Policies*, under the heading *Nuclear Fixed Asset Removal and Nuclear Waste Management Funds*.

KEY OPERATING AND FINANCIAL PERFORMANCE INDICATORS

OPG evaluates the performance of its generating stations using a number of key indicators. Key operating performance indicators aligned with corporate strategic imperatives are measures of production reliability, cost effectiveness, environmental performance, and safety performance. Certain of the measures used vary depending on the generating technology. The key financial performance indicators evaluate the Company's financial performance at the enterprise level.

In 2016, OPG adopted Enterprise TGC per MWh as an enterprise-wide measure of operational cost effectiveness. Concurrently, OPG adopted Hydroelectric TGC per MWh as a measure of cost performance of OPG's hydroelectric generating assets and no longer reports Hydroelectric OM&A expense per MWh. The new performance measures, together with Nuclear TGC per MWh, provide the Company with a single, consistent method of evaluating cost effectiveness across the organization.

Enterprise TGC, Nuclear TGC, Hydroelectric TGC, ROE Excluding AOCI, and the FFO Adjusted Interest Coverage ratio discussed below are not measurements in accordance with US GAAP. They should not be considered as alternative measures to net income or any other measure of performance under US GAAP. However, OPG believes that these non-GAAP financial measures are effective indicators of its performance and are consistent with the

Company's strategic imperatives and related objectives. The definition and calculation of Enterprise TGC per MWh, Nuclear TGC per MWh, Hydroelectric TGC per MWh, ROE Excluding AOCI and FFO Adjusted Interest Coverage are found in the section, *Supplementary Non-GAAP Financial Measures*.

Enterprise Total Generating Cost per MWh

Enterprise TGC per MWh is used to measure OPG's overall organizational cost performance. Enterprise TGC per MWh is defined as OM&A expenses (excluding Darlington Refurbishment project and other generation development project costs, the impact of regulatory variance and deferral accounts, and expenses ancillary to OPG's electricity generation business), fuel expense for OPG-operated stations including hydroelectric gross revenue charge and water rental payments (excluding the impact of regulatory variance and deferral accounts), and capital expenditures (excluding the Darlington Refurbishment project and other generation development projects) incurred during the period, divided by total electricity generation plus electricity generation foregone due to SBG conditions during the period.

Nuclear Total Generating Cost per MWh

Nuclear TGC per MWh is used to measure the cost performance of OPG's nuclear generating assets. Nuclear TGC per MWh is defined as OM&A expenses of the Regulated – Nuclear Generation segment (excluding Darlington Refurbishment project costs, the impact of regulatory variance and deferral accounts and expenses ancillary to OPG's nuclear electricity generation business), nuclear fuel expense for OPG-operated stations (excluding the impact of regulatory variance and deferral accounts), and capital expenditures of the Regulated – Nuclear Generation segment (excluding Darlington Refurbishment project costs) incurred during the period, divided by nuclear electricity generation for the period.

Hydroelectric Total Generating Cost per MWh

Hydroelectric TGC per MWh is used to measure the cost performance of OPG's hydroelectric generating assets. Hydroelectric TGC per MWh is defined as OM&A expenses of the Regulated – Hydroelectric segment and the hydroelectric facilities included in the Contracted Generation Portfolio segments (excluding generation development project costs, the impact of regulatory variance and deferral accounts, and expenses ancillary to the hydroelectric electricity generation business), hydroelectric gross revenue charge and water rental payments (excluding the impact of regulatory variance and deferral accounts), and capital expenditures of the Regulated – Hydroelectric segment and the hydroelectric facilities included in the Contracted Generation Portfolio segment (excluding expenditures related to the Peter Sutherland Sr. GS project and other hydroelectric generation development projects) incurred during the period, divided by total hydroelectric electricity generation plus hydroelectric electricity generation foregone due to SBG conditions during the period. OPG reports hydroelectric gross revenue charge and water rental payments as fuel expense.

Nuclear Unit Capability Factor

OPG's nuclear stations are baseload facilities and are not designed for fluctuating production levels to meet peaking demand. The nuclear Unit Capability Factor is a key measure of nuclear station performance. It measures the amount of energy that the unit(s) generated over a period of time, adjusted for externally imposed constraints such as transmission or demand limitations, as a percentage of the amount of energy that would have been produced over the same period had the unit(s) produced maximum generation. Capability factors are primarily affected by planned and unplanned outages. By industry definition, capability factors exclude production losses beyond plant management's control, such as grid-related unavailability. The nuclear Unit Capability Factor also excludes unit(s) during the period in which they are undergoing refurbishment. Accordingly, Unit 2 of the Darlington GS is excluded from the measure effective October 15, 2016, when the unit was taken offline as part of the Darlington Refurbishment project.

Hydroelectric Availability

OPG's hydroelectric stations operate as baseload, intermediate, or peaking stations. Hydroelectric Availability is a measure of the reliability of a hydroelectric generating unit. It represents the percentage of time the generating unit is capable of providing service, whether or not it is actually generating electricity, compared to the total time for the respective period.

Thermal Equivalent Forced Outage Rate

Equivalent Forced Outage Rate (EFOR) is an index of the reliability of a generating unit at OPG's thermal stations. It is measured by the ratio of time a generating unit is forced out of service by unplanned events, including any forced deratings, compared to the amount of time the generating unit was available to operate.

Return on Common Equity Excluding Accumulated Other Comprehensive Income

ROE Excluding AOCI is an indicator of OPG's performance consistent with its objective to deliver value to the Shareholder. ROE Excluding AOCI is defined as net income attributable to the Shareholder for the period divided by average equity attributable to the Shareholder excluding AOCI for that period, and is measured over a period of 12 months.

Funds from Operations Adjusted Interest Coverage

The FFO Adjusted Interest Coverage ratio is an indicator of OPG's ability to meet interest obligations from operating cash flow and is consistent with the Company's objective of ensuring availability of cost effective funding. The FFO Adjusted Interest Coverage ratio is defined as FFO before interest divided by adjusted interest expense, and is measured over a period of 12 months.

Other Key Indicators

In addition to production reliability, cost effectiveness, and financial performance indicators, OPG has identified certain environmental and safety performance measures. These measures are discussed under the section, *Core Business, Strategy and Outlook*.

BUSINESS SEGMENTS

OPG has the following five reportable business segments:

- Regulated – Nuclear Generation
- Regulated – Nuclear Waste Management
- Regulated – Hydroelectric
- Contracted Generation Portfolio
- Services, Trading, and Other Non-Generation.

Regulated – Nuclear Generation Segment

The Regulated – Nuclear Generation business segment operates in Ontario, generating and selling electricity from the Pickering GS and the Darlington GS, both owned and operated by OPG. The business segment also includes revenue under the terms of a long-term lease arrangement and related agreements with Bruce Power related to the Bruce nuclear generating stations. This revenue includes lease revenue, fees for nuclear waste management, and revenue from heavy water sales and detritiation services. The segment also earns revenue from isotope sales and ancillary services supplied by OPG-operated nuclear stations. Ancillary revenues are earned through voltage control and reactive support. Revenues under the agreements with Bruce Power and from isotope sales and ancillary

services are included by the OEB in the determination of the regulated prices for production from OPG's nuclear facilities, which has had the effect of reducing these regulated prices.

Regulated – Nuclear Waste Management Segment

OPG's Regulated – Nuclear Waste Management segment reports the results of the Company's operations associated with the management of nuclear used fuel and L&ILW, the decommissioning of OPG's nuclear generating stations including the stations on lease to Bruce Power and other facilities, the management of the Nuclear Segregated Funds, and related activities including the inspection and maintenance of the waste storage facilities. Accordingly, accretion expense, which is the increase in the Nuclear Liabilities carried on the consolidated balance sheets in present value terms due to the passage of time, and earnings from the Nuclear Segregated Funds are reported under this segment.

As the nuclear generating stations operate over time, OPG incurs incremental costs related to used nuclear fuel L&ILW, which increase the Nuclear Liabilities. OPG charges these incremental costs to current operations in the Regulated – Nuclear Generation segment to reflect the cost of producing energy from the Pickering and Darlington nuclear generating stations and earning revenue under the Bruce Power lease arrangement and related agreements. Since the incremental costs increase the Nuclear Liabilities in the Regulated – Nuclear Waste Management segment, OPG records an inter-segment charge between the Regulated – Nuclear Generation and the Regulated – Nuclear Waste Management segments. The impact of the inter-segment charge is eliminated in the consolidated statements of income and balance sheets.

The Regulated – Nuclear Waste Management segment is considered rate regulated because OPG's costs associated with the Nuclear Liabilities have been included by the OEB in the determination of regulated prices for production from the Pickering and Darlington nuclear generating stations, in accordance with the methodologies applied since the OEB's 2008 decision on OPG's first application for regulated prices.

Regulated – Hydroelectric Segment

OPG's Regulated – Hydroelectric business segment operates in Ontario, generating and selling electricity from most of the Company's hydroelectric generating stations. The business segment includes the results of the Sir Adam Beck 1, 2 and Pump generating stations, the DeCew Falls 1 and 2 generating stations, and the R.H. Saunders GS that were prescribed for rate regulation prior to 2014, and the 48 hydroelectric stations prescribed for rate regulation effective in 2014.

In addition, the business segment includes ancillary and other revenues from OPG's regulated hydroelectric stations. Ancillary revenues are earned through offering available generating capacity as operating reserve and through the supply of other ancillary services including voltage control and reactive support, certified black start facilities, regulation service, and other services. These ancillary revenues and other revenues are included by the OEB in the determination of the regulated prices for production from OPG's prescribed hydroelectric facilities, which has had the effect of reducing these regulated prices.

Contracted Generation Portfolio Segment

The Contracted Generation Portfolio business segment operates in Ontario, generating and selling electricity from the Company's generating stations that are not prescribed for rate regulation. The segment primarily includes generating facilities that are under an ESA with the IESO or other long-term contracts.

The Contracted Generation Portfolio segment also includes OPG's share of equity income from its 50 percent ownership interests in the PEC and Brighton Beach stations. Brighton Beach operates under an energy conversion agreement between Brighton Beach and Shell Energy North America (Canada) Inc, and the PEC station is operated under the terms of an Accelerated Clean Energy Supply contract with the IESO. OPG's share of the in-service

generating capacity and generation volume from its interests in the PEC and Brighton Beach stations are reported in this segment.

The business segment also includes ancillary revenues and other revenues from the stations included in the segment, which are earned through offering available generating capacity as operating reserve, and the supply of other ancillary services including voltage control and reactive support, certified black start facilities, regulation service, and other services.

Services, Trading, and Other Non-Generation Segment

The Services, Trading, and Other Non-Generation segment is a non-generation segment that is not subject to rate regulation. It includes the revenue and expenses related to OPG's trading and other non-hedging activities. As part of trading activities, OPG transacts with counterparties in Ontario and neighbouring energy markets in predominantly short-term trading activities of typically one year or less in duration. These activities relate to electricity that is purchased and sold at the Ontario border, financial energy trades, financial risk management energy product revenues, and sales of energy-related products. In addition, OPG has a wholly owned trading subsidiary that transacts solely in the United States (US) market. The results of this subsidiary are reported in this segment. All contracts that are not designated as hedges are recorded as assets or liabilities at fair value on the consolidated balance sheets, with changes in fair value recorded in the revenue of this segment. In addition, the segment includes revenue from real estate rentals and non-regulated services, non-regulated business development activities, and preservation costs related to the Lambton and Nanticoke generating stations' sites.

DISCUSSION OF OPERATING RESULTS BY BUSINESS SEGMENT

Regulated – Nuclear Generation Segment

<i>(millions of dollars)</i>	2016	2015
Revenue	3,481	3,245
Fuel expense	315	301
Gross margin	3,166	2,944
Operations, maintenance and administration	2,210	2,196
Depreciation and amortization	925	717
Property taxes	26	26
Income before other loss, interest, and income taxes	5	5
Other loss	1	3
Income before interest and income taxes	4	2

Income before interest and income taxes from the segment increased to \$4 million in 2016, compared to \$2 million in 2015. The improvement in earnings of \$2 million was primarily due to higher electricity generation in 2016, compared to 2015, which increased revenue from the nuclear base regulated price. The increase in revenue was largely offset by higher OM&A expenses, higher fuel expense, and higher depreciation and amortization expense, excluding amortization expense related to regulatory balances, in 2016, compared to 2015.

Higher nuclear production of 1.1 TWh in 2016, compared to 2015, was primarily due to the planned four-unit VBO in 2015 and a decrease in the number of unplanned outages at the Darlington GS in 2016. This was partially offset by the impact of the increased number of unplanned outage days at the Pickering GS in 2016, and the removal from service of Unit 2 of the Darlington GS in October 2016 as part of the Darlington Refurbishment project.

The increase in OM&A expenses of \$14 million in 2016 reflected higher expenses related to materials and supplies obsolescence recognized in 2016. The increase in fuel expense of \$14 million reflected higher uranium prices and

higher generation in 2016. Depreciation and amortization expense, excluding amortization expense related to regulatory balances, increased by \$12 million primarily due to new assets in service in 2016.

A decrease in non-electricity generation revenue in 2016, compared to 2015, also partially offset the increase in segment earnings. The lower non-electricity generation revenue was mainly attributable to lower detritiation services revenue and lower isotope sales in 2016 and an insurance recovery recognized in 2015.

A higher OEB-authorized rate rider of \$10.84/MWh effective from July 1, 2015 to the end of 2016 contributed to the increase in segment revenue in 2016, compared to 2015. In the first half of 2015, OPG received a rate rider of \$1.33/MWh. As the rate riders allow for recovery of approved balances in OEB-authorized regulatory variance and deferral accounts, this increase in revenue was largely offset by an increase in amortization expense related to the regulatory balances.

The Unit Capability Factors for the Darlington GS and Pickering GS for 2016 and 2015 were as follows:

	2016	2015
Unit Capability Factor (%) ¹		
Darlington GS	89.5	76.9
Pickering GS	75.2	79.4

¹ The nuclear unit capability factor excludes unit(s) during the period in which they are undergoing refurbishment. Accordingly, Unit 2 of the Darlington GS was excluded from the measure effective October 15, 2016, when the unit was taken offline for refurbishment.

The Unit Capability Factor at the Darlington GS increased in 2016, compared to 2015, primarily due to the four-unit VBO completed during 2015. In addition, a lower number of unplanned outage days at the Darlington GS during 2016, compared to 2015, also contributed to the improvement in the Unit Capability Factor.

The decrease in the Unit Capability Factor at the Pickering GS in 2016, compared to 2015, was primarily due to a higher number of unplanned outage days at the station in 2016, as a result of emergent discovery work during planned outages.

The definition of the nuclear Unit Capability Factor is found under the heading, *Key Operating and Financial Performance Indicators*.

Regulated – Nuclear Waste Management Segment

	2016	2015
Revenue	138	122
Operations, maintenance and administration	146	132
Accretion on nuclear fixed asset removal and nuclear waste management liabilities	912	880
Earnings on nuclear fixed asset removal and nuclear waste management funds	(746)	(704)
Loss before interest and income taxes	(174)	(186)

Earnings from the segment improved by \$12 million in 2016 compared to 2015. The improvement was primarily due to higher earnings from the Nuclear Segregated Funds, partially offset by an increase in accretion expense on the Nuclear Liabilities.

The improvement in Nuclear Segregated Funds earnings was primarily due to an increase in the Used Fuel Segregated Fund earnings due to higher CPI-adjusted rate of return guaranteed by the Province for funding related to the initial 2.23 million used fuel bundles. Pursuant to the ONFA, the guaranteed annual rate of return for that portion of the Used Fuel Segregated Fund is set at 3.25 percent plus the change in the Ontario CPI. This increase in

Nuclear Segregated Funds earnings was partially offset by an accounting adjustment recognized in the fourth quarter of 2016 to limit the fund asset values recorded in OPG's consolidated financial statements to the lower underlying obligations reflected in the 2017 ONFA Reference Plan. The 2017 ONFA Reference Plan was approved by the Province in December 2016, and is discussed in the section, *Highlights* under the heading, *Recent Developments*. The accounting for the Nuclear Segregated Funds is discussed in the *Critical Accounting Policies and Estimates* section. The Nuclear Segregated Funds earnings are reported net of the impact of the Bruce Lease Net Revenue Variance Account.

The higher accretion expense on the Nuclear Liabilities during 2016, compared to 2015, reflected an upward adjustment in the liabilities recognized in December 2015 related to the revised accounting assumptions for the estimated useful lives of OPG's nuclear generating stations. The increased accretion expense was partially offset by the impact of the Bruce Lease Net Revenues Variance Account. The changes in the assumed estimated useful lives of the nuclear stations and the related adjustment to Nuclear Liabilities are discussed further in the section, *Balance Sheet Highlights* under the heading, *Impact of Changes in Station End-of-Life Dates Deferral Account*.

Regulated – Hydroelectric Segment

<i>(millions of dollars)</i>	2016	2015
Revenue ¹	1,527	1,619
Fuel expense	353	345
Gross margin	1,174	1,274
Operations, maintenance and administration	325	340
Depreciation and amortization	225	282
Property tax	1	1
Income before other (income) loss, interest and income taxes	623	651
Other (income) loss	(19)	3
Income before interest and income taxes	642	648

¹ During 2016 and 2015, the Regulated – Hydroelectric segment revenue included incentive payments of \$14 million and \$26 million, respectively, related to the OEB-approved hydroelectric incentive mechanism. The mechanism provides a pricing incentive to OPG to shift hydroelectric production from lower market price periods to higher market price periods, reducing the overall costs to customers.

