Ontario

MINISTRY OF
ENERGY

Ontario Power Generation
2018-2021 Business Plan
Treasury Board Submission

April 10, 2018

Minister

Deputy Minister

Ministry Request

- The Ministry of ENERGY is requesting that Treasury Board/Management Board of Cabinet (TB/MBC):

  1. NOTE the receipt of OPG's 2018-2021 Business Plan.

  2. NOTE that the Minister of Energy will provide concurrence with OPG's Business Plan.

Purpose

- As required by the Memorandum of Agreement (MOA) between Ontario Power Generation and the Minister of Energy, OPG provided its Business Plan for 2018-2021 to the Ministry of Energy on February 12, 2018 for concurrence.
- The Minister's concurrence requires presentation of OPG's business plan before TB/MBC.
- Ministry of Energy staff have reviewed this plan in the context of key government priorities and recommend that TB provide approval.
- The Ministry of Energy review and analysis of OPG's business plan is supported by the Corporate and Electricity Finance Division of the Ontario Financing Authority (OFA).
- The following presentation identifies the key aspects of the business plan and how they interrelate.

Overview

Business Plan Elements

- The 2018-2021 Business Plan covers an important time for OPG for several reasons:

- Rate certainty over planning horizon
- Darlington Refurb

  Pickering Extension
- New Role as FHP Financial Services Manager
- Initiating new measures to increase efficiency
- Seeking new business lines to grow revenue

Business Plan Risks

- Achieving financial performance targets is contingent on positive outcomes in a number of areas:

- Timely Completion of Capital Projects
- Attraction and Retention of Talent
- CNSC licensing outcome for Pickering extension
- Outcomes of new efficiency measures
- Results of upcoming collective bargaining

OPG's ability to manage these elements & risks will determine if it is improves return to the Province and limits ratepayer costs.

Elements of Business Plan

1. Electricity Production
- ❖ Higher than approved nuclear production improves financial performance through increased revenue.
- ❖ Affected by capital projects (e.g., refurb) and Pickering Extension.

2. Cost of Production
- ❖ Cost targets fluctuate due to outages, water conditions and efficiency initiatives.
- ❖ Pickering's cost performance expected to improve relative to previous plan.

3. Capital Projects
- ❖ Timely completion impacts production and project costs
- ❖ Darlington Refurbishment on track- Unit 2 online in 2020.

4. Operating Costs & Compensation
- ❖ Strategies to increase efficiencies and savings improve financial performance
- ❖ Subject to collective bargaining that will take place in 2018.

5. Fair Hydro Plan
- Adds ~$6 billion in debt by 2021; Provincial equity approximately doubles by end of plan.
- Generates earnings before taxes from OPG ($465 million over next four fiscal years)