The decrease in income before interest and income taxes of \$6 million in 2016, compared to 2015, was primarily due to lower hydroelectric incentive mechanism payments and the income impact of OEB-approved variance accounts. The lower payments under the hydroelectric incentive mechanism were primarily due to the reservoir refurbishment outage at the Sir Adam Beck Pump GS during 2016. The decrease in segment income was partially offset by a gain of \$22 million recognized during the first quarter of 2016 to reflect the OEB's January 2016 decision to reverse a portion of an earlier capital cost disallowance related to the Niagara Tunnel project expenditures, in response to OPG's December 2014 motion. The decrease in segment income also was partially offset by a year-over-year decrease in OM&A expenses, primarily due to higher costs incurred in 2015 for shoreline remediation work.

The decrease in segment revenues due to the lower OEB-authorized rate rider in 2016, compared to 2015, was largely offset by a corresponding decrease in amortization expense related to the regulatory balances.

The Hydroelectric Availability for the stations included in the Regulated – Hydroelectric segment was as follows:

	2016	2015
Hydroelectric Availability (%)	89.0	91.2

The Hydroelectric Availability decreased during 2016, compared to 2015, primarily due to the planned reservoir refurbishment project at the Sir Adam Beck Pump GS. The project was completed in February 2017.

The definition of Hydroelectric Availability is found under the heading, *Key Operating and Financial Performance Indicators*.

Contracted Generation Portfolio Segment

<i>(millions of dollars)</i>	2016	2015
Revenue	573	535
Fuel expense	58	39
Gross margin	515	496
Operations, maintenance and administration	178	185
Depreciation and amortization	75	72
Accretion on fixed asset removal liabilities	9	8
Property taxes	7	7
Income from investments subject to significant influence	(37)	(39)
Income before other loss, interest, and income taxes	283	263
Other loss	1	1
Income before interest and income taxes	282	262

Income before interest and income taxes increased by \$20 million during 2016, compared to 2015. The increase primarily resulted from the higher gross margin, due to increased revenues from the Lower Mattagami River generating stations, the Lennox GS, and the Atikokan GS. Higher revenue from the Lennox GS was primarily due to increased market demand. The increase in revenue from the Atikokan GS reflected the support provided to the electricity system in northwestern Ontario as a result of an outage at a local transformer station from late July 2016 to early September 2016. The year-over-year increase in segment revenue was also due to a provision made in 2015 related to an IESO audit.

The Hydroelectric Availability and the Thermal EFOR for the Contracted Generation Portfolio segment were as follows:

	2016	2015
Hydroelectric Availability (%)	77.3	88.6
Thermal EFOR (%)	1.6	11.2

Lower Hydroelectric Availability during 2016, compared to 2015, was primarily due to a higher number of planned outage days at the Kipling and Harmon generating stations on the Lower Mattagami River. During 2016, headgate replacements were made at certain units of the Kipling GS and Harmon GS. In addition, a runner upgrade and rehabilitation work was completed at Unit 2 of the Harmon GS. The lower thermal EFOR in 2016, compared to 2015, was primarily due to an outage in 2015 to perform repair work at the Lennox GS.

The definitions of Hydroelectric Availability and Thermal EFOR are found under the heading, *Key Operating and Financial Performance Indicators*.

Services, Trading, and Other Non-Generation Segment

<i>(millions of dollars)</i>	2016	2015
Revenue	68	73
Fuel expense	1	2
Gross margin	67	71
Operations, maintenance and administration	22	48
Depreciation and amortization	32	29
Accretion on fixed asset removal liabilities	8	7
Property taxes	12	11
Restructuring	6	6
Loss before other loss, interest, and income taxes	(13)	(30)
Other loss	-	7
Loss before interest and income taxes	(13)	(37)

Segment earnings improved by \$24 million in 2016 compared to 2015. The losses incurred by the segment in 2015 and 2016 largely reflect the costs associated with the Nanticoke and Lambton generating stations prior to OPG's decisions, in 2015 and November 2016, respectively, to proceed with the stations' decommissioning. These losses are partially offset by OPG's trading activities.

The improvement in earnings in 2016 primarily reflected higher OM&A expenses in 2015, including those incurred related to the Nanticoke GS prior to OPG's decision to proceed with the station's decommissioning, and a provision made in 2015 related to an IESO audit. The year-over-year decrease in OM&A expenses also reflected reduced work programs at the Lambton GS during 2016 due to lower staffing levels used to preserve the station. The preservation activities were discontinued after the announcement to decommission the station. Expenditures incurred in connection with decommissioning activities for the Nanticoke and Lambton generating stations are charged against a previously established decommissioning provision.

During each of 2016 and 2015, OPG recorded a charge against earnings to adjust the scrap value estimates for the Lambton GS. In 2016, this adjustment was offset by dividend income earned from OPG's investment in Hydro One shares, which contributed to the year-over-year improvement in earnings.

LIQUIDITY AND CAPITAL RESOURCES

OPG's primary sources of liquidity and capital are funds generated from operations, bank financing, credit facilities provided by the Ontario Electricity Financial Corporation (OEFC), long-term corporate debt, and capital market financing. These sources are used for multiple purposes including: to invest in plants and technologies; to undertake major projects; to fund long-term obligations such as contributions to the pension fund; to make payments under the OPEB plans; to fund expenditures on Nuclear Liabilities not eligible for reimbursement from the Nuclear Segregated Funds; and to service and repay long-term debt.

Changes in cash and cash equivalents for 2016 and 2015 are as follows:

<i>(millions of dollars)</i>	2016	2015
Cash and cash equivalents, beginning of period	464	610
Cash flow provided by operating activities	1,705	1,465
Cash flow used in investing activities	(1,807)	(1,553)
Cash flow used in financing activities	(176)	(58)
Net decrease	(278)	(146)
Cash and cash equivalents, end of period	186	464

For a discussion regarding cash flow provided by operating activities and the FFO Adjusted Interest Coverage ratio, refer to the details under the heading, *Overview of Results* in the section, *Highlights*.

Investing Activities

Electricity generation is a capital-intensive business. It requires continued investment in plants and technologies to maintain and improve operating performance including asset reliability, safety and environmental performance, to increase generating capacity of existing stations, and to invest in the development of new generating stations, emerging technologies and other business growth opportunities.

Cash flow used in investing activities in 2016 was \$1,807 million, compared to \$1,553 million in 2015. The increase was primarily due to higher expenditures on the Darlington Refurbishment project as it transitioned to execution phase, and the acquisition of nine million common shares of Hydro One in April 2016. The increase in cash flow used in investing activities in 2016, compared to 2015, was partially offset by the investment of proceeds from a long-term debt issuance in support of the Peter Sutherland Sr. GS project into a structured deposit note in 2015, and the subsequent receipt of proceeds from this investment on staggered maturity dates throughout 2016. The final maturity date of the deposit note is in April 2017. The acquisition of the Hydro One shares is discussed under the heading *Recent Developments* in the *Highlights* section, as well as in Note 3 of the Company's 2016 audited consolidated financial statements.

OPG's forecast capital expenditures for 2017 are approximately \$1.8 billion. This includes amounts for the Darlington Refurbishment project, sustaining capital investments across the generating fleet, and hydroelectric development projects including the expansion of the Ranney Falls GS and the completion of Peter Sutherland Sr. GS.

Financing Activities

OPG maintains a \$1 billion revolving committed bank credit facility, which is divided into two \$500 million multi-year term tranches. In the second quarter of 2016, OPG renewed and extended the expiry date of both tranches from May 2020 to May 2021. As at December 31, 2016, there were no outstanding borrowings under the bank credit facility.

As at December 31, 2016, OPG also maintained \$25 million of short-term, uncommitted overdraft facilities, and a further \$460 million of short-term, uncommitted credit facilities, which support the issuance of the Letters of Credit. OPG uses Letters of Credit to support its supplementary pension plans and for other general corporate purposes. As at December 31, 2016, a total of \$386 million of Letters of Credit had been issued under these facilities. This included \$349 million for the supplementary pension plans, \$36 million for general corporate purposes, and \$1 million related to the operation of the PEC.

The Company has an agreement to sell an undivided co-ownership interest in its current and future accounts receivable to an independent trust. The maximum amount of co-ownership interest that can be sold under this

agreement is \$150 million. In October 2016, the expiry date of the agreement was extended from November 30, 2016 to November 30, 2018. As at December 31, 2016, no borrowings were issued under this agreement and there were Letters of Credit outstanding under this agreement of \$150 million, which were issued in support of OPG's supplementary pension plan.

As at December 31, 2016, the Lower Mattagami Energy Limited Partnership (LME) maintained a \$500 million bank credit facility to support the funding requirements for the Lower Mattagami River project including support for LME's commercial paper program. The facility consists of a \$300 million tranche maturing in August 2021 and a \$200 million tranche maturing in August 2017. As at December 31, 2016, there was no external commercial paper outstanding under LME's commercial paper program. There were also no amounts outstanding under LME's bank credit facility as at December 31, 2016. In October 2016, LME issued senior notes totalling \$220 million maturing in October 2026. The effective interest rate and coupon interest rate of these notes were 2.40 percent and 2.31 percent, respectively.

In December 2014, OPG entered into an \$800 million general corporate credit facility with the OEFC in support of its financing requirements for 2015 and 2016. As of December 31, 2016, there were outstanding borrowings of \$100 million under this credit facility. The balance of the credit facility expired on December 31, 2016. In June 2016, OPG entered into a \$700 million general corporate credit facility agreement with the OEFC, which expires on December 31, 2017. There were no outstanding borrowings under this credit facility as of December 31, 2016.

As at December 31, 2016, OPG's long-term debt outstanding was \$5,534 million, including \$1,103 million due within one year.

In February 2017, OPG issued senior notes payable to the OEFC totalling \$200 million and maturing in February 2047. The effective interest rate and coupon interest rate of these notes is x.xx percent and x.xx percent, respectively. **[MONITOR]**

OPG continues to evaluate arrangements that would appropriately support the Company's financing needs and capital expenditure programs.

Contractual and Commercial Commitments

OPG's contractual obligations and commercial commitments as at December 31, 2016, were as follows:

<i>(millions of dollars)</i>	2017	2018	2019	2020	2021	Thereafter	Total
Fuel supply agreements	186	169	96	76	61	102	690
Contributions to the OPG registered pension plan ¹	248	251	-	-	-	-	499
Long-term debt repayment	1,103	398	368	663	413	2,589	5,534
Interest on long-term debt	252	196	177	155	125	2,241	3,146
Commitments related to Darlington Refurbishment project ²	473	-	-	-	-	-	473
Commitments related to Peter Sutherland Sr. GS project	46	-	-	-	-	-	46
Operating licences	43	37	23	24	28	114	269
Operating lease obligations ³	24	27	25	25	23	92	216
Unconditional purchase obligations	65	58	57	55	4	-	239
Accounts payable and accrued charges	916	-	-	-	-	18	934
Other	52	6	1	2	1	65	127
Total	3,408	1,142	747	1,000	655	5,221	12,173

¹ The pension contributions include ongoing funding requirements and additional funding requirements towards the deficit, in accordance with the actuarial valuation of the OPG registered pension plan as at January 1, 2016, filed with the Financial Services Commission of Ontario in September 2016. The next actuarial valuation of the OPG registered pension plan must have an effective date no later than January 1, 2019. The pension contributions are affected by various factors including market performance, changes in actuarial assumptions, plan experience, changes in the pension regulatory environment, and the timing of funding valuations. Funding requirements after 2018 are excluded due to significant variability in the assumptions required to project the timing of future cash flows. The amount of OPG's additional, voluntary contribution, if any, is revisited from time to time.

² Represents estimated currently committed costs to close the project, including accruals for completed work, demobilization of project staff and cancellation of existing contracts and material orders.

³ Includes office lease commitments subsequent to the closing of the sale of the Company's head office premises expected in the second quarter of 2017.

Other Commitments

Collective Agreements

As of December 31, 2016, OPG had approximately 9,270 regular employees. Most of OPG's regular employees are represented by two unions:

- **The PWU** – This union represents approximately 5,070 OPG employees or approximately 55 percent of OPG's regular workforce as at December 31, 2016. Union membership includes operators, technicians, skilled trades, clerical, and security personnel. The current collective agreement between OPG and the PWU has a three-year term, expiring on March 31, 2018.
- **The Society** – This union represents approximately 3,140 OPG employees or approximately 34 percent of OPG's regular workforce as at December 31, 2016. Union membership includes supervisors, professional engineers, scientists, and other professionals. The current collective agreement between OPG and The Society has a three-year term, expiring on December 31, 2018.

In addition to the regular workforce, construction work is performed through 19 craft unions with established bargaining rights at OPG facilities. These bargaining rights are established either through the Electrical Power Systems Construction Association (EPSCA) or directly with OPG. Collective agreements between the Company and its construction unions are negotiated either directly or through EPSCA. All of these collective agreements currently have multi-year terms, expiring on April 30, 2020.

BALANCE SHEET HIGHLIGHTS

The following section provides highlights of OPG's audited consolidated financial position using selected balance sheet data as at December 31:

<i>(millions of dollars)</i>	2016	2015
Property, plant and equipment – net	20,002	20,595
The decrease was primarily due to a reduction in asset retirement costs of approximately \$1,570 million in 2016 as a result of a reduction in the estimates for the Nuclear Liabilities to reflect the 2017 ONFA Reference Plan cost estimates. The decrease was partially offset by capital expenditures on the Darlington Refurbishment and other projects, net of depreciation expense.		
Nuclear fixed asset removal and nuclear waste management funds <i>(current and non-current portions)</i>	15,984	15,136
The increase was primarily due to earnings on the Nuclear Segregated Funds and contributions to the Used Fuel Segregated Fund, partially offset by an accounting adjustment recognized in the fourth quarter of 2016 to limit the fund asset values recorded to the lower underlying obligations reflected in the updated ONFA reference plan and reimbursements of eligible expenditures on nuclear fixed asset removal and nuclear waste management activities.		
Available-for-sale securities	212	-
The balance as at December 31, 2016 represents the fair value of the nine million Hydro One shares acquired in April 2016, as discussed under the heading <i>Recent Developments</i> in the <i>Highlights</i> Section.		
Regulatory assets and liabilities – net <i>(current and non-current portions)</i>	5,545	5,808
The decrease was primarily due to the amortization of regulatory balances recovered through rate riders in effect during 2016 and an increase in regulatory liabilities resulting from a change in the estimated useful lives of OPG's nuclear stations at the end of 2015, as discussed under the heading, <i>Impact of Changes in Station End-of-Life Dates Deferral Account</i> below. This was partially offset by amounts deferred in the regulatory assets for the Pension & OPEB Cash Versus Accrual Differential Deferral Account and other variance and deferral accounts during the year.		
Short-term debt	2	225
The decrease was due to the maturity of external commercial paper outstanding under LME's commercial paper program.		
Fixed asset removal and nuclear waste management liabilities	19,484	20,169
The decrease was primarily due to a reduction of approximately \$1,570 million in the estimates for the Nuclear Liabilities at the end of 2016 to reflect the 2017 ONFA Reference Plan cost estimates, partially offset by accretion expense during the year.		
Pension liabilities	3,012	2,597
The increase was primarily due to the re-measurement of the liabilities at the end of 2016 reflecting lower discount rates, as discussed in the section, <i>Changes In Accounting Policies</i> under the heading, <i>Pension and Other Post-Employment Benefits</i> .		

Impact of Changes in Station End-of-Life Dates Deferral Account

In December 2015, as required by the OEB's previous decisions and orders, OPG applied to the OEB for an accounting order to establish a new deferral account to record the revenue requirement impact on the prescribed nuclear facilities of changes to the Nuclear Liabilities and depreciation expense arising from the changes in the estimated useful lives of OPG's nuclear stations, for accounting purposes, effective December 31, 2015. In March 2016, the OEB issued its final decision and order establishing the requested account, the Impact Resulting from Changes in Station End-of-Life Dates Deferral Account, effective January 1, 2016. As at December 31, 2016, OPG has recognized a regulatory liability of \$71 million related to the balance in the deferral account. Together with the Bruce Lease Net Revenues Variance Account discussed below, the Impact Resulting from Changes in Station End-of-Life Dates Deferral Account offset the decrease in depreciation expense in 2016, compared to 2015, as a result of the changes in estimated useful lives of OPG's nuclear stations effective December 31, 2015.

The changes to the estimated useful lives of OPG's nuclear generating station effective December 31, 2015, for accounting purposes, were as follows:

- the average service lives of the Bruce A GS and Bruce B GS were extended from 2048 to 2052 and from 2019 to 2061, respectively, to reflect the estimated end-of-life dates reflected in the updated refurbishment agreement between the IESO and Bruce Power, which was announced in December 2015
- the average service life of the Darlington GS was extended by one year to 2052 to reflect the approval of the refurbishment schedule in 2015
- the average service life of the Pickering GS was extended by less than one year.

To reflect the above changes, OPG recognized a total increase of \$2,330 million in the Nuclear Liabilities and a corresponding increase in the related asset retirement costs, effective December 31, 2015. These increases were primarily due to the changes in the estimated useful life of the Bruce B GS. The nuclear asset retirement obligations (ARO) associated with the Pickering GS and Darlington GS was impacted by the changes to the Bruce nuclear generating stations' useful lives because the costs of the fleet-wide waste management programs are shared by all of OPG's nuclear stations based on used nuclear fuel and waste volumes. Consistent with the changes in the end-of-life dates for the Bruce nuclear generating stations and the December 2015 amendments to the Bruce Lease in connection with the Province's endorsement of Bruce Power's refurbishment plans, the term of the Bruce Lease for accounting purposes also was extended, in line with the refurbishment plans for these stations.

The impact of the above changes on OPG's revenues and costs related to the Bruce nuclear generating stations effective January 1, 2016 is recorded in the Bruce Lease Net Revenues Variance Account.

Off-Balance Sheet Arrangements

In the normal course of operations, OPG engages in a variety of transactions that, under US GAAP, are either not recorded in the Company's consolidated financial statements or are recorded in the Company's consolidated financial statements using amounts that differ from the full contract amounts. Principal off-balance sheet activities for OPG include guarantees and long-term contracts.