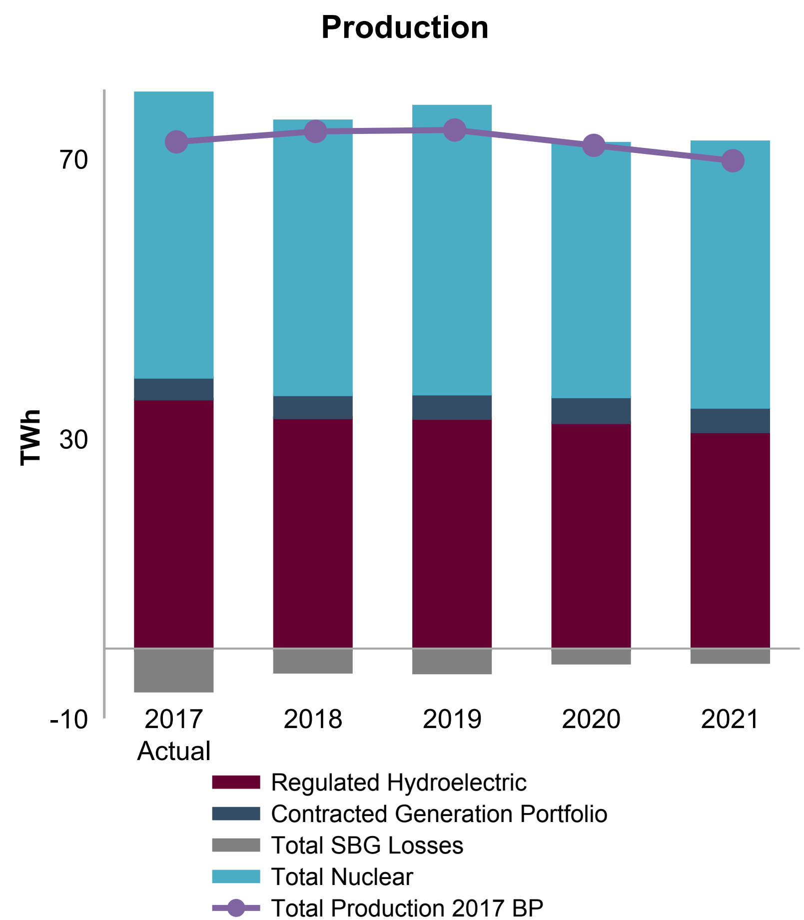
6. Business Development
- Increase revenue through modest hydro expansion, solar, nuclear services & low-carbon technology.
- Long-term need for new business lines outside of province

7. Financial Performance
- ❖ Performance impacts Province's fiscal position Total Shareholder Return expected to improve over previous plans.

Electricity Production

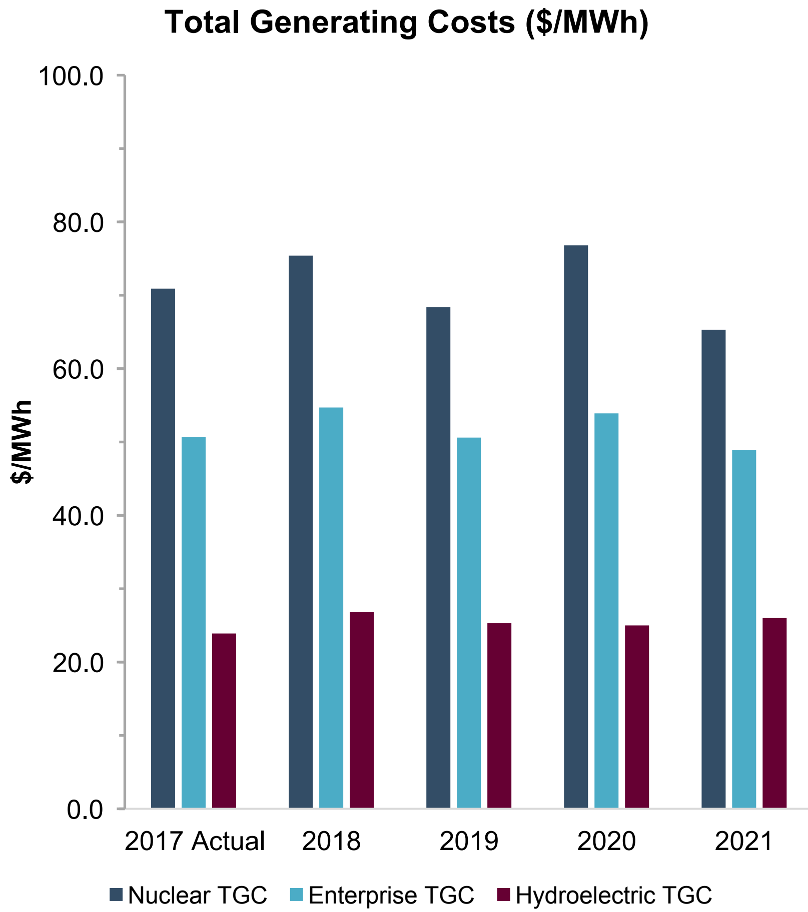
- ❖ Production increases improve financial performance through increased revenue.
- ❖ Forecasts affected by capital projects (e.g., Darlington Refurbishment); Pickering extension and efficiency strategies.

- The plan forecasts a total increase of 5.4 TWh compared to the last business plan.
- Increases are driven by higher production at Pickering Generating Station.
  - OPG will increase time between routine outages, allowing units to run longer.
  - Other reliability improvements reduce Pickering's 'forced loss rate'- (i.e., losses from unplanned shutdowns.)
- The forecasts assume CNSC will grant Pickering license extension to 2024.
- Production decreases in 2020 due to heavier cyclical outage work, including a station-wide outage at Pickering. This is also when Darlington Unit 2 returns to service and Unit 3 is taken offline (higher than normal forced loss rates assumed when units initially return to service).
- The current Thunder Bay biomass energy supply agreement expires in January 2020.



Cost Efficiency

- ❖ Cost forecasts fluctuate due to outages, water conditions and efficiency initiatives.
- ❖ Pickering's cost performance expected to improve relative to previous plan.



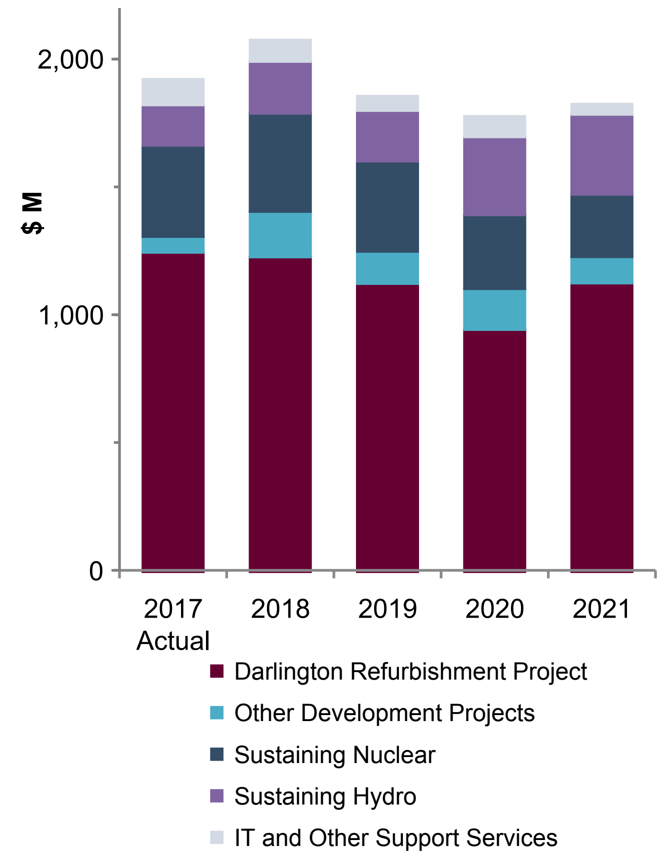
- Total Generating Cost (TGC) per MWh is OPG's measure of operational cost effectiveness.
  - TGC is a performance metric for executive compensation
  - Darlington Generating Station's TGC performance will be how OPG measures the long-term success of its OPG25 restructuring initiative.
- TGC targets fluctuate due to nuclear outages, efficiency initiatives and surplus-baseload generation adjustments due to high water levels.
  - The frequency and length of nuclear outages increase TGC because costs are being incurred (for refurbishment, maintenance etc.) while the unit is not producing electricity and generating revenue.

Capital Projects

- ❖ Timely completion of projects impacts production output and costs.
- ❖ Costs deemed imprudent for regulated projects negatively impact financial performance

- The plan includes $4.4 billion in capital expenditures for the Darlington Refurbishment project (DRP). Unit 2 is planned for return to service in early 2020.
- The plan includes $105 million in capital expenditures for the Heavy Water Storage(D2O) project, an enabling sub-project for the DRP that previously experienced delays and cost overruns (note: overall refurbishment has remained within budget and schedule).
- In its rate decision, OEB confirmed it will take a holistic view to assessing DRP costs, evaluating overall project performance against approved budget rather than an individual sub-project basis.
- Other capital expenditures include:
  - Ranney Falls re-development (2019 completion)
  - Nanticoke Solar (2019 completion)
  - Beck canal rehabilitation (2022 completion)
  - Other sustaining capital (Hydro unit overhauls; equipment upgrades)
- The plan accelerates capital expenditures for OPG's digital transformation in support of improved efficiency.