Guarantees

As part of normal business, OPG and certain of its subsidiaries and joint ventures enter into various agreements to provide financial or performance assurance to third parties. Such agreements include guarantees, standby Letters of Credit and surety bonds. For more details on OPG's guarantees, refer to Note 15 of OPG's audited consolidated financial statements.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

OPG's significant accounting policies, including the impact of major recent accounting pronouncements, are outlined in Note 3 of the audited consolidated financial statements. Certain of these policies are recognized as critical accounting policies by virtue of the subjective and complex judgments and estimates required around matters that are inherently uncertain and could result in materially different amounts being reported under different conditions or assumptions. The critical accounting policies and estimates that affect OPG's US GAAP consolidated financial statements are highlighted below.

Exemptive Relief for Reporting under US GAAP

As required by *Ontario Regulation 395/11*, as amended, under the FAA, OPG adopted US GAAP for the presentation of its consolidated financial statements, effective January 1, 2012. Since January 1, 2012, OPG has also received exemptive relief from the OSC from the requirements of section 3.2 of National Instrument 52-107 *Acceptable Accounting Policies and Auditing Standards* (NI 52-107). The exemption allows OPG to file consolidated financial statements based on US GAAP, rather than International Financial Reporting Standards (IFRS), without becoming a U.S. Securities and Exchange Commission registrant or issuing public debt.

The current OSC exemption, received in 2014, will terminate on the earliest of the following:

- January 1, 2019
- the financial year that commences after OPG ceases to have activities subject to rate regulation
- the effective date prescribed by the International Accounting Standards Board (IASB) for the mandatory application of a standard within IFRS specific to entities with rate-regulated activities.

As a result of OPG's 2011 decision to adopt US GAAP, as required by the FAA regulation, OPG's earlier plan to convert to IFRS, effective January 1, 2012, was discontinued. OPG had substantively completed its IFRS conversion project, which included separate diagnostic, development, and implementation phases, when it suspended the project. If a future transition to IFRS for the purposes of OPG's consolidated financial statements is required, conversion work can be effectively restarted with sufficient lead time to evaluate and conclude on changes that occurred subsequent to the decision to suspend the project. OPG continues to monitor the IASB's current standard-setting project related to entities with rate-regulated activities and is evaluating alternatives with respect to the Company's future financial reporting.

Rate Regulated Accounting

The *Ontario Energy Board Act, 1998* and *Ontario Regulation 53/05* provide that OPG receives regulated prices for electricity generated from the Sir Adam Beck 1, 2 and Pump generating stations, the DeCew Falls 1 and 2 generating stations, the R.H. Saunders GS, the 48 hydroelectric generating stations prescribed for rate regulation effective in 2014, and the Pickering and Darlington nuclear generating stations. OPG's regulated prices for these facilities are determined by the OEB.

The OEB is a self-funding Crown corporation. Its mandate and authority come from the *Ontario Energy Board Act, 1998*, the *Electricity Act, 1998*, and a number of other provincial statutes. The OEB is an independent, quasi-judicial tribunal that reports to the Legislature of the Province through the Ministry of Energy. It regulates market participants in Ontario's natural gas and electricity industries. The OEB carries out its regulatory functions through public hearings and other more informal processes such as consultations.

US GAAP recognizes that rate regulation can create economic benefits and obligations that are required by the regulator to be obtained from, or settled with, the customers. When the Company assesses that there is sufficient assurance that incurred costs in respect of the regulated facilities will be recovered in the future, those costs are deferred and reported as a regulatory asset. When the Company is required to refund amounts to customers in the

future in respect of the regulated facilities, 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.

Certain of the regulatory assets and liabilities recognized by the Company relate to variance and deferral accounts authorized by the OEB, including those authorized pursuant to *Ontario Regulation 53/05*. The measurement of these regulatory assets and 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.

Regulatory assets and liabilities for variance and deferral account balances approved by the OEB for inclusion in regulated prices are amortized based on approved recovery or repayment periods. Disallowed balances are charged to operations in the period that the OEB's decision is issued.

In addition to regulatory assets and liabilities for variance and deferral accounts, OPG recognizes regulatory assets and liabilities for unamortized amounts recorded in AOCI in respect of pension and OPEB obligations, and deferred income taxes, in order to reflect the expected recovery or repayment of these amounts through future regulated prices charged to customers. There are measurement uncertainties related to these balances due to the assumptions made in the determination of pension and OPEB obligations and deferred income taxes that are attributed to rate regulated business segments.

The regulatory asset for unamortized pension and OPEB amounts recorded in AOCI has reflected the OEB's use, since April 1, 2008, of the accrual basis of accounting for including pension and OPEB amounts in approved regulated prices for OPG. This is also the manner in which these costs are recognized in OPG's consolidated financial statements. Therefore, unamortized amounts in respect of OPG's pension and OPEB plans recognized in AOCI generally would not be reflected in regulated prices until they have been reclassified from AOCI and recognized as amortization components of the benefit costs for these plans.

In setting OPG's regulated prices effective November 1, 2014, the OEB limited amounts for pension and OPEB costs allowed in the approved revenue requirements to the regulated business portion of the Company's cash expenditures for its pension and OPEB plans. It is the Company's position that this decision by the OEB did not constitute a change in the basis of OPG's rate recovery of pension and OPEB costs. This position is based on the OEB's establishment of the Pension & OPEB Cash Versus Accrual Differential Deferral Account pursuant to its November 2014 decision, as discussed below, and the expectation expressed by the OEB in that decision that a transition from the accrual basis of recovery for OPG, if required, would be addressed in a future OPG rate proceeding, informed by the outcome of an OEB generic proceeding related to the regulatory treatment and recovery of pension and OPEB costs. As discussed below, the generic proceeding is currently in progress. The Company continues to believe that there is sufficient likelihood that unamortized pension and OPEB amounts that have not yet been reclassified from AOCI will be included in future regulated prices, or in an OEB-authorized deferral or variance account for future recovery, as they are recognized in benefit costs. Therefore, the Company continues to recognize a regulatory asset for these unamortized amounts.

Effective November 1, 2014, the OEB authorized the Pension & OPEB Cash Versus Accrual Differential Deferral Account to record the difference between OPG's actual pension and OPEB costs for the regulated business determined using the accrual method applied in OPG's audited consolidated financial statements and OPG's corresponding actual cash expenditures for these plans. The Company has recognized the amount set aside in the deferral account as a regulatory asset. As at December 31, 2016, the regulatory asset balance was \$497 million, which represents the excess of pension and OPEB costs calculated using the accrual basis under US GAAP over the cash basis for the period from November 1, 2014 to December 31, 2016. The OEB's November 2014 decision indicated that the future recovery, if any, of amounts recorded in the deferral account would be subject to the outcome of an OEB generic proceeding on the regulatory treatment and recovery of pension and OPEB costs.

In May 2015, the OEB began a consultation process to develop standard principles to guide its future review of pension and OPEB costs of rate regulated utilities in the electricity and natural gas sectors, including establishing appropriate regulatory mechanisms for cost recovery. OPG is participating in the consultation, which is continuing. In July 2016, OPG participated in a public stakeholder forum held by the OEB as part of the consultation. In September 2016, OPG made a written submission of its position on the cost recovery mechanisms to the OEB. If, as part of this consultation or in a future proceeding, the OEB decides that the recovery basis for OPG's pension and OPEB amounts should be changed from the accrual basis, OPG may be required to adjust the regulatory assets for unamortized pension and OPEB amounts recorded in AOCI and for the Pension & OPEB Cash Versus Accrual Differential Deferral Account. In its May 2016 application for new regulated prices, OPG has proposed to continue recording the difference between actual pension and OPEB costs for the regulated business determined on an accrual basis and OPG's corresponding actual cash expenditures for these plans in the Pension & OPEB Cash Versus Accrual Differential Deferral Account, pending the outcome of the above noted consultation process.

See Notes 3, 5, 8, 9, and 11 of OPG's 2016 audited consolidated financial statements for additional disclosures related to the OEB's decisions, regulatory assets and liabilities, and rate regulated accounting.

Income Taxes and Investment Tax Credits

OPG is exempt from income tax under the *Income Tax Act* (Canada). However, under the *Electricity Act, 1998*, OPG is required to make payments in lieu of corporate income taxes to the OEFC. These payments are calculated in accordance with the *Income Tax Act* (Canada) and the *Taxation Act, 2007* (Ontario), as modified by the *Electricity Act, 1998* and related regulations. This results in OPG effectively paying taxes similar to those imposed under the federal and Ontario tax acts.

OPG's operations are complex and the computation of the provision for income taxes involves interpretation of the various tax statutes and regulations. OPG has taken certain filing positions in calculating the amount of its income tax provision. These filing positions may be challenged on audit by the Ontario Ministry of Finance and some of them possibly disallowed, resulting in a potential significant change in OPG's tax provision upon reassessment. A change in the tax provision upon reassessment impacting regulated operations may be recoverable from or payable to customers through the Income and Other Taxes Variance Account authorized by the OEB.

OPG follows the liability method of accounting for income taxes. Under the liability method, deferred income tax assets and liabilities are determined based on differences between the accounting and tax bases of assets and liabilities. Deferred amounts are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse. The effect of a change in tax rates on deferred income tax assets and liabilities is included in income in the period the change is enacted.

If management determines that it is more likely than not that some, or all, of a deferred income tax asset will not be realized, a valuation allowance is recorded to report the balance at the amount expected to be realized.

OPG recognizes deferred income taxes associated with its rate regulated operations and records an offsetting regulatory asset or liability for the deferred income taxes that are expected to be recovered or refunded through future regulated prices charged to customers.

Tax benefits associated with income tax positions taken, or expected to be taken, in a tax return and in respect of investment tax credits are recorded only when the more likely than not recognition threshold is satisfied. Tax benefits and investment tax credits recognized are measured at the largest amount of benefit that is greater than 50 percent likely of being realized upon settlement.

Investment tax credits are recorded as a reduction to income tax expense. OPG classifies interest and penalties associated with unrecognized tax benefits as income tax expense.

The Company has recognized net deferred income tax liabilities of \$829 million as at December 31, 2016 (2015 – \$880 million).

Property, Plant and Equipment, Intangible Assets and Depreciation and Amortization

Property, plant and equipment (PP&E) and intangible assets are recorded at cost. Interest costs incurred during construction and development are capitalized as part of the cost of the asset, based on the interest rates on OPG's long-term debt. Expenditures for replacements of major components are capitalized.

Depreciation and amortization rates for the various classes of assets are based on their estimated service lives. Asset removal costs that have not been specifically provided for in current or previous periods are charged to OM&A expenses. Repairs and maintenance costs are also expensed when incurred.

PP&E are depreciated on a straight-line basis except for computers, which are depreciated on a declining balance basis. Intangible assets, which consist of major application software, are amortized on a straight-line basis.

The accounting estimates related to end-of-life assumptions for PP&E and intangible assets require significant management judgment, including consideration of various operating, technological, and other factors. OPG reviews the estimated useful lives for its PP&E and intangible assets on a regular basis.

Asset Impairment

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The review is based on the presence of impairment indicators such as the future economic benefit of the assets and external market conditions. The net carrying amount of assets is considered impaired if it exceeds the sum of the estimated undiscounted cash flows expected to result from the asset's use and eventual disposition. In cases where the sum of the undiscounted expected future cash flows is less than the carrying amount, an impairment loss is recognized. This loss equals the amount by which the carrying amount exceeds the fair value. Fair value is determined using expected discounted cash flows when quoted market prices are not available. The impairment is recognized in income in the period in which it is identified.

Various assumptions and accounting estimates are required to determine whether an impairment loss should be recognized and, if so, the value of such loss. This includes factors such as short-term and long-term forecasts of prices for electricity generation under applicable revenue mechanisms, the demand for and supply of electricity, inflation, fuel prices, capital and operating expenditures, and estimated useful service lives of the assets.

The carrying value of investments accounted for under the equity method are reviewed for the presence of any indicators of impairment. If an impairment exists and is determined to be other-than-temporary, an impairment charge is recognized. This charge equals the amount by which the carrying value exceeds the investment's fair value.

Nuclear Fixed Asset Removal and Nuclear Waste Management Funds

In accordance with the ONFA, OPG sets aside and invests funds that are held in segregated custodian and trustee accounts specifically for discharging its obligation for nuclear decommissioning and long-term nuclear waste management. The Decommissioning Segregated Fund was established to fund the future costs of nuclear fixed asset removal, long-term L&ILW management, and certain costs for used fuel storage incurred after the stations are shut down. The Used Fuel Segregated Fund was established to fund future costs of long-term nuclear used fuel management. OPG makes contributions to the Nuclear Segregated Funds based on approved ONFA reference plans. Costs for L&ILW management and used fuel storage incurred during station operation are not funded by the Nuclear Segregated Funds. They are funded through the Company's operating cash flow or other sources of liquidity.

Decommissioning Segregated Fund

Upon termination of the ONFA, the Province has a right to any excess funds in the Decommissioning Segregated Fund. Accordingly, when the Decommissioning Segregated Fund is overfunded, OPG limits the earnings it recognizes in the consolidated financial statements by recording an amount due to the Province, such that the balance of the fund is equal to the cost estimate of the liability based on the most recently approved ONFA reference plan. Additionally, OPG recognizes the portion of the surplus that it may direct to the Used Fuel Segregated Fund, which is possible when the surplus is such that the underlying liabilities, as defined by the most recently approved ONFA reference plan, are at least 120 percent funded. In those circumstances, OPG may direct, at the time a new reference plan is approved, up to 50 percent of the surplus over 120 percent to the Used Fuel Segregated Fund, with the OEFC entitled to a distribution of an equal amount. Therefore, when the Decommissioning Segregated Fund is at least 120 percent funded, OPG recognizes 50 percent of the excess greater than 120 percent in income, up to the amount by which the Used Fuel Segregated Fund is underfunded.

The amount due to the Province in respect of the Decommissioning Segregated Fund could be reduced in subsequent periods in the event that the fund earns less than its target rate of return, a new ONFA reference plan is approved with a higher underlying liability, or the amount of the underfunding in the Used Fuel Segregated Fund increases.

When the Decommissioning Segregated Fund is underfunded, the earnings on the fund reflect actual fund returns based on the market value of the assets.

Used Fuel Segregated Fund

Under the ONFA, the Province guarantees OPG's annual return in the Used Fuel Segregated Fund at 3.25 percent plus the change in the Ontario CPI, as defined in the ONFA, for funding related to the first 2.23 million used fuel bundles, ("committed return"). OPG recognizes the committed return on the Used Fuel Segregated Fund as earnings on the Nuclear Segregated Funds. The difference between the committed return on the Used Fuel Segregated Fund and the actual market return determined based on the fair value of the fund's assets related to the first 2.23 million used fuel bundles is recorded as due to or due from the Province. This amount due to or due from the Province represents the amount OPG would pay to, or receive from the Province if the committed return were to be settled as of the consolidated balance sheet date.

As prescribed under the ONFA, OPG's contributions attributed to the used fuel bundles in excess of 2.23 million are not subject to the Province's guaranteed rate of return, and earn a return based on changes in the market value of the assets of the Used Fuel Segregated Fund.

If there is a surplus in the Used Fuel Segregated Fund such that the liabilities, as defined by the most recently approved ONFA Reference Plan, are at least 110 percent funded, the Province has the right at any time to access the excess amount greater than 110 percent. Upon termination of the ONFA, the Province is entitled to any surplus in the fund. Accordingly, when the Used Fuel Segregated Fund is overfunded, OPG limits the earnings it recognizes in the consolidated financial statements by recording an amount due to the Province, such that the balance of the fund is equal to the underlying liability based on the most recently approved ONFA reference plan. In accordance with the ONFA, OPG does not have a right to direct any amounts from the Used Fuel Segregated Fund to the Decommissioning Segregated Fund.

Provincial Guarantee

In accordance with the *Nuclear Safety and Control Act* (Canada), the CNSC requires OPG to have sufficient funds available to discharge the current nuclear waste management and nuclear decommissioning liabilities. As required by the terms of the ONFA, the Province has provided a Provincial Guarantee to the CNSC, on behalf of OPG, for any shortfall between the CNSC financial guarantee requirement and the value of the Nuclear Segregated Funds. OPG pays the Province an annual guarantee fee equal to 0.5 percent of the amount of the Provincial Guarantee. The

current value of the Provincial Guarantee of \$1,551 million is in effect through to the end of 2017. Based on this guarantee amount, OPG paid a guarantee fee of \$8 million to the Province for each of 2015 and 2016. The CNSC process requires the CNSC financial guarantee requirement to be updated once every five years. OPG is currently updating the CNSC financial guarantee requirement for the 2018-2022 period and expects to file it with the CNSC in the first half of 2017. **[MONITOR]**

Pension and Other Post-Employment Benefits

The determination of OPG's pension and OPEB costs and obligations is based on accounting policies and assumptions, as discussed below.

Accounting Policy

OPG's post-employment benefit programs consist of a contributory defined benefit registered pension plan, a defined benefit supplementary pension plan, and other post retirement benefits (OPRB) including group life insurance and health care benefits, and long-term disability (LTD) benefits. Post-employment benefit programs are also provided by the NWMO, which is consolidated into OPG's financial results. Unless otherwise noted, information on the Company's post-employment benefit programs is presented on a consolidated basis.

OPG accrues its obligations under pension and OPEB plans in accordance with US GAAP. The obligations for pension and OPRB are determined using the projected benefit method pro-rated on service. The obligation for LTD benefits is determined using the projected benefit method on a terminal basis. Pension and OPEB obligations are impacted by factors including interest rates, adjustments arising from plan amendments, demographic assumptions, experience gains or losses, salary levels, inflation, and health care cost escalation assumptions. Pension and OPEB costs and obligations are determined annually by independent actuaries using management's best estimate assumptions.

Pension fund assets include equity securities, corporate and government debt securities, pooled funds, real estate, infrastructure and other investments. These assets are managed by professional investment managers. The pension fund does not invest in equity or debt securities issued by OPG. Pension fund assets are valued using market-related values for purposes of determining the amortization of actuarial gains or losses and the expected return on plan assets. The market-related value recognizes gains and losses on equity assets relative to a six percent assumed real return over a five-year period.

Pension and OPEB costs include current service costs, interest costs on the obligations, the expected return on pension plan assets, adjustments for plan amendments and adjustments for actuarial gains or losses, which result from changes in assumptions and experience gains and losses. Past service costs or credits arising from pension and OPRB plan amendments are amortized on a straight-line basis over the expected average remaining service life to full eligibility of the employees covered by the corresponding plan. Past service costs or credits arising from amendments to LTD benefits are immediately recognized as OPEB costs in the period incurred. Due to the long-term nature of pension and OPRB liabilities, the excess of the net cumulative unamortized gain or loss, over 10 percent of the greater of the benefit obligation and the market-related value of the plan assets (the corridor) for each plan is amortized over the expected average remaining service life of the employees covered by the plan, which represents the period during which the associated economic benefits are expected to be realized by the Company. Actuarial gains or losses for LTD benefits are immediately recognized as OPEB costs in the period incurred.

OPG recognizes on its consolidated balance sheets the funded status of its defined benefit plans. The funded status is measured as the difference between the fair value of plan assets and the benefit obligation, on a plan-by-plan basis.

Actuarial gains or losses and past service costs or credits arising during the year that are not recognized immediately as components of benefit costs are recognized as increases or decreases in other comprehensive income (OCI), net

of income taxes. These unamortized amounts in AOCI are subsequently reclassified and recognized as amortization components of pension and OPRB costs as described above.

As at December 31, 2016, the unamortized net actuarial loss and unamortized past service costs for the pension and OPEB plans totalled \$3,668 million (2015 – \$3,646 million). Details of the unamortized net actuarial loss and unamortized past service costs as at December 31, 2016 and 2015 are as follows:

<i>(millions of dollars)</i>	Registered Pension Plans		Supplementary Pension Plans		Other Post-Employment Benefits	
	2016	2015	2016	2015	2016	2015
Net actuarial gain not yet subject to amortization due to use of market-related values	(570)	(809)	-	-	-	-
Net actuarial loss not subject to amortization due to use of the corridor	1,619	1,544	34	30	267	293
Net actuarial loss subject to amortization	2,238	2,288	72	47	3	247
Unamortized net actuarial loss	3,287	3,023	106	77	270	540
Unamortized past service costs	-	-	-	-	5	6

OPG records an offsetting regulatory asset or liability for the portion of the adjustments to AOCI that is attributable to the regulated operations in order to reflect the expected recovery or refund of these amounts through future regulated prices charged to customers. For the recoverable or refundable portion attributable to regulated operations, OPG records a corresponding change in this regulatory asset or liability for the amount of the increases or decreases in OCI and for the reclassification of AOCI amounts into benefit costs during the period.

When the recognition of the transfer of employees and employee-related benefits gives rise to both a curtailment and a settlement, the curtailment is accounted for prior to the settlement. A curtailment is the loss by employees of the right to earn future benefits under the plan. A settlement is the discharge of a plan's liability.

Accounting Assumptions

Assumptions are significant inputs to actuarial models that measure pension and OPEB obligations and related effects on operations. Discount rate, inflation rate and changes in salary levels are three critical assumptions in the determination of benefit costs and obligations. In addition, the expected long-term rate of return on plan assets is a critical assumption in the determination of registered pension plan cost, and the health care cost trend rate is a critical assumption in the determination of OPEB cost and obligations. These assumptions, as well as other assumptions involving demographic factors such as retirement age, mortality, and employee turnover, are evaluated periodically by management in consultation with independent actuaries. During the evaluation process, the assumptions are updated to reflect past experience and expectations for the future. Actual results in any given year will often differ from actuarial assumptions because of economic and other factors giving rise to actuarial gains and losses.

The discount rates, which are representative of the AA corporate bond yields, are used to calculate the present value of the expected future cash flows on the measurement date in order to determine the projected benefit obligations for the Company's employee benefit plans. In 2016 and prior years, benefit costs were calculated using the same single weighted-average discount rates as reflected in the calculation of the benefit obligations. A lower discount rate increases the benefit obligations and increases benefit costs. The weighted-average discount rate used to determine the projected pension benefit obligations and the projected benefit obligations for OPEB as at December 31, 2016 was 3.9 percent. This represents a decrease, compared to the 4.1 percent discount rate that was used to determine the obligations as at December 31, 2015.

Starting in 2017, OPG expects to change the method used to estimate the current service and interest cost components of pension and OPEB costs. OPG expects to adopt a full yield curve approach in the estimation of these components of pension and OPEB cost by applying the specific spot rates along the yield curve used in the determination of the projected benefit obligations to the relevant projected cash flows. Making this change will improve the correlation between projected benefit cash flows and the corresponding yield curve spot rates, and provide a more precise measurement of service and interest costs. This change does not affect the measurement of the total benefit obligations, as the change in the current service and interest components of the costs from the previous method will be offset by a corresponding change in the actuarial (gain) loss recorded in AOCI. OPG will account for this change as a change in estimate, prospectively starting in 2017. With an upward sloping yield curve and the pattern of OPG's estimated future benefit cash flows, the adoption of the full yield curve approach is expected to materially lower OPG's current service and interest cost components, reducing the overall pension and OPEB costs in the initial years following adoption.

The expected rate of return on plan assets is determined based on the pension fund's asset allocation and the expected return considering long-term risks and returns associated with each asset class within the plan portfolio. A lower expected rate of return on plan assets increases pension cost.

A new actuarial valuation of the OPG registered pension plan was filed with the Financial Services Commission of Ontario in September 2016 with an effective date of January 1, 2016. The annual funding requirements in accordance with the new actuarial valuation are outlined under the heading, *Contractual and Commercial Commitments*, in the section *Liquidity and Capital Resources*. OPG conducted a comprehensive actuarial valuation for accounting purposes of its pension and OPEB plans in 2016, using demographic data as at January 1, 2016 consistent with the new funding valuation and assumptions as at December 31, 2016. As part of the valuation, the plans' demographic and other assumptions were reviewed and revised, as necessary, by independent actuaries.

The deficit for the registered pension plan, for accounting purposes, increased from \$2,315 million as at December 31, 2015 to \$2,693 million as at December 31, 2016. This increase was largely due to a re-measurement of the liabilities at the end of 2016 reflecting lower discount rates, as well as current service and interest costs for the year, partially offset by the impact of the updated membership data as part of the 2016 actuarial valuation and employer contributions to the pension plan during the year.

The projected benefit obligations for OPEB decreased from \$3,188 million at December 31, 2015 to \$2,992 million as at December 31, 2016. This decrease was largely due to the updated, lower per capita health care claims costs assumption as part of the 2016 actuarial valuation, partially offset by the re-measurement of the liabilities at the end of 2016 reflecting a decrease in the discount rates.

A change in the following assumptions, holding all other assumptions constant, would increase (decrease) pension and OPEB costs for the year ended December 31, 2016 as follows:

<i>(millions of dollars)</i>	Registered Pension Plans ¹	Supplementary Pension Plans ¹	Other Post-Employment Benefits ¹
Expected long-term rate of return			
0.25% increase	(30)	n/a	n/a
0.25% decrease	30	n/a	n/a
Discount rate			
0.25% increase	(57)	(1)	(12)
0.25% decrease	60	1	16
Inflation			
0.25% increase	103	1	1
0.25% decrease	(97)	(1)	(1)
Salary increases			
0.25% increase	20	3	1
0.25% decrease	(20)	(2)	(1)
Health care cost trend rate			
1% increase	n/a	n/a	86
1% decrease	n/a	n/a	(52)

n/a – change in assumption not applicable.

¹ Excludes the impact of regulatory variance and deferral accounts.

Asset Retirement Obligation

OPG recognized ARO for fixed asset removal and nuclear waste management liabilities, discounted for the time value of money. OPG estimates both the amount and timing of future cash expenditures based on the plans for fixed asset removal and nuclear waste management. The ARO is comprised of expected costs to be incurred up to and beyond termination of operations and the closure of nuclear and thermal generating plant facilities and other facilities. Costs are expected to be incurred for activities such as preparation for safe storage and safe storage of nuclear stations, dismantlement, demolition and disposal of facilities and equipment, remediation and restoration of sites, and the ongoing and long-term management of nuclear used fuel bundles and L&ILW material. The liabilities associated with the decommissioning of the nuclear generating stations and the long-term management of used nuclear fuel comprise the most significant amounts of the total obligation.

The nuclear decommissioning liability includes the estimated costs of closing the nuclear stations after the end of their service lives, which includes preparation and placement of the stations into a safe state condition followed by an assumed 30-year safe store period prior to station dismantlement and site restoration. Activities associated with the placement of stations into a safe state condition include de-fueling and de-watering of the nuclear reactors. Under the terms of the lease agreement with Bruce Power and as required by the CNSC, OPG is responsible for the nuclear waste management and nuclear decommissioning obligations associated with the Bruce nuclear generating stations. Pursuant to the lease agreement, Bruce Power must return the two Bruce stations to OPG together, in a de-fueled and de-watered state. These de-watering and de-fueling costs are not part of OPG's ARO.

The life cycle costs of L&ILW management include the costs of processing and storage of such radioactive wastes during and following the operation of the nuclear stations, as well as the costs of the ultimate long-term management of these wastes. The current assumptions used to establish the obligation for these costs include an L&ILW DGR facility to be constructed and operated by OPG, as discussed under the heading, *Project Excellence* in the *Core Business, Strategy, and Outlook* section. To estimate the liability for nuclear used fuel management, OPG has adopted an approach consistent with the Adaptive Phased Management concept approved by the Government of

Canada, which assumes a deep geologic repository or the long-term management of Canada's nuclear used fuel waste. The NWMO is responsible for the design and implementation of Canada's plan for the long-term management of used nuclear fuel.

The following costs are recognized as a liability on OPG's consolidated balance sheets:

- the present value of the costs of decommissioning the nuclear and thermal production facilities and other facilities after the end of their useful lives
- the present value of the fixed cost portion of nuclear waste management programs that are required based on the total volume of waste expected to be generated over the assumed lives of the stations
- the present value of the variable cost portion of nuclear waste management programs taking into account waste volumes generated to date.

The significant assumptions underlying operational and technical factors used in the calculation of the accrued liabilities are subject to periodic review. Changes to these assumptions, including changes to assumptions on the timing of the programs including construction of assumed waste disposal facilities, station end-of-life dates, waste disposal methods, financial indicators, decommissioning strategy, and the technology employed may result in significant changes to the value of the accrued liabilities. With programs of such long-term duration and the evolving technology to handle nuclear waste, there is a significant degree of inherent uncertainty surrounding the measurement of the costs for these programs. These costs may increase or decrease over time.

The estimates for the Nuclear Liabilities are reviewed on an ongoing basis as part of the overall nuclear waste management program. A comprehensive reassessment of all underlying assumptions and baseline cost estimates for the Nuclear Liabilities is performed periodically, at least once every five years, in line with the required ONFA reference plan update process. Changes in the Nuclear Liabilities resulting from changes in assumptions or estimates that impact the amount or timing of the estimated undiscounted future cash flows are recorded as an adjustment to the liabilities. Upward revisions in the Nuclear Liabilities represent the present value of a net increase in future undiscounted cash flows determined using a current credit-adjusted risk-free rate. Downward revisions in the Nuclear Liabilities represent the present value of a net decrease in future undiscounted cash flows determined using the weighted average discount rate reflected in the existing liability. Any resulting changes in the related asset retirement costs are capitalized as part of the carrying amount of nuclear fixed assets.

The most recent comprehensive update of the baseline cost estimates for the Nuclear Liabilities is contained in the approved 2017 ONFA Reference Plan, and was completed in the fourth quarter of 2016. The update resulted in a decrease of approximately \$1,570 million in the Nuclear Liabilities as at December 31, 2016, which was determined using a discount rate of 4.95 percent. The overall reduction in OPG's nuclear waste management and nuclear decommissioning obligations was due mainly to a decrease in cost estimates to reflect a proposed new, more cost effective container design and engineered barrier concept to house used nuclear fuel for disposal, updated cost escalation rates for all programs, and a later expected in-service date for the NWMO's planned deep geologic repository for the long-term permanent disposal of Canada's used nuclear fuel. These decreases were partly offset by higher cost estimates related to decommissioning activities, primarily due to an improved definition of work required during the preparation for safe storage after station shutdown and a higher volume of waste expected to be generated during decommissioning. Cost escalation rates used to estimate future undiscounted cash flows reflected in the December 31, 2016 adjustment to the Nuclear Liabilities ranged from 2.0 percent to 3.4 percent.

The December 31, 2016 adjustment to the Nuclear Liabilities and associated asset retirement costs did not impact OPG's income for 2016. The estimated impact of this adjustment on 2017 expenses, before the impact of the Bruce Lease Net Revenues Variance Account and the Nuclear Liability Deferral Account, includes a decrease to depreciation expense of approximately \$8 million, a decrease to accretion expense of approximately \$78 million, and a combined decrease in used fuel and L&ILW variable expenses, charged to fuel expense and OM&A expenses, respectively, of approximately \$20 million. Under the current OEB-approved cost recovery methodologies, these changes also are not expected to materially affect OPG's income in 2017, as they are expected to be largely offset by

the OEB approved variance and deferral accounts, until such time as the OEB implements corresponding changes to OPG's nuclear regulated prices, and subsequently by the impact of new regulated prices. Like the Bruce Lease Net Revenues Variance Account, the Nuclear Liability Deferral Account has been established by the OEB pursuant to Ontario Regulation 53/05. It records the revenue requirement impact associated with the changes in OPG's nuclear waste management and nuclear decommissioning liabilities arising from an approved ONFA reference plan, for the Pickering and Darlington nuclear generating stations.

For the purposes of calculating OPG's Nuclear Liabilities, as at December 31, 2016, consistent with the current accounting end-of-life assumptions, nuclear station decommissioning is projected to occur over approximately the next 50 years.

The liability for nuclear fixed asset removal and nuclear waste management on a present value basis as at December 31, 2016 was \$19,103 million (2015 – \$19,792 million). As at December 31, 2016, the undiscounted cash flows of expenditures for OPG's Nuclear Liabilities in 2016 dollars are as follows:

<i>(millions of dollars)</i>	2017	2018	2019	2020	2021	Thereafter	Total
Expenditures for nuclear fixed asset removal and nuclear waste management ¹	354	360	386	429	465	39,296	41,290

¹ The majority of the expenditures are expected to be reimbursed by the Nuclear Segregated Funds established by the ONFA. Any contributions required under the ONFA are not included in these undiscounted cash flows. Accounting for the Nuclear Segregated Funds is discussed in the *Critical Accounting Policies and Estimates* section under the heading, *Nuclear Fixed Asset Removal and Nuclear Waste Management Funds*.

The liability for non-nuclear fixed asset removal was \$381 million as at December 31, 2016 (2015 – \$377 million). This liability primarily represents the present value of estimated costs of decommissioning OPG's thermal generating stations at the end of their service lives. The liability reflects third party cost estimates based on an in-depth review of plant sites and an assessment of required clean-up and restoration activities. For the purpose of measuring the liability, asset removal activities are assumed to take place approximately over the next one to 15 years. The amount of undiscounted estimated future cash flows associated with the thermal liabilities is approximately \$500 million. With the decisions taken in 2015 and 2016 to decommission the Nanticoke and Lambton generating stations, respectively, OPG expects to review the decommissioning liability estimates for these sites. Any adjustments as a result of a change in the liability estimates for these stations will be recorded in net income in the period of change.

OPG has no legal obligation associated with the decommissioning of its hydroelectric generating facilities and the costs cannot be reasonably estimated because of the long service life of these assets. With either maintenance efforts or rebuilding, the water control structures are assumed to be used for the foreseeable future. Accordingly, OPG has not recognized a liability for the decommissioning of its hydroelectric generating facilities.

Fair Value Measurements

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly arm's-length transaction between market participants at the measurement date. Fair value measurements are required to reflect the assumptions that market participants would use in pricing an asset or liability based on the best available information. These assumptions include the risks inherent in a particular valuation technique, such as a pricing model, and the risks inherent in the inputs to the model.

The fair value of financial assets and liabilities for which quoted prices in an active market are available, including exchange traded derivatives and other financial instruments, are determined directly from those quoted market prices.

For financial instruments for which quoted market prices are not directly available, fair values are estimated using forward price curves developed from observable market prices or rates. The estimation of fair value may include the

use of valuation techniques or models, based wherever possible on assumptions supported by observable market prices or rates prevailing at the consolidated balance sheet dates. This is the case for over-the-counter derivatives and securities, which include energy commodity derivatives, foreign exchange derivatives, interest rate swap derivatives, and fund investments. Pooled fund investments are valued at the unit values supplied by the pooled fund administrators. The unit values represent the underlying net assets at fair values, determined using closing market prices. Valuation models use general assumptions and market data and therefore do not reflect the specific risks and other factors that may affect a particular instrument's fair value. The methodologies used for calculating the fair value adjustments are reviewed on an ongoing basis to ensure that they remain appropriate. If the valuation technique or model is not based on observable market data, specific valuation techniques are used, primarily based on recent comparable transactions, comparable benchmark information, bid/ask spread of similar transactions, and other relevant factors.

OPG's use of financial instruments exposes the Company to certain risks, including credit risk, foreign currency risk and interest rate risk. A discussion of how OPG manages these and other risks is found under the section, *Risk Management*.