Total Capital Expenditures



Operating Costs (OM&A)

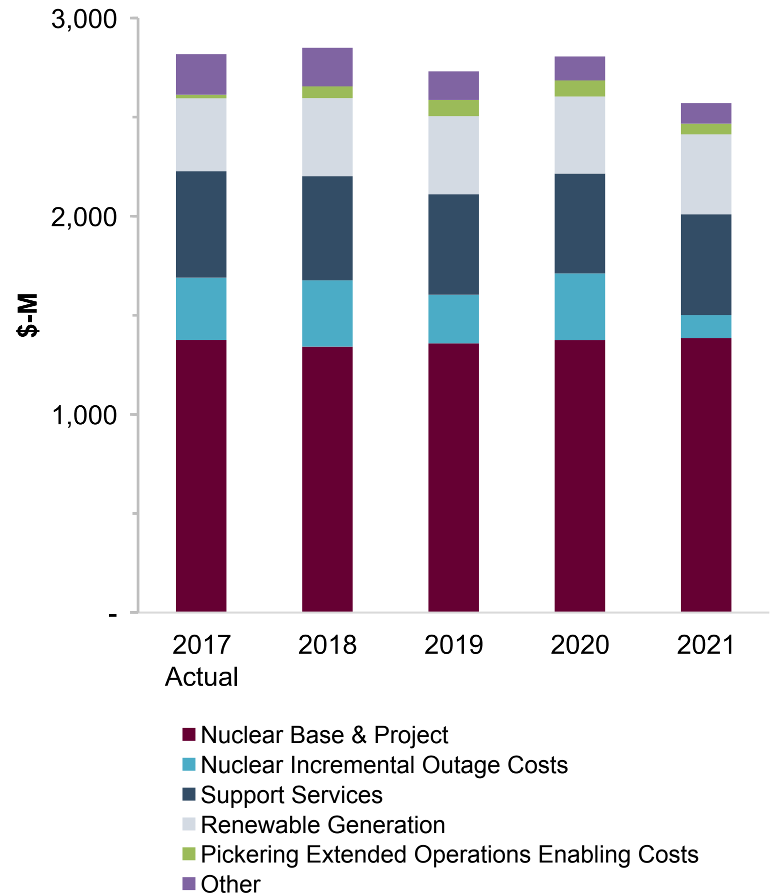
- Incremental efficiencies/savings improve financial performance
- OEB Decision reduces OM&A / compensation

- The plan targets a total decrease in OM&A expenditures of $600 million over four years compared to last year's business plan. Annual spending decreases by $280 million in 2021 compared to 2018.
- The reductions will be achieved through new processes, technology upgrades and optimizing nuclear plant outages.

OPG25 Initiative

- OPG25 is a plan to restructure OPG due to the closure of Pickering in 2024.
- The objective of OPG25 is to ensure operations remain cost-effective and that OPG is positioned for growth.
- The long-term target for the plan is having Darlington operate in the top-quartile for total generating costs.
- The initiative includes a staffing transition work stream, making interaction with unions critical.
- The 2018-21 business plan's cost reductions will help move OPG towards achieving the total target reductions post Pickering operations.