Variable Interest Entities

OPG holds a variable interest in the NWMO, of which it is the primary beneficiary. Accordingly, the applicable amounts in the accounts of the NWMO, after elimination of all significant intercompany transactions, are consolidated. As at December 31, 2016, PSS Generating Station Limited Partnership was classified as a variable interest entity because it did not meet the criteria of having sufficient equity at risk to finance its activities. Since OPG is the primary beneficiary of PSS, it continues to consolidate the Partnership. Refer to Note 3 of OPG's 2016 audited consolidated financial statements for further details.

Recent Accounting Pronouncements

The recent US GAAP accounting pronouncements related to revenue recognition, leases, and financial instruments are described below. Other recent accounting pronouncements applicable to OPG are outlined in Note 3 of the audited consolidated financial statements.

Revenue from Contracts with Customers

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update No. 2014-09, *Revenue from Contracts with Customers* (Topic 606) (ASU 2014-09), which supersedes nearly all existing revenue recognition guidance, including industry-specific guidance, under US GAAP. The core principle of Topic 606 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration to which an entity expects to be entitled for those goods or services. Either a full retrospective application or a modified retrospective application is required for annual periods beginning on or after January 1, 2018, including interim periods within that year. Early adoption is permitted.

OPG currently expects to apply the new revenue standard in its 2018 first quarter interim financial statements. During 2016, the Company implemented a comprehensive project governance framework, which comprises a Steering Committee, Implementation & Stakeholder Committee, Project Management Office, and various working groups. The working groups are represented by cross functional finance and non-finance stakeholders who will support the financial and operational implementation of the new accounting standard. Targeted technical updates and training have been provided to financial controllers and working group members corresponding to their responsibilities during 2016.

The Company is in the process of concluding on the method of adoption, as well as evaluating the impact that the new standard will have on its consolidated financial statements.

Lease Accounting

In February 2016, the FASB issued ASU No. 2016-02, *Leases* (Topic 842). The update includes comprehensive changes to existing guidance for lease accounting, particularly for lessees, and aims to increase transparency and comparability among organizations by requiring the recognition of lease assets and lease liabilities on the balance sheet. The standard is effective for annual periods beginning after December 15, 2018, including interim periods within that year. Entities are required to use a modified retrospective approach for leases that exist, or are entered into, after the beginning of the earliest comparative period presented in the financial statements for the period of adoption. Full retrospective application is prohibited. Early adoption is permitted.

During 2016, the Company implemented a comprehensive project governance framework, which comprises a Steering Committee, Implementation & Stakeholder Committee, Project Management Office, and various working groups. The working groups are represented by cross functional finance and non-finance stakeholders who will support the financial and operational implementation of the new accounting standard. The Company is in the process of evaluating the impact of the new standard on its consolidated financial statements.

Recognition and Measurement of Financial Assets and Financial Liabilities

In January 2016, the FASB issued ASU No. 2016-01, *Financial Instruments – Overall: Recognition and Measurement of Financial Assets and Financial Liabilities*. Under the updated guidance, entities will have to measure equity investments at fair value and recognize any changes in fair value in net income. The update will be effective for OPG's 2018 fiscal year, including interim periods. As a result of this update, effective January 1, 2018, the available-for-sale (AFS) classification for securities will no longer be available, with any unrealized gains and losses related to such securities recognized in net income instead of OCI. Any unrealized gains and losses for AFS securities reported by OPG in AOCI as of the end of 2017 will be reclassified to retained earnings as of January 1, 2018. OPG's Hydro One share holdings are currently the Company's only AFS securities. As at December 31, 2016, these shares are valued on the consolidated balance sheet at \$212 million, of which \$1 million has been recorded in AOCI. OPG will continue to evaluate this ASU to determine if there is any further impact on its consolidated financial statements.

RISK MANAGEMENT

Overview

OPG faces various risks that could significantly impact the achievement of its strategic imperatives. The objective of risk management is to identify and mitigate these risks, and to preserve and increase the value of the Shareholder's investment in the Company.

Risk Governance Structure

The Audit and Risk Committee of OPG's Board of Directors assists the Board of Directors in fulfilling its oversight responsibilities for matters relating to the identification and management of the Company's key business risks. An Executive Risk Committee (ERC), which is comprised of business unit leaders and the Chief Risk & Audit Executive (CRAE), assists the Audit and Risk Committee in fulfilling its governance and oversight responsibilities related to OPG's risk management activities.

Risk Management Activities

OPG faces a wide array of risks as a result of its business operations. OPG's Enterprise Risk Management (ERM) framework is designed to identify and evaluate risks on the basis of their potential impact on the Company's capacity to achieve specific strategic imperatives and business plan objectives.

A centralized ERM group led by the CRAE coordinates the quarterly risk management reporting activities. The activities begin with business units identifying, reviewing, and assessing risks that could prevent achievement of their objectives. The ERM group reviews, validates, and consolidates this information and prioritizes risks based on their potential to impact OPG's overall strategic imperatives. The ERM group also assesses external developments that may have implications on the corporate risk profile and facilitates the identification and assessment of emerging risks. The ERC then reviews and validates significant changes in the top risks that may impact OPG's ability to achieve its strategic imperatives, as well as any emerging risks that have been identified. The results of the ERC review and significant changes in the enterprise risk profile are reviewed by the Audit and Risk Committee.

In order to maintain an appropriate balance between risk and return, senior management sets limits for the market risk, credit risk and energy trading activities of the Company. Senior management also establishes risk management policies and processes to ensure compliance with such limits.

The key risks to OPG's strategic imperatives are briefly described below.

Risks to Achieving Operational Excellence

OPG is exposed to variable output from its existing generating stations that could adversely impact its financial performance.

Operational risks are the risks inherent in the operation of electricity generating facilities. These risks can lead to interruptions in the operations of generating stations affecting future production. The operational risks of a station are generally a function of its age, human performance, and the technology used.

Nuclear Generating Stations

Operating an aging nuclear fleet exposes OPG to unique risks such as unplanned outages, an increase in operating costs, and risks associated with nuclear waste management operations.

Operating nuclear stations exposes OPG to unique risks, such as greater-than-anticipated deterioration of station components and systems, risks associated with the nuclear industry, supply chain and vendor quality, risks related to the handling, storage and disposal of nuclear waste, and the risk of a nuclear accident. The primary implications of these risks include additional safety requirements, potentially lower than expected generation and revenues, and potentially higher operating costs.

The uncertainty associated with production by OPG's Canadian Deuterium Uranium nuclear generating units is primarily driven by the condition of station components and systems, which are all subject to the effects of aging. Fuel channels are expected to be the most life-limiting component affecting station end-of-life. Another significant factor identified to date includes degradation of primary heat transport pump motors at the Darlington GS. Additionally, there are fuel handling performance challenges at both the Darlington GS and Pickering GS. To respond to these risks, OPG continues to monitor performance, implement extensive inspection and maintenance programs, identify corrective actions and undertake projects required to operate reliably and within design parameters.

Deterioration of station components may progress in an unexpected manner, resulting in the need to increase monitoring, conduct extensive repairs, or undertake additional remedial measures. To maintain a safe operating margin, a nuclear unit could be derated resulting in reduced generation. When an unexpected condition first appears, a specific monitoring program is established. The primary impact of these conditions on OPG is an increase in the long-term cost of operations. The associated mitigation may create additional outage work, increasing the number of outages or extending planned outages.

Pickering Extended Operations to 2024

In January 2016, the Province of Ontario announced its approval of OPG's plan to pursue the continued safe and reliable operation of the Pickering GS to 2024. Under OPG's plan, all six operating units at the Pickering GS would operate until 2022, at which point two units would be shut down and the remaining four units would continue to operate until 2024. The current operating licence for the Pickering GS, which expires in August 2018, was issued in 2013 assuming that the station would shut down in 2020.

Inability to achieve Pickering extended operations as planned would result in a reduction of OPG's future generation revenue and cash flows and lead to the advancement of shutdown and station decommissioning expenditures.

Risk factors for continued operation of the Pickering units include the discovery of unexpected conditions, equipment failures, the state of critical plant components that are reaching end-of-life, and a requirement for significant plant modifications. To mitigate these risks, OPG continues to undertake a number of activities, including the following:

- work to confirm achievability of fuel channel life necessary to enable extended operations
- component condition assessments to identify the work required to support the extended operation of the station
- modification of the operating and maintenance strategy to support continued operation of the station.

Over the remaining lifespan of the station, risks such as performance of the fuel handling system, challenges with parts procurement, and a shortage of qualified human resources may challenge operational excellence at the Pickering GS. OPG is addressing these risks by taking appropriate actions, including undertaking fuel handling reliability improvements, equipment modifications and targeted investments in plant systems and components, supply chain initiatives, and developing workforce planning and resourcing strategies.

Nuclear Waste Management

The process of generating electricity by nuclear generating stations produces nuclear waste. As required by the CNSC, OPG is accountable for the management of used fuel and L&ILW, and decommissioning of its nuclear stations and waste management facilities, including the stations on lease to Bruce Power. Currently, there are no licenced facilities in Canada for the permanent disposal of nuclear used fuel or L&ILW. The risks to OPG's proposed L&ILW DGR for the safe long-term management of L&ILW are discussed below, under the heading, *Deep Geologic Repository for Low and Intermediate Level Waste* in the section *Risks to Achieving Project Excellence*.

The NWMO has developed a process for moving forward with Adaptive Phased Management as the long-term solution for Canada's nuclear fuel waste. The Adaptive Phased Management plan contemplates the eventual long-term permanent disposal of radioactive nuclear fuel waste in a deep geologic repository. The NWMO is in the process of undertaking a multi-year site selection process for the used fuel deep geologic repository.

In the interim, OPG is storing and managing L&ILW at the WWMF site and used fuel at its nuclear generating station sites.

Nuclear Regulatory Requirements

The uncertainty associated with nuclear regulatory requirements is primarily driven by plant aging, changes to technical codes, and challenges raised by the public at regulatory hearings, particularly in the areas of safety, environment and emergency preparedness. Addressing these requirements could add to the cost of operations, and in some instances, may result in a reduction or elimination of the productive capacity of a station, earlier than planned replacement of a station component or additional requirements for waste management. Additionally, the operations of nuclear stations are often directly impacted by circumstances or events that occur at other nuclear stations globally. These circumstances or events may lead to CNSC regulatory changes with a significant impact on the cost and future operation of OPG's nuclear fleet.

In December 2015, the CNSC granted the station a 10-year operating licence, valid until November 30, 2025. The new licence spans most of the planned duration of the Darlington Refurbishment project, which provides greater regulatory stability and reduces regulatory risk. As discussed in the section, *Core Business, Strategy and Outlook*, under the heading, *Nuclear Operations*, the plan to extend Pickering operations to 2024 is subject to the CNSC's approval of the Pickering licence renewal application and other regulatory requirements as set out by the CNSC.

In January 2014, the federal government introduced Bill C-22 which contains a new *Nuclear Liability and Compensation Act* (NLCA). This bill received Royal Assent in February 2015, and the NLCA came into effect on January 1, 2017. The NLCA requires all operators of nuclear generating stations in Canada to maintain specified amounts of nuclear liability insurance purchased from a federal government approved insurer or other equivalent forms of financial security approved by the federal government. The NLCA increases OPG's nuclear liability limit from \$75 million to an initial \$650 million, with successive annual increases to \$750 million, \$850 million, and \$1 billion. OPG has met this requirement for the \$650 million liability limit required by the NLCA for 2017 and is assessing the availability and premium cost of coverage for the \$750 million liability limit required for 2018.

Hydroelectric Generating Stations

OPG's hydroelectric generation is exposed to risks associated with water flows, the age of plant and equipment, surplus baseload generation conditions, and dam safety requirements.

The extent to which OPG can operate its hydroelectric generation facilities depends upon the availability of water. Significant variability in weather, including impacts of climate change, could affect water flows. For OPG's regulated hydroelectric generation, the financial impact of variability in electricity production due to differences between the forecast water conditions underpinning the hydroelectric regulated prices and the actual water conditions are captured in an OEB-approved regulatory variance account.

OPG's hydroelectric generating stations have an average age of approximately 80 years, with the majority of the hydroelectric generating equipment being over 50 years old. The condition of the equipment and civil components resulting from the age of these components requires OPG to plan potentially significant work to mitigate risks to the reliability of some hydroelectric generating stations. OPG manages these risks by performing inspection and maintenance of critical components and by reviewing mitigating actions. In addition, OPG conducts detailed engineering reviews and station condition assessments on an ongoing basis. These reviews and assessments help to identify future work required to sustain and, as appropriate, upgrade a station.

SBG has, and will continue to be, an issue in Ontario when electricity supply exceeds demand. To manage SBG conditions, the IESO may require OPG to reduce hydroelectric generation and spill water. A regulatory variance account authorized by the OEB helps to mitigate the financial impact of spill due to SBG conditions for OPG's regulated hydroelectric generating stations. The Company anticipates a declining trend in SBG for its hydroelectric assets due to reduced nuclear availability resulting from the refurbishment of the Darlington GS, future refurbishment of the Bruce generating stations, and the eventual shutdown of the Pickering GS.

The hydroelectric business operates 238 dams across Ontario. Dam safety legislation does not currently exist in the province. Technical guidelines which were published by the MNRF represent the government standards for dam safety. In general, OPG's practices in the area of dam safety and public safety around dams exceed the minimum requirements outlined in the MNRF technical guidelines. OPG continues to develop a new risk-informed approach in cooperation with the MNRF to prioritize the outcomes of dam safety assessments. OPG could eventually incur additional costs for certain dams that it operates in order to comply with any new requirements.

People and Culture

OPG's operations could be affected if skilled human resources are not available or aligned with its talent requirements.

The development of new leaders and retention of staff in critical roles across OPG is a key factor to OPG's success. Another success factor is related to the effective transfer of knowledge from those in critical positions throughout the organization to future leaders. The risk associated with the alignment and/or availability of skilled and experienced resources continues to exist for OPG in specific areas, including leadership and project management positions. To mitigate this risk, OPG continues to focus on succession planning, leadership development and knowledge management programs to improve the capability of its workforce. There is also a continued risk of a mismatch between attrition levels and the resource requirements to meet OPG's future business needs.

Electricity generation involves complex technologies that require highly skilled and trained workers. Many positions at OPG have significant educational prerequisites and rigorous requirements for continuous training and periodic requalification, which requires a long-term outlook to workforce planning.

To mitigate the above risks, OPG is developing an organization-wide workforce planning and resourcing strategies and has established ongoing monitoring processes to reassess risks, challenges and opportunities related to staffing on a regular basis. OPG expects to meet the human resource needs of the business by developing existing employees and hiring in specific areas, while continuing to leverage attrition through realignment of work and streamlining of processes, where appropriate.

As of December 31, 2016, approximately 90 percent of OPG's regular labour force was represented by a union. OPG's current collective agreements with the PWU and The Society expire on March 31, 2018 and December 31, 2018, respectively, while all 19 collective agreements with craft unions expire on April 30, 2020. As a result of these agreements, OPG considers the likelihood of a labour disruption in the near future to be significantly reduced.

Health and Safety

OPG's operations involve inherent occupational safety risks and hazards.

OPG's operations involve inherent occupational safety risks and hazards that could impact the achievement of the Company's health and safety goals. OPG is committed to continuous improvement and achievement of its ultimate goal of zero injuries through a formal enterprise-wide safety management system, integrated at the operating site level, and by continuing to foster a strong health and safety culture among its employees and contractors. The safety management system serves to focus the Company on proactively managing safety risks and hazard exposures to employees and contractors. In 2016, OPG launched the organization-wide "iCare Enough to Act" initiative aimed at renewing employees' and contractors' commitments to their own and each other's safety and well-being.

Cyber Security

OPG's ability to operate effectively is, in part, dependent on the efficient operation and management of the Company's complex information technology and industrial control systems in a secure, vigilant, and resilient manner that minimizes cyber risks. Cyber security incidents may have an adverse impact on OPG's reputation, energy production, and public and employee safety.

Cyber security incidents have been on the rise for the past few years and this trend is only expected to intensify as organizations' reliance on technology increases. OPG has strategies in place to prepare for, respond to, and recover from cyber security incidents. OPG continuously monitors, assesses, and improves the effectiveness of its strategies and program considering leading industry practices and remains proactive in information and intelligence sharing to learn and adapt to the changing cyber environment.

As a registered Ontario market participant, OPG is accountable to comply with all applicable reliability obligations. Within the context of the Ontario regulatory framework, OPG is a registered generator, and is responsible for complying with the associated reliability standards. These standards apply to the relevant Bulk Electric System (BES) elements specified under North American Electric Reliability Corporation (NERC) and the relevant Bulk Power System (BPS) facilities as determined by the Northeast Power Coordinating Council. In addition, OPG's nuclear cyber assets are subject to CNSC licensing conditions and regulatory requirements. For other cyber assets not subject to applicable regulatory requirements, OPG has adopted a risk-based approach based on the National Institute of Standards and Technology Cybersecurity Framework to manage its cyber security.

To mitigate cyber risks, OPG's cyber security program focuses on educating employees, contractors, and vendors, improving processes, and upgrading technology infrastructure. In particular, OPG's program focuses on the following:

1. Complying with regulatory requirements and applicable laws
2. Improving its cyber security protection and detection capabilities to reduce known or potential exposures by engaging the services of external experts to evaluate the security of its information technology infrastructure and controls
3. Adopting industry leading practices to reduce third party cyber security risks through enhanced vendor risk assessments, introducing cyber security requirements into commercial agreements, and enhanced governance
4. Improving and exercising its incident response, recovery capability, and business continuity plans to minimize the business impact of an incident
5. Increasing the cyber security awareness and training level of its workforce through mandatory annual cyber security awareness training, specialized training for cyber specialists, social engineering tests, and periodic company-wide communications on relevant cyber security topics.

The oversight responsibility of the Audit and Risk Committee of OPG's Board of Directors over the Company's risk management activities includes the review of a semi-annual update from management on the Company's cyber security position and programs.

Suppliers

Non-performance by strategic suppliers or an inability to diversify the supplier base could adversely impact operating and project performance, financial results and reputation of OPG.

OPG's ability to operate effectively is in part dependent upon timely access to equipment, materials, and service suppliers. Loss of key equipment, materials, and service suppliers, particularly for the nuclear business, could affect OPG's ability to operate effectively and/or to execute major development projects or other capital investment programs. OPG mitigates this risk, to the extent possible, through contract negotiations, contract terms, vendor monitoring, diversification of supplier base, and business continuity plans.

Business Continuity and Emergency Management

Natural, technological or human-caused hazards may impact OPG's business continuity.

OPG is exposed to potential or actual incidents or developments resulting from extreme temperatures, precipitation, wind conditions or other natural disasters, and technological or human-caused hazards; to significant events against which it is not fully insured or indemnified; or to parties that fail to meet their indemnification obligations. These incidents have the potential to disrupt operations resulting in decreased generation revenue or additional costs to repair damages and restore operations.

OPG's business continuity program provides a framework to build resilience into critical business processes by facilitating development of risk response plans and business continuity exercises. OPG's emergency management

program is designed to ensure that the Company can manage an emergency in a timely and effective manner. OPG's plans and implementation procedures identify immediate response actions to be taken to protect the health and safety of employees and the public, and to limit the impact of the crisis on site security, production capability, and the environment. The program elements are designed to meet legal and regulatory requirements.

Risks to Achieving Project Excellence

The risks associated with the cost, schedule, technical and contractor performance aspects of the major projects could adversely impact OPG's financial performance and its corporate reputation.

OPG is undertaking several capital intensive projects with significant investments. There may be an adverse effect on the Company if it is unable to: obtain necessary approvals; raise the necessary funds; effectively manage the projects on time and on budget; or fully recover capital costs and earn an appropriate return on investment in a timely manner. These projects may also have a significant impact on OPG's borrowing capacity and credit rating. Some projects may be ultimately reassessed as being uneconomic. The risks associated with OPG's current major projects are described below.

Darlington Refurbishment

OPG is responsible for the management of the Darlington Refurbishment project, including the project's budget and schedule, and continues to systematically manage all of the risks associated with the project through robust risk management practices. There are financial and reputational risk exposures for OPG if actual costs exceed the budget or if OPG does not meet the project schedule. In addition, failure to achieve the objectives of the refurbishment project may result in future forced outages and more complex planned outages, potentially impacting the post-refurbishment performance or useful life of the station. Failure to carry out the refurbishment of the first unit as planned may result in not proceeding with the refurbishment of the remaining units, which, together with the end of commercial operations at the Pickering GS, could result in most of OPG's nuclear units shutting down by the early to mid 2020s.

There are a number of specific risks that OPG is managing and mitigating in relation to the Darlington Refurbishment project, which include OPG and vendor performance risks, delay or productivity risks, financial risks related to escalation of costs, technical risks such as equipment conditions resulting in additional scope, and execution risks such as failure to manage foreign material exclusion from the heat transport system that could lead to post refurbishment operational risks.

To mitigate the above risks and to build on major lessons learned from other nuclear refurbishments and large scale, complex projects, OPG engaged in an extensive five-year project planning phase in order to determine the project scope, rigorously estimate costs in keeping with best practices, and incorporate lessons learned from other nuclear refurbishments. In order to fully define the scope and material requirements for the project, the planning phase included the completion of detailed designs before proceeding with the execution of the unit refurbishments. Further risk mitigation has been implemented through the construction of a full scale model training reactor, which allows for simulations and training for unit refurbishment execution tasks.

A large portion of the costs for the Darlington Refurbishment project is being paid to contractors and suppliers, including vendors that will engineer, procure, and construct components of the project. There is a risk that, as the volume of work increases significantly, vendor capability, capacity, and performance shortfalls may impact project objectives and deliverables. OPG's risk management strategy aims to ensure that contractors are held accountable and appropriate off-ramps are in place. In mitigating its overall financial risk, OPG utilizes a contracting strategy that aims to share the risk with key vendors in a cost effective manner, where appropriate. There is also an increased risk of contractor initiated safety events, which may impact OPG's reputation. Mitigating actions include collaborative execution phase planning, an enhanced human performance program, active risk management, increased field presence by supervisory staff, and assisting vendors in removing barriers to work. OPG also is managing other

ongoing risks that could potentially impact the project, including those related to continuity of skilled leaders within OPG and its vendor partners, as well as the availability of technical resources to support the project through execution.

Independent, third-party oversight has been established for the execution phase of the project, for both the project executive team and OPG's Board of Directors. The Ontario Ministry of Energy has also retained an external advisor to provide oversight of the project, reporting to the Minister of Energy.

Deep Geologic Repository for Low and Intermediate Level Waste

OPG, with the support of Bruce County municipalities, is proposing to construct and operate a deep geologic repository as the preferred solution for the safe long-term management of L&ILW. While broad local community support for the proposed L&ILW DGR is stable, there are pockets of opposition. OPG is currently awaiting a decision on the EA for the project by the federal Minister of Environment and Climate Change, before the issuance of the site preparation and construction licence may proceed. There is a risk of delay to the EA approval and/or the issuance of the site preparation and construction licence from potential political or legal challenges. OPG will continue its engagement with the Saugeen Ojibway Nations toward securing community support for the L&ILW DGR.

Other Development Projects

Projects that are in the initial development stages are subject to schedule delays or possible cancellation due to unforeseen delays in receiving permits or approvals, or establishing sufficient certainty regarding project cost recovery through revenue mechanisms, which may involve various external stakeholders. OPG attempts to mitigate these risks through early involvement and regular communication with applicable government agencies, close consultation with external stakeholders and ongoing monitoring of contractor compliance relative to permits. Projects in the execution phase are subject to inherent risks related to performance against approved budgets and schedules. Mitigating activities for the risks include performing detailed engineering designs before proceeding with execution, engaging qualified and experienced vendors, and effectively monitoring and controlling performance.

Development projects also could be faced with increasing costs for equipment and construction that could impact their economic viability. OPG continuously monitors such trends in costs in order to identify emerging issues and seeks to manage and limit cost increases through contracting strategies, where possible.

Risks to Maintaining Financial Strength

Risks related to rate regulation, financial markets, and long-term obligations could significantly impact OPG's financial performance. The Company is also exposed to risks such as weak electricity demand, displacement of generation by competitors and financial risk associated with energy trading.

There is a risk that future regulated prices will not allow OPG to consistently achieve financial performance that is commensurate with that of a commercial enterprise. OPG is exposed to a number of other significant financial risks, many of which arise due to decreasing demand for electricity, competing energy sources, OPG's exposure to volatility in commodity and equity markets and interest rate fluctuations. This includes the Company's pension and OPEB obligations and costs that are impacted by market and interest rate fluctuations. OPG manages this complex array of risks with a view to reduce the uncertainty and/or mitigate the potential unfavourable impact on the Company's financial results.

Rate Regulation

Significant uncertainties remain regarding the outcome of rate and generic proceedings impacting OPG's rate regulated operations.

There is an inherent risk that regulated prices established by the OEB may not provide for the recovery of all actual costs that will be incurred by OPG's regulated operations or allow the regulated operations to earn an appropriate

rate of return. This could occur if, in setting regulated prices, the OEB makes adjustments to forecasts submitted by OPG, if actual production and costs significantly differ from the forecasts approved by the OEB, or if OPG is unable to achieve additional efficiencies to meet the OEB-approved stretch factors included in regulated prices under incentive ratemaking. Differences between OPG's actual and forecast production and costs could be due to factors such as outages or project execution risks. In providing evidence in support of its applications for regulated prices, OPG aims to clearly demonstrate to the OEB that the costs for the regulated operations are reasonable, being prudently incurred and should be fully recovered.

Certain differences between elements of OEB-approved revenue requirements and OPG's actual results are recorded in OEB-approved variance and deferral accounts for future review by the OEB, including a number of the variance and deferral accounts that are subject to an OEB prudence review. There is inherent uncertainty associated with the outcomes of future proceedings for the clearance of these balances.

Proposed Incentive Regulation Ratemaking Methodologies

In May 2016, OPG submitted a 5-year application to the OEB for new regulated prices effective January 1, 2017, on the basis of an incentive regulation rate making methodology for the hydroelectric operations and a custom incentive regulation ratemaking framework for the nuclear operations. If accepted by the OEB, both approaches would result in greater decoupling of OPG's revenues for the regulated operations from their costs. The OEB's decision on OPG's application is expected in the second half of 2017.

Effective Date of New Regulated Prices

There are inherent uncertainties regarding the effective date that the OEB will establish for the new regulated prices. OPG has requested January 1, 2017 as the effective date. The OEB's decision on the effective date and the timing of the decision issuance could have a significant impact on OPG's 2017 results. Until the OEB's decision is issued, the continuation of existing regulated prices is expected to contribute to lower income, particularly from the Regulated – Nuclear Generation segment, and lower ROE Excluding AOCI in 2017, compared to 2016. In December 2016, the OEB issued an order declaring the existing base regulated prices interim, which preserves the OEB's ability to make the new regulated prices effective as early as January 1, 2017.

Nuclear Rate Smoothing Proposal

Consistent with *Ontario Regulation 53/05*, OPG's May 2016 application includes a nuclear rate smoothing proposal, with a view of making more stable year-over-year changes in the nuclear base regulated prices during the Darlington Refurbishment period. There is an inherent risk that the magnitude of the deferral ordered by the OEB will result in regulated prices that do not provide sufficient cash flow to the Company for meeting its financial objectives in an optimal manner, including ensuring sufficient liquidity, cost effectively funding the Darlington Refurbishment project and other expenditures, and maintaining the Company's investment grade credit rating. Maintaining adequate levels of credit metrics will support OPG's investment grade credit rating. As such, OPG has advanced credit metrics as a key criterion for the OEB to apply in determining the smoothed nuclear base rates.

Recovery of Pension and OPEB Costs

The OEB is currently conducting a consultation in the gas and electricity sectors to develop standard principles to guide the OEB's review of pension and OPEB costs for rate-regulated utilities, including establishing appropriate regulatory mechanisms for cost recovery. The OEB's November 2014 decision establishing OPG's existing regulated prices indicated that a change in the recovery methodology for OPG's pension and OPEB costs from the accrual basis, if required, would be addressed in OPG's next rate proceeding, having been informed by the outcome of the OEB's generic proceeding on the regulatory treatment and recovery of pension and OPEB costs. The decision also stated that the future recovery, if any, of amounts recorded in the Pension & OPEB Cash Versus Accrual Differential Deferral Account authorized by that decision also would be subject to the outcome of the generic proceeding. As such, the outcome of the current consultation could have a material impact on OPG's ability to recover the balance in

the Pension & OPEB Cash Versus Accrual Differential Deferral Account and full pension and OPEB costs in the future. This would have significant adverse implications on OPG's future financial results. OPG is participating in the OEB consultation and has advanced its position in support of the appropriateness of using the accrual basis for cost recovery purposes.

Nuclear Waste Management and Nuclear Decommissioning Obligations, and Nuclear Segregated Funds

Changes in cost estimates or strategies for nuclear waste management and nuclear facilities decommissioning obligations could impact OPG's future contributions to the Nuclear Segregated Funds to cover these obligations.

As required by the CNSC, OPG is responsible for the management of used nuclear fuel and L&ILW and the decommissioning of its nuclear stations and waste management facilities. The cost estimates for OPG's nuclear waste management and decommissioning obligations are based on multiple underlying assumptions and estimates that are inherently uncertain and may evolve over time. The assumptions include station end-of-life dates, waste volumes, waste disposal methods, the timing of construction of assumed waste disposal facilities, waste packaging systems, decommissioning strategy, and financial indicators. To address the inherent uncertainty, OPG undertakes to perform a comprehensive review of the underlying assumptions and baseline cost estimates at least once every five years, in line with the required ONFA Reference Plan update process.

The most recent comprehensive update of the nuclear waste management and decommissioning obligations was performed as part of the 2017 ONFA Reference Plan approved by the Province in December 2016. An approved ONFA Reference Plan determines OPG's contributions to the Nuclear Segregated Funds. The changes in contribution levels are impacted by changes in the values of the Nuclear Segregated Funds as well as changes in the associated nuclear waste management and nuclear facilities decommissioning obligations. Based on the 2017 ONFA Reference Plan, no contributions are currently required to the Nuclear Segregated Funds. Contributions may be required in the future should the Nuclear Segregated Funds be in an underfunded position relative to the funding requirement of a new approved reference plan.

Financial Markets

The market value of investments held by OPG's Nuclear Segregated Funds and registered pension plan could be significantly affected by changes in various market factors such as equity prices, interest rates, inflation, and commodity prices.

Nuclear Segregated Funds Market Risk

Investments in the Nuclear Segregated Funds are allocated to certain asset classes including fixed income securities, domestic and international equity securities, pooled funds, infrastructure, agriculture and real estate. These funds are managed to achieve, in the long term, the target rate of return based on the discount rate specified in the ONFA, in order to fund the expenditures associated with the long-term management of used fuel and L&ILW after station shutdown, and the decommissioning of OPG's nuclear stations and waste management facilities. The rates of return earned on these segregated funds are subject to various factors including the current and future financial market conditions, which are inherently uncertain. The asset mix of the funds is determined jointly by OPG and the Province in accordance with the ONFA.

For the Used Fuel Segregated Fund, the Province guarantees the annual rate of return at 3.25 percent plus the change in the Ontario CPI, as defined by the ONFA, for the portion of the fund attributed to the first 2.23 million nuclear fuel bundles. As such, a change in the portion of the fund's value attributed to the first 2.23 million bundles impacts OPG's earnings to the extent of changes in the Ontario CPI. OPG is subject to the market risk for the investment of funds set aside in the Used Fuel Segregated Fund for incremental bundles in excess of 2.23 million.

In accordance with the cost recovery methodology established by the OEB, the performance of the portion of the Nuclear Segregated Funds attributed to the nuclear generating stations leased to Bruce Power has been subject to the Bruce Lease Net Revenues Variance Account. The variance account partially mitigates rate of return risk related to the Nuclear Segregated Funds, as it captures the differences between actual and forecast earnings from the Nuclear Segregated Funds related to these stations. Forecast earnings are those approved by the OEB in setting nuclear regulated prices. OPG is exposed to rate of return risk related to the portion of the Nuclear Segregated Funds related to the Pickering and Darlington nuclear generating stations under the OEB-approved cost recovery methodology. The income statement impact of rate of return risk is reduced when the Nuclear Segregated Funds are in a fully funded position.

Post-Employment Benefit Obligations Risk

OPG's post-employment benefit obligations include pension, group life insurance, health care benefits, and LTD benefits. OPG's post-employment benefit obligations and costs, and pension plan contributions could be materially affected in the future by numerous factors, including: changes in discount rates, inflation rates, and other actuarial assumptions; future investment returns; experience gains and losses; the funded status of the pension plans; changes in benefits; changes in the regulatory environment including potential changes to the *Pension Benefits Act* (Ontario); changes in OPG's operations; and the measurement uncertainty incorporated into the actuarial valuation process.

The OPG registered pension plan, which covers most of OPG's employees and retirees, is a contributory defined benefit plan that is indexed to inflation. Contributions to the OPG registered pension plan are determined by actuarial valuations, which are filed with the appropriate regulatory authorities at least every three years. The most recent actuarial valuation of the OPG registered pension plan, covering the three-year period to the end of 2018, was completed as of January 1, 2016. There is an inherent risk that future actuarial valuations could increase OPG's funding requirements due to market and economic-related conditions. A significant decline in the financial markets could trigger an immediate requirement to update the actuarial valuation based on declines in the funded status. OPG continues to assess the requirements for contributions to the registered pension plan, including the timing of future actuarial valuations. The next actuarial valuation of the OPG registered plan must have an effective date no later than January 1, 2019. OPG's OPEB obligations are not funded and the associated employee benefits are paid from cash flow provided by operating activities or other sources of liquidity.

Commodity Markets

Changes in the market price of fuels used to produce electricity can adversely impact OPG's earnings and cash flow from operations.

To manage the risk of unpredictable increases in the price of fuels, the Company has fuel hedging programs, which include using fixed price and indexed contracts.

The percentages hedged of OPG's fuel requirements are shown in the following table. These amounts are based on yearly forecasts of generation and supply mix and, as such, are subject to change as these forecasts are updated.

	2017	2018	2019
Estimated fuel requirements hedged ¹	75%	76%	65%

¹ Represents the approximate portion of megawatt-hours of expected generation production (and year-end inventory targets) from each type of OPG-operated facility (nuclear, hydroelectric and thermal) for which the Company has entered into contractual arrangements or obligations in order to secure the price of fuel, or which is subject to regulation. In the case of hydroelectric generation, this represents the gross revenue charge and water rental charges. Excess fuel inventories (nuclear and thermal) in a given year are attributed to the next year for the purpose of measuring hedge ratios.

Foreign Exchange

OPG's earnings and cash flow can be affected by movements in the United States dollar relative to the Canadian dollar.

OPG's financial results are exposed to volatility in the Canadian/US foreign exchange rate as fuels and certain supplies and services purchased for generating stations and major development projects are primarily denominated in, or tied to US dollars (USD). To manage this risk, OPG employs various financial instruments such as forwards and other derivative contracts, in accordance with approved risk management policies. As at December 31, 2016, OPG had total foreign exchange contracts outstanding with a notional value of USD \$9 million.

Trading

OPG's financial performance can be affected by its trading activities.