OM&A Expenses from Operations

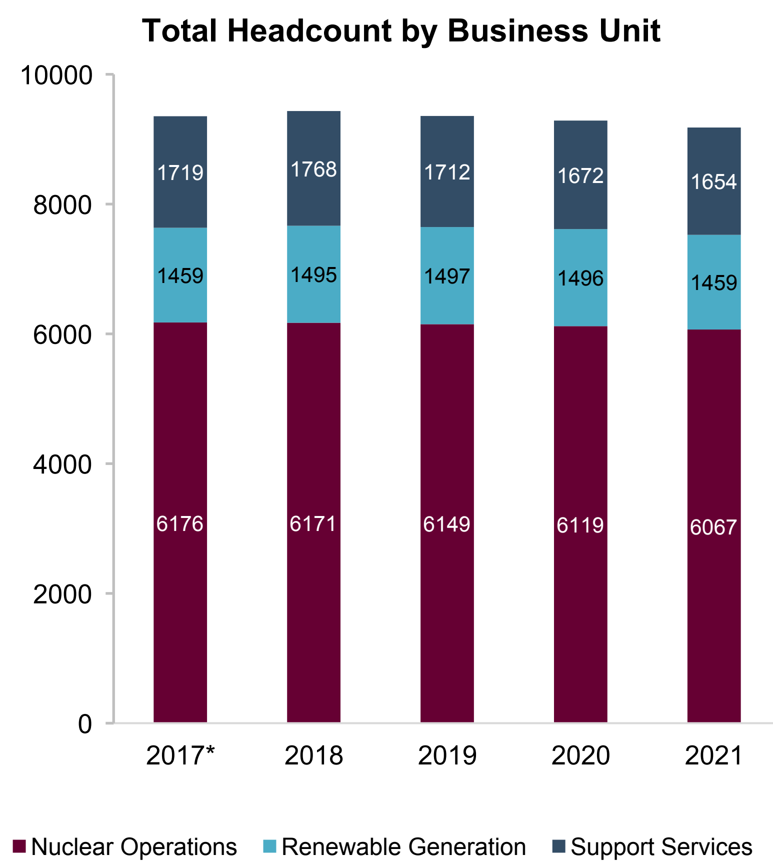


Compensation

Collective Bargaining

- ❖ Collective agreements expire in 2018.
- ❖ Results of collective bargaining will impact efficiency and cost-optimization initiatives.

- Collective bargaining impacts OPG's ability to reduce OM&A. Most employees belong to either the Power Workers Union (PWU) or Society of Energy Professionals (Society).
- Collective agreements with Society & PWU expire in 2018. Negotiated outcomes will impact OPG's ability to meet the plan's savings forecasts. Through collective bargaining, OPG hopes to:
  - Manage wage increases
  - Reduce future workforce costs including pension and benefits
  - Ensure future staff capability
  - Reduce downsizing costs resulting from Pickering closure
- The plan identifies an accounting risk related to Pickering downsizing costs materializing prior to the next OEB rate application. This would affect net income in the year the costs were recognized.



Compensation

Executive Compensation

- Executive compensation program implemented in January 2017
- Compensation program benchmarks against comparator organizations

- The plan identifies the ability to attract and retain leadership as a risk. OPG's implemented a new executive compensation program in 2017 that is focused performance based pay.
- The program is designed to provide compensation that is no more than the 50th percentile of the market and is compliant with the *Broader Public Sector Executive Compensation Act.*
- In 2017, TB/MBC approved exemptions allowing OPG to compare against private sector and international companies.
- Overall compensation for all management group staff increases at 2% based on assumed inflation each year in the plan.
- Short-term incentives are based on individual performance and the corporate scorecard. Strong performance on the scorecard led to increases in executive incentive payments in 2017.
- Corporate scorecard measures for 2018 include:

2016-2018 executive medium-term incentive performance metrics
(on 3-year cycle ending 2018)

Return on Equity

Total Generating Cost

Darlington Refurbishment Major Milestones

Social License: Total Recordable Injury Frequency; no significant events impacting OPG's reputation

Financial Strength: Earnings Before Tax (excluding the Nuclear Waste Management and Fair Hydro segments), Operating OM&A Expenses.