OPG's electricity trading operations are closely monitored, with total exposures measured and reported to senior management on a daily basis. The main metric used to measure the financial risk of trading activity is Value at Risk (VaR). VaR is defined as a probabilistic maximum potential future loss expressed in monetary terms for a portfolio based on normal market conditions over a set period of time. During 2016, the VaR utilization ranged between nil and \$1.5 million, compared to between nil and \$1.5 million in 2015.

Credit

Deterioration in counterparty credit and non-performance by suppliers and contractors can adversely impact OPG's earnings and cash flow from operations.

The Company's credit risk exposure is a function of its electricity sales, trading and hedging activities, treasury activities including investing, and commercial transactions with various suppliers of goods and services. OPG's credit risk exposure relating to electricity sales is considered low as the majority of sales are through the IESO-administered spot market. The IESO oversees the credit worthiness of all market participants. In accordance with the IESO's prudential support requirements, market participants are required to provide collateral to cover funds that they might owe to the market.

Other major components of OPG's credit risk exposure include those associated with vendors that are contracted to provide services or products. OPG manages its exposure to various suppliers or counterparties by evaluating their financial condition and ensuring that the Company holds appropriate collateral or other forms of security.

The following table summarizes OPG's credit exposure to all counterparties from electricity transactions and trading as at December 31, 2016:

Credit Rating ¹	Number of Counterparties ²	Potential Exposure ³ (million of dollars)	Potential Exposure for Largest Counterparties	
			Number of Counterparties	Counterparty Exposure (millions of dollars)
Investment grade	11	11	5	9
IESO ⁴	1	421	1	422
Total	12	432	6	431

¹ Credit ratings are based on OPG's own analysis, taking into consideration external rating agency analysis where available, as well as recognizing explicit credit support provided through parental guarantees, Letters of Credit or other forms of security.

² OPG's counterparties are defined on the basis of individual master agreements.

³ Potential exposure is OPG's statistical assessment of maximum exposure over the life of each transaction at a 95 percent confidence interval.

⁴ Credit exposure is an estimate of the receivable amount arising from OPG's electricity sales into the IESO market. The credit exposure and associated receivable vary each month based on electricity sales. The monthly receivable from the IESO is typically paid to OPG in the subsequent month as per the IESO payment schedule.

Liquidity

Rising liquidity requirements can impact OPG's capital investment projects and ability to meet financial obligations.

OPG operates in a capital intensive business. Significant financial resources are required to fund major development and other capital improvement projects, including the Darlington Refurbishment project. In addition, the Company has other significant disbursement requirements including pension contributions, payments towards OPEB and other benefit plans, expenditures on Nuclear Liabilities not eligible for reimbursement from the Nuclear Segregated Funds, debt maturities with the OEFC, and investments in new generating capacity and other business growth opportunities. OPG must ensure that it has the financial capacity and sufficient access to cost effective financing sources to fund its capital requirements and other disbursements. In support of this objective, OPG utilizes multiple sources and forecasts availability of funds, actively monitors funding requirements, and is focused on maintaining its investment grade credit rating. A discussion of corporate liquidity is included under the section, *Liquidity and Capital Resources*.

Contracted Generation

OPG may incur costs if its contracted generating assets do not meet performance targets as specified in the ESAs with the IESO or other long-term contracts. There is also a risk that, upon expiry, subsequent ESAs may not be available.

The Company's generating stations operating under ESAs with the IESO or other long-term contracts are subject to availability and production targets specified in their respective contracts. OPG could incur charges and other costs if these facilities fail to operate at required capacity or production levels, as required. This risk is mitigated through the implementation of maintenance, capital investment and other programs, as appropriate.

OPG's owned and co-owned thermal generating stations operate under ESAs with the IESO or other long-term agreements. In December 2016, the Ontario and Quebec governments signed an electricity trade agreement that will allow Ontario to import up to 2 TWh of hydroelectric power from Quebec annually from 2017 to 2023. This is expected to replace some gas-fired generation in Ontario. While OPG expects that its thermal generating stations will continue to provide capacity to the market over the term of the respective agreements, there is a risk that, upon expiry of the current agreements, subsequent contracts for these stations may not be available or may not be available on financially viable terms.

Ontario Electricity Market

Ontario electricity market conditions could impact OPG's revenue and operations.

OPG's revenue can be impacted by external factors related to the electricity market including: the entrance of new participants into the Ontario market; the competitive actions of market participants; Ontario electricity demand; changes in the regulatory environment; and wholesale electricity prices in the interconnected markets.

The structure of the Ontario electricity market is subject to regulation and market rules, changes to which may affect OPG's revenue. The Province, the IESO, the OEB, or another entity or regulatory body may change or institute regulations or rules that can impact OPG's capability to generate revenue or ability to recover appropriate costs and earn a return on the assets.

Ownership by the Province

OPG's commitment to maximize the return on the Shareholder's investment in the Company may compete with the obligation of the Shareholder to respond to a broad range of matters in its role as the Government of Ontario.

The Province owns all of OPG's issued and outstanding common shares. Accordingly, the Province, as represented by the Ontario Ministry of Energy, has the authority to make appointments to OPG's Board of Directors. OPG could be subject to Shareholder direction, under Section 108 of the OBCA, that can directly influence major decisions including those related to project development, timing and strategy of applications for regulated prices, asset divestitures, financing and capital structure, that could require OPG to undertake activities that result in increased expenditures, or that reduce revenues or cash flows relative to the business activities or strategies that would have otherwise been undertaken. In addition, the obligation of OPG's Shareholder to respond to a broad range of matters in its role as the Government of Ontario may compete with OPG's commitment to maximize the return on the Shareholder's investment in the Company. This includes, but is not limited to, the Province's response to mitigate the impact of rising electricity prices on consumers.

Government Legislation and Regulation Change

OPG is subject to extensive federal and provincial legislation and regulations that have an impact on the Company's operations and financial position.

OPG's core business and strategy may be impacted by changes in federal and provincial legislation and regulations. Matters that are subject to regulation include, among others, rate regulation, electricity generating operations, nuclear waste management and nuclear decommissioning, and taxation. Regulatory bodies may change or enact regulations or rules, such as new nuclear fitness for duty requirements, that could increase OPG's costs, decrease OPG's revenue, or limit the Company's ability to recover appropriate costs or earn a return on the assets.

Since legal requirements are subject to change and to interpretation, OPG is unable to predict the impact of such changes on the Company and its operations. To mitigate legislative risks, OPG continues to monitor and actively engage with the federal and provincial governments in order to determine if future legislation will impact the Company.

Risks to Maintaining Social Licence

OPG is exposed to risks associated with its social licence and public profile due to changes in the opinions of various stakeholders, including local communities, Ontario customers, government agencies, and Indigenous Communities. Additionally, inability to achieve operational excellence and project excellence safely and reliably and to maintain financial strength could impact OPG's social licence.

Maintaining public trust and meeting stakeholders and Indigenous communities' expectations are critical to OPG's success. OPG focuses on building and maintaining its social licence and corporate reputation through safe, reliable,

environmentally-responsible operations as well as corporate citizenship initiatives across the province. The inability to maintain safe, reliable operations could negatively impact OPG's reputation and result in a loss of public support.

OPG has transparent governance practices and works continuously towards effective communication and consultation with Indigenous communities and stakeholders. Efforts to reinforce OPG's social licence include various media campaigns that highlight the Company's contribution as a clean power generator with a commitment to safety, environment and community partnerships. OPG undertakes various assurance and risk management activities to effectively manage the risks to its social licence and corporate reputation. Issue management and response plans are developed to address specific concerns as they arise.

Indigenous Communities

The quality of OPG's relationships and the outcome of negotiations with Indigenous communities may impact OPG's project and financial performance, as well as its social licence to operate.

OPG may be subject to claims by Indigenous communities. These claims stem from projects and generation development related to the operations of OPG and historic operations of OPG's predecessor company, Ontario Hydro, which may have impacted the Aboriginal and/or Treaty rights of Indigenous communities.

OPG has an Indigenous Relations Policy, which sets out the Company's commitment to proactively build and maintain positive relationships with Indigenous communities. OPG has been successful in resolving a number of past grievances by Indigenous communities. However, the outcome of the ongoing and any future negotiations depends on a number of factors, including legislation and regulations and precedents created by court rulings, which are subject to change over time. OPG pursues generation-related developments in partnerships with Indigenous communities on the basis of long-term mutually beneficial commercial arrangements.

Environmental Risks

OPG may be subject to orders or charges if it is not in compliance with applicable environmental laws. Changes in environmental regulatory requirements can result in existing operations being in a state of non-compliance, a potential inability to comply, and potential costs and liabilities for OPG.

Changes to environmental laws could create compliance risks and result in potential liabilities that may be addressed by the installation of control technologies, development of new processes, allowances or offsets, or constraints on electricity production. A failure to comply with applicable environmental laws may result in enforcement actions, including the potential for orders or charges. In addition, some of OPG's activities have the potential to impair natural habitat, damage aquatic or terrestrial plant and wildlife, or cause contamination to land or water that may require remediation. There is also a risk that OPG may incur additional costs to meet heritage conservation program requirements under the *Ontario Heritage Act*.

Potential environmental regulatory changes being managed as risks by the Company include electricity production constraints and water flow management requirements to protect fish and fish habitat, expanded fish passage requirements, and lower drinking and ground water tritium concentration standards. These changes could impact plant operations and increase costs. OPG continues to monitor and address risks associated with changes to environmental laws and regulatory requirements. There were no significant changes to environmental legislation applicable to OPG during 2016.

OPG recognizes that efforts are required to plan for the effects of climate change and has identified climate change adaptation as a strategic issue for the company. OPG monitors developments in climate science, adaptation activities, and potential changes to policy and regulatory requirements. OPG continues to work with stakeholders to better define adaptation requirements through analysis and understanding of climate change impacts on watersheds and electricity supply and demand. Once adaptation requirements are better known, a risk-based analysis will help OPG determine the extent of efforts it will undertake to reduce the impact of climate change on its operations.

A carbon cap and trade program became effective in Ontario in January 2017. The program is not expected to have a material adverse economic impact on OPG due to the Company's low GHG emitting generating fleet. Further details can be found under the heading, *Environmental Performance*, in the section, *Core Business, Strategy and Outlook*.

RELATED PARTY TRANSACTIONS

Given that the Province owns all of the shares of OPG, related parties include the Province and other entities controlled by the Province.

The related party transactions summarized below include transactions with the Province and the principal successors to the former Ontario Hydro's integrated electricity business, including Hydro One, the IESO and the OEFC. The transactions between OPG and related parties are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties. As one of several wholly-owned government business enterprises of the Province, OPG also has transactions in the normal course of business with various government ministries and organizations in Ontario that fall under the purview of the Province.

The related party transactions for the years ended December 31 are summarized below:

(millions of dollars)	2016		2015	
	Revenue	Expense	Revenue	Expense
Hydro One				
Electricity sales	6	-	12	-
Services	1	15	1	6
Dividends	6	-	-	-
Province of Ontario				
Change in Decommissioning Segregated Fund amount due to Province ¹	-	192	-	185
Change in Used Fuel Segregated Fund amount due to Province ¹	-	235	-	274
Gross revenue charge	-	120	-	121
ONFA guarantee fee	-	8	-	8
OEFC				
Gross revenue charge	-	203	-	207
Interest expense on long-term notes	-	169	-	177
Income taxes, net of investment tax credits	-	104	-	80
Contingency support agreement	-	-	8	-
IESO				
Electricity related revenue	5,105	24	4,903	65
	5,118	1,070	4,924	1,123

¹ The Nuclear Segregated Funds are reported on the consolidated balance sheets net of amounts recognized as due to the Province in respect of excess funding and, for the Used Fuel Segregated Fund, the Province's rate of return guarantee. As at December 31, 2016 and December 31, 2015, the Nuclear Segregated Funds were reported net of amounts due to the Province of \$3,415 million and \$2,988 million, respectively.

The receivable, available-for-sale securities, payable and long-term debt balances between OPG and its related parties are summarized below:

<i>(millions of dollars)</i>	2016	2015
Receivables from related parties		
Hydro One	1	1
IESO	421	531
OEFC	1	9
PEC	4	3
Province of Ontario	2	1
Available-for-sale securities		
Hydro One shares	212	-
Accounts payable and accrued charges		
Hydro One	-	1
OEFC	61	51
Province of Ontario	2	20
IESO	2	18
Long-term debt (including current portion)		
Notes payable to OEFC	3,295	3,465

OPG holds interest-bearing Province of Ontario bonds in the Nuclear Segregated Funds and the OPG registered pension fund. As at December 31, 2016, the Nuclear Segregated Funds and the registered pension fund held \$1,652 million and \$284 million of interest-bearing Province of Ontario bonds, respectively. As at December 31, 2015, the Nuclear Segregated Funds and the registered pension fund held \$1,597 million and \$288 million of interest-bearing Province of Ontario bonds, respectively. These bonds are publicly traded securities and are measured at fair value. OPG jointly oversees the investment management of the Nuclear Segregated Funds with the Province.

INTERNAL CONTROLS OVER FINANCIAL REPORTING AND DISCLOSURE CONTROLS

Management, including the President and Chief Executive Officer (President and CEO) and the Chief Financial Officer (CFO), are responsible for maintaining Disclosure Controls and Procedures (DC&P) and Internal Controls over Financial Reporting (ICOFR). DC&P is designed to provide reasonable assurance that all relevant information is gathered and reported to senior management, including the President and CEO and the CFO, on a timely basis so that appropriate decisions can be made regarding public disclosure. ICOFR is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the financial statements in accordance with US GAAP.

There were no other changes in OPG's ICOFR during the year ended December 31, 2016 that have materially affected or are reasonably likely to materially affect OPG's ICOFR.

Management, including the President and CEO and the CFO, concluded that, as of December 31, 2016, OPG's DC&P and ICOFR (as defined in National Instrument 52-109 – *Certification of Disclosure in Issuers' Annual and Interim Filings*) were effective.

FOURTH QUARTER

Discussion of Results

(millions of dollars) (unaudited)	Three Months Ended December 31	
	2016	2015
Revenue	1,388	1,312
Fuel expense	186	175
Gross margin	1,202	1,137
Operations, maintenance and administration	686	788
Depreciation and amortization	316	354
Accretion on fixed asset removal and nuclear waste management liabilities	233	223
Earnings on nuclear fixed asset removal and nuclear waste management funds	(126)	(169)
Income from investments subject to significant influence	(9)	(9)
Property taxes	11	11
Restructuring	6	5
Income (loss) before other loss, interest, and income taxes	85	(66)
Other loss	6	12
Income (loss) before interest and income taxes	79	(78)
Net interest expense	28	44
Income (loss) before income taxes	51	(122)
Income tax expense (recovery)	59	(22)
Net loss	(8)	(100)
Net loss attributable to the Shareholder	(13)	(101)
Net income attributable to non-controlling interest	5	1

Net loss attributable to the Shareholder for the fourth quarter was \$13 million, compared to a net loss of \$101 million for the same quarter in 2015.

Income before interest and income taxes was \$79 million during the fourth quarter of 2016, an increase of \$157 million compared to loss before interest and income taxes of \$78 million during the same period in 2015. The following summarizes the significant factors which caused the variance:

Significant factors that increased income before other loss, interest and income taxes:

- Lower number of outage days increased nuclear generation by 2.2 TWh during the fourth quarter in 2016, compared to the same period in 2015, primarily due to the four-unit Darlington VBO that was completed on October 30, 2015 and a lower number of unplanned outage days at the Darlington GS. The increase in nuclear generation resulted in an increase in revenue from the nuclear base regulated price of approximately \$130 million.
- Lower OM&A expenses of \$77 million in the Regulated – Nuclear Generation segment primarily due to increased outage activities in 2015, including the Darlington VBO.

Significant factors that decreased income before other loss, interest and income taxes:

- Decrease in earnings from the Nuclear Segregated Funds of \$43 million during the fourth quarter of 2016, compared to the same quarter in 2015, mainly due to an accounting adjustment recorded during the fourth quarter of 2016 to limit the funds asset values recognized on OPG's consolidated balance sheet to the lower underlying obligations as reflected in the 2017 ONFA Reference Plan.
- Higher accretion expense of \$10 million, reflecting the increase in the Nuclear Liabilities recognized in December 2015 in connection with the changes in the estimated useful life assumptions for OPG's nuclear stations, net of the impact of the Bruce Lease Net Revenues Variance Account.

The increase in income tax expense during the fourth quarter of 2016, compared to the same quarter in 2015, was primarily due to higher income before income taxes and lower amount of tax expense deferred in regulatory assets in 2016.

Average Sales Prices

The average sales price for the Regulated – Nuclear Generation segment during the fourth quarter of 2016 was 6.9 ¢/kWh, compared to 7.0 ¢/kWh during the same quarter in 2015. The decrease in the average sales price was primarily due to the expiry, on December 31, 2015, of an OEB-authorized nuclear rate rider of \$1.33/MWh related to the recovery of variance and deferral account balances. The average sales price for the Regulated – Hydroelectric segment during the fourth quarter of 2016 was 4.5 ¢/kWh, compared to 4.8 ¢/kWh during the same quarter in 2015. The decrease in the average sales price was primarily due to the expiry, on December 31, 2015, of a rate rider of \$6.04 per MWh related to the recovery of variance and deferral account balances for the hydroelectric facilities prescribed for rate regulation prior to 2014.

The income impact of changes in revenue from rate riders was largely offset by changes in amortization expense related to regulatory balances.

Electricity Generation

OPG's electricity generation for the three months ended December 31, 2016 and 2015 was as follows:

(TWh)	Three Months Ended December 31	
	2016	2015
Regulated – Nuclear Generation	11.0	8.8
Regulated – Hydroelectric	6.7	7.3
Contracted Generation Portfolio ¹	0.6	0.7
Total OPG electricity generation	18.3	16.8
Total electricity generation by all other generators in Ontario ²	18.9	19.6

¹ Includes OPG's share of generation volume from its 50 percent ownership interests in PEC and Brighton Beach.

² Non-OPG generation is calculated as the Ontario electricity demand plus net exports, as published by the IESO, minus OPG electricity generation.

The increase in OPG's electricity generation of 1.5 TWh during the fourth quarter of 2016, compared to the same quarter in 2015, was primarily due to higher electricity generation of 2.2 TWh from the Regulated – Nuclear Generation segment as a result of fewer outage days at the Darlington GS during the fourth quarter of 2016, which was primarily due to the Darlington VBO that occurred during the fourth quarter of 2015. The increase in generation was partially offset by reduced generation from the Regulated – Hydroelectric Segment of 0.6 TWh, primarily due to lower water flows in eastern Ontario during the fourth quarter of 2016.

Ontario's electricity demand as reported by the IESO was 33.2 TWh during the fourth quarter of 2016, compared to 32.7 TWh during the fourth quarter of 2015.

Liquidity and Capital Resources

Cash flow provided by operating activities during the three months ended December 31, 2016 was \$437 million, compared to \$111 million for the same period in 2015. The increase in cash flow was primarily due to higher generation revenue receipts, lower pension plan contributions and lower OM&A expenditures during the fourth quarter of 2016. Higher generation revenue receipts reflected higher nuclear generation in the fourth quarter of 2016, compared to the same period in 2015.

Cash flow used in investing activities during the three months ended December 31, 2016 was \$497 million, compared to \$571 million during the same period in 2015. The decrease was primarily due to partial maturity, in the fourth quarter of 2016, of a structured deposit note invested in the fourth quarter of 2015, partially offset by higher expenditures for the Darlington Refurbishment project. The deposit note invested proceeds from the long-term debt issued in support of the Peter Sutherland Sr. GS project in October 2015.

Cash flow used by financing activities during the three months ended December 31, 2016 was \$180 million, compared to cash flow provided in financing activities of \$356 million for the same period in 2015. The decrease in cash flow provided by financing activities was due to the net repayment of short-term notes and lower net issuance of long-term debt in the fourth quarter of 2016.

QUARTERLY FINANCIAL HIGHLIGHTS

The following tables set out selected annual financial information for the last three years and financial information for each of the eight most recently completed quarters. This information is derived from OPG's unaudited interim consolidated financial statements and the audited consolidated financial statements, and has been prepared in accordance with US GAAP.

Annual Financial Information

<i>(millions of dollars – except where noted)</i>	2016	2015	2014
Revenue	5,653	5,476	4,963
Income before extraordinary item attributable to the Shareholder	436	402	561
Net income attributable to the Shareholder	436	402	804
Net income per common share before extraordinary item <i>(dollars)</i>	\$1.70	\$1.57	\$2.19
Net income per common share <i>(dollars)</i>	\$1.70	\$1.57	\$3.14
Total assets	44,372	44,250	41,645
Total long-term liabilities	31,460	32,404	30,483
Common shares outstanding <i>(millions)</i>	256.3	256.3	256.3

Quarterly Financial Information

<i>(millions of dollars – except where noted) (unaudited)</i>	2016 Quarters Ended				
	December 31	September 30	June 30	March 31	Total
Revenue	1,388	1,400	1,387	1,478	5,653
Net (loss) income	(8)	198	135	128	453
Less: Net income attributable to non-controlling interest	5	4	3	5	17
Net (loss) income attributable to the Shareholder	(13)	194	132	123	436
Per common share, attributable to the Shareholder <i>(dollars)</i>	(\$0.05)	\$0.76	\$0.51	\$0.48	\$1.70

Quarterly Financial Information

(millions of dollars – except where noted) (unaudited)	2015 Quarters Ended				
	December 31	September 30	June 30	March 31	Total
Revenue	1,312	1,426	1,383	1,355	5,476
Net (loss) income	(100)	85	193	239	417
Less: Net income attributable to non-controlling interest	1	5	4	5	15
Net (loss) income attributable to the Shareholder	(101)	80	189	234	402
Per common share, attributable to the Shareholder (dollars)	(\$0.39)	\$0.31	\$0.74	\$0.91	\$1.57

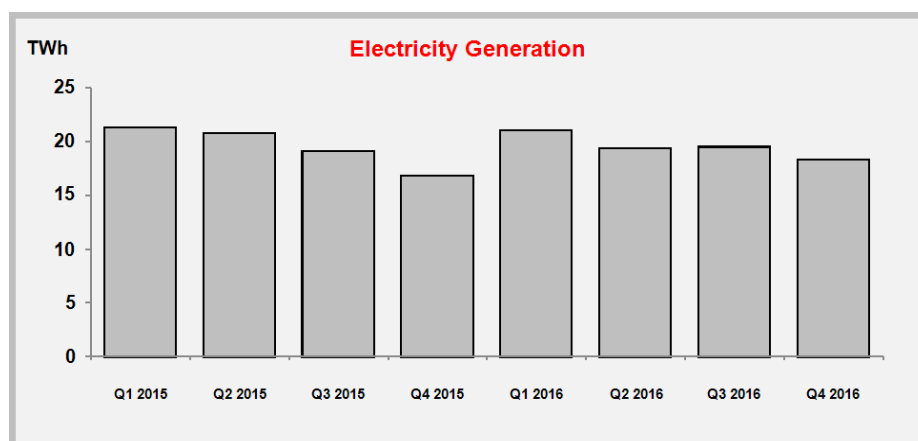
Trends

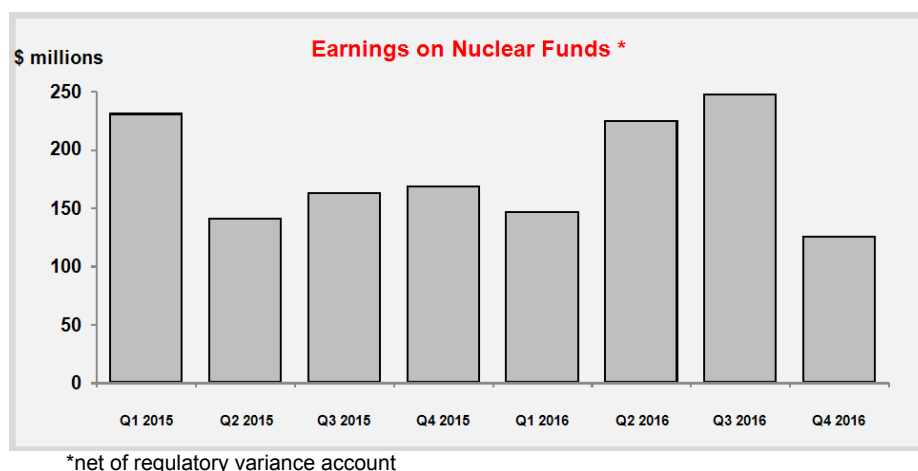
OPG's quarterly results are affected by changes in grid-supplied electricity demand, primarily resulting from variations in seasonal weather conditions, changes in economic conditions, the impact of small scale generation embedded in distribution networks, and the impact of conservation efforts in the province. Weather conditions affect water flows, electricity demand, and prevalence of SBG conditions. Historically, OPG's revenues are higher in the first quarter of a fiscal year as a result of winter heating demands and in the third quarter due to air conditioning and cooling demands. The financial impact of foregone production due to SBG conditions at the regulated hydroelectric stations and the financial impact of differences between forecast water flows reflected in OEB-approved regulated prices and the actual water flows are offset by regulatory variance accounts authorized by the OEB.

The timing of planned outages at a nuclear generating station during the year can cause variability in year-over-year operating results for partial periods of a fiscal year, including the impact on revenue and OM&A expenses, but is not a significant driver of variability for full fiscal year results.

During the third and fourth quarters of 2015, OPG's electricity generation was reduced by the four-unit Darlington VBO, which lasted 47 days from September 14, 2015 to October 30, 2015. A VBO is currently required every 12 years at the Darlington GS.

OPG's financial results are also affected by the earnings on the Nuclear Segregated Funds, net of the impact of the Bruce Lease Net Revenues Variance Account.





Additional items which affected net income (loss) in certain quarters above are described below:

- A gain of \$22 million recorded during the first quarter of 2016 reflecting the OEB's January 2016 decision to reverse a portion of an earlier capital cost disallowance related to Niagara Tunnel project expenditures.
- Lower earnings of \$16 million during the first quarter of 2015, compared to the same quarter in 2016, in the Contracted Generation Portfolio segment, primarily as a result of a provision made in that quarter related to an IESO audit.
- Higher OM&A expenses of \$105 million for the Regulated – Nuclear Generation segment during the first half of 2016, compared to the same period in 2015, primarily resulting from an increase in planned outage activities and the timing of planned outage activities during the year.
- Lower OM&A expenses of \$91 million for the Regulated – Nuclear Generation segment during the last half of 2016, compared to the same period in 2015, primarily as a result of the VBO at the Darlington GS in the third and fourth quarters of 2015.

Additional information about OPG, including its audited consolidated financial statements and notes thereto, can be found on SEDAR at www.sedar.com.

SUPPLEMENTARY NON-GAAP FINANCIAL MEASURES

In addition to providing net income and other financial information in accordance with US GAAP, certain non-GAAP financial measures are also presented in OPG's MD&A. These non-GAAP measures do not have any standardized meaning prescribed by US GAAP and, therefore, may not be comparable to similar measures presented by other issuers. OPG utilizes these measures to make operating decisions and assess performance. Readers of the MD&A would utilize these measures in assessing the Company's financial performance from ongoing operations. The Company believes that these indicators are important since they provide additional information about OPG's performance, facilitate comparison of results over different periods, and present measures consistent with the Company's strategies to provide value to the Shareholder and to ensure availability of cost effective funding. These non-GAAP financial measures have not been presented as an alternative to net income, cash flow from operations, or any other measure in accordance with US GAAP, but as an indicator of operating performance.

The definitions of the non-GAAP financial measures are as follows:

(1) ROE Excluding AOCI is defined as net income attributable to the Shareholder divided by average equity attributable to the Shareholder excluding AOCI, for the period.

ROE Excluding AOCI is measured over a 12-month period and is calculated as follows for the period ended December 31:

<i>(millions of dollars – except where noted)</i>	2016	2015
ROE Excluding AOCI		
Net income attributable to the Shareholder	436	402
Divided by: Average equity attributable to the Shareholder, excluding AOCI	10,442	10,023
ROE Excluding AOCI (percent)	4.2	4.0

(2) FFO Adjusted Interest Coverage is defined as FFO before interest divided by adjusted interest expense. FFO before interest is defined as cash flow provided by operating activities adjusted for interest paid, interest capitalized to fixed and intangible assets, and changes to non-cash working capital balances for the period. Adjusted interest expense is calculated as net interest expense plus interest income, interest capitalized to fixed and intangible assets, interest related to regulatory assets and liabilities, and the excess of interest on pension and OPEB projected benefit obligations over expected return on pension plan assets, for the period.

FFO Adjusted Interest Coverage is measured over a 12-month period and is calculated as follows for the period ended December 31:

<i>(millions of dollars – except where noted)</i>	2016	2015
FFO before interest		
Cash flow provided by operating activities	1,705	1,465
Add: Interest paid	269	269
Less: Interest capitalized to fixed and intangible assets	(141)	(102)
Add: Changes to non-cash working capital balances	(68)	100
FFO before interest	1,765	1,732
Adjusted interest expense		
Net interest expense	120	180
Add: Interest income	7	9
Add: Interest capitalized to fixed and intangible assets	141	102
Add: Interest related to regulatory assets and liabilities	30	2
Add: Excess of interest on pension and OPEB projected benefit obligations over expected return on pension plan assets	45	53
Adjusted interest expense	343	346
FFO Adjusted Interest Coverage (times)	5.1	5.0

(3) **Enterprise Total Generating Cost per MWh** is used to measure OPG's overall organizational cost performance. Enterprise TGC per MWh is defined as OM&A expenses (excluding Darlington Refurbishment project and other generation development project costs, the impact of regulatory variance and deferral accounts, and expenses ancillary to OPG's electricity generation business), fuel expense for OPG-operated stations including hydroelectric gross revenue charge and water rental payments (excluding the impact of regulatory variance and deferral accounts), and capital expenditures (excluding the Darlington Refurbishment project and other generation development projects) incurred during the period, divided by total electricity generation plus electricity generation foregone due to SBG conditions during the period.

Enterprise TGC per MWh is calculated as follows for the 12-month period ended December 31:

<i>(millions of dollars – except where noted)</i>	2016	2015
Enterprise TGC		
Total OM&A expenses	2,747	2,783
Total fuel expense	727	687
Total capital expenditures	1,704	1,376
Less: Darlington Refurbishment capital and non-capital costs	(1,022)	(707)
Less: Other generation development project capital and OM&A costs	(162)	(197)
Add: OM&A and fuel expenses deferred in regulatory variance and deferral accounts	62	250
Less: Nuclear fuel expense for non OPG-operated stations	(67)	(55)
Add: Hydroelectric gross revenue charge due to electricity foregone due to SBG conditions	49	34
Less: OM&A expenses ancillary to electricity generation business	(24)	(27)
Other adjustments	(25)	(46)
	3,989	4,098
Adjusted electricity generation (<i>TWh</i>)		
Total OPG electricity generation	78.2	78.0
Add: Electricity generation foregone due to SBG conditions	4.7	3.2
	82.9	81.2
Enterprise TGC per MWh (\$/MWh) ¹	48.10	50.46

¹ Amounts may not calculate due to rounding.

(4) **Nuclear Total Generating Cost per MWh** is used to measure the cost performance of OPG's nuclear generating assets. Nuclear TGC per MWh is defined as OM&A expenses of the Regulated – Nuclear Generation segment (excluding Darlington Refurbishment project costs, the impact of regulatory variance and deferral accounts, and expenses ancillary to the nuclear electricity generation business), nuclear fuel expense for OPG-operated stations (excluding the impact of regulatory variance and deferral accounts), and capital expenditures of the Regulated – Nuclear Generation segment (excluding Darlington Refurbishment project costs) incurred during the period, divided by nuclear electricity generation for the period.

Nuclear TGC per MWh is calculated as follows for the 12-month period ended December 31:

<i>(millions of dollars – except where noted)</i>	2016	2015
Nuclear TGC		
Regulated – Nuclear Generation OM&A expenses	2,210	2,196
Regulated – Nuclear Generation fuel expense	315	301
Regulated – Nuclear Generation capital expenditures	1,338	1,023
Less: Darlington Refurbishment capital and OM&A costs	(1,022)	(708)
Add: Regulated – Nuclear Generation OM&A and fuel expenses deferred in regulatory variance and deferral accounts	81	230
Less: Nuclear fuel expense for non OPG-operated stations	(67)	(62)
Less: Regulated – Nuclear Generation OM&A expenses ancillary to nuclear electricity generation business	(6)	(6)
Other adjustments	(8)	(28)
	2,841	2,946
Nuclear electricity generation (<i>TWh</i>)	45.6	44.5
Nuclear TGC per MWh (\$/MWh) ¹	62.30	66.20

¹ Amounts may not calculate due to rounding.

(5) **Hydroelectric Total Generating Cost per MWh** is used to measure the cost performance of OPG's hydroelectric generating assets. Hydroelectric TGC per MWh is defined as OM&A expenses of the Regulated – Hydroelectric segment and the hydroelectric facilities included in the Contracted Generation Portfolio segments (excluding generation development project costs, the impact of regulatory variance and deferral accounts, and expenses ancillary to the hydroelectric electricity generation business), hydroelectric gross revenue charge and water rental payments (excluding the impact of regulatory variance and deferral accounts), and capital expenditures of the Regulated – Hydroelectric segment and the hydroelectric facilities included in the Contracted Generation Portfolio segment (excluding expenditures related to the Peter Sutherland Sr. GS project and other hydroelectric generation development projects) incurred during the period, divided by total hydroelectric electricity generation plus hydroelectric electricity generation foregone due to SBG conditions during the period. OPG reports hydroelectric gross revenue charge and water rental payments as fuel expense.

Hydroelectric TGC per MWh is calculated as follows for the 12-month period ended December 31:

<i>(millions of dollars – except where noted)</i>	2016	2015
Hydroelectric TGC		
Regulated – Hydroelectric Generation OM&A expenses	325	340
Regulated – Hydroelectric Generation fuel expense	353	345
Contracted Generation Portfolio OM&A expenses	178	185
Contracted Generation Portfolio fuel expense	58	39
Regulated – Hydroelectric Generation and Contracted Generation Portfolio capital expenditures	333	311
Less: Regulated – Hydroelectric Generation and Contracted Generation Portfolio generation development project capital and OM&A costs	(158)	(197)
Less: Thermal OM&A, fuel expenses, and capital expenditures in the Contracted Generation Portfolio	(177)	(163)
(Less) Add: Regulated – Hydroelectric Generation OM&A and fuel expenses deferred in regulatory variance and deferral accounts	(24)	18
Add: Hydroelectric gross revenue charge and water rental payments due to electricity generation foregone due to SBG conditions	49	34
Other adjustments	(1)	-
	936	912
Adjusted hydroelectric electricity generation (TWh)		
Regulated – Hydroelectric Generation electricity generation	29.5	30.4
Contracted Generation Portfolio electricity generation	3.1	3.1
Add: Hydroelectric electricity generation foregone due to SBG conditions	4.7	3.2
Less: Non-hydroelectric electricity generation of the Contracted Generation Portfolio	(0.7)	(0.6)
	36.6	36.1
Hydroelectric TGC per MWh (\$/MWh)¹	25.57	25.26

¹ Amounts may not calculate due to rounding.

(6) **Gross margin** is defined as revenue less fuel expense.

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