Operational Excellence: Total OPG production adjusted for Surplus Baseload Generation

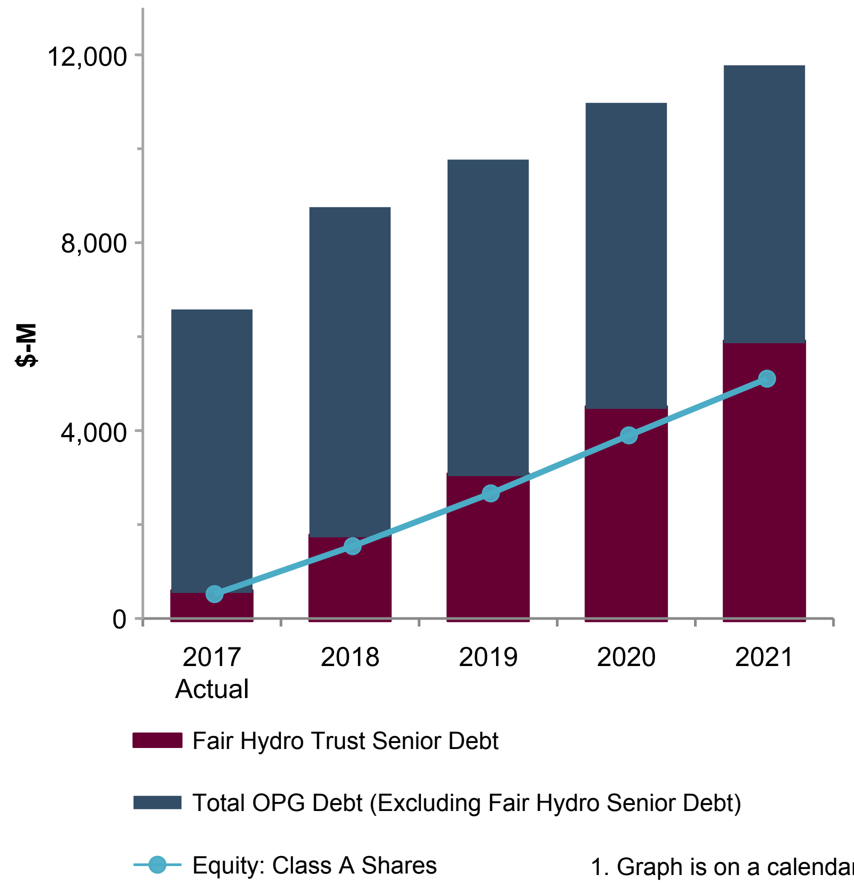
Project Excellence: DRP costs and schedule; Peter Sutherlands Sr. Generating Station, and total in-service capital

Fair Hydro Plan

- FHP is managing the deferral of a portion of Global Adjustment (GA) costs.
- OPG earns revenue and incurs debt; Provincial equity in OPG approximately doubles by 2021.
- While a new source of revenue for OPG, revenue is paid by Ontario ratepayers.

- In 2017, OPG began its role as OFHP Financial Services Manager (FSM).
- The Fair Hydro Trust contributes to increasing amounts of earnings before taxes, growing from $10 million in 2018 to $225 million in 2021 on a fiscal basis.
- This reflects the spread earned on the equity contributions from the Province to fund 44% of OPG's financing of the Trust.
- As the Province provides more funding to facilitate asset purchases in exchange for shares in the company, the government's equity increases, lowering ROE.
- The Fair Hydro Trust external senior debt is projected to increase to $5.9 billion by 2021.

Total Consolidated Debt and Equity1



1. Graph is on a calendar basis

Business Development

- ❖ OPG hopes to grow its business and increase revenue through modest hydro expansion, solar, nuclear services & low-carbon technology.
- ❖ Long-term need for new business lines outside of province.

- OPG hopes to grow its business by investing in commercial innovation, project development and asset acquisition.
- The business plan anticipates organic and non-organic investments:
  - Organic investments are in-house project development of generation and energy products in Ontario. The plan allocates incremental capital funding of ~$200 million for organic investments.
  - Non-organic investments are new opportunities that could include acquisitions of hydro or renewable projects. Details of these investments are not included in the plan, however, OPG forecasts up to $3 billion would be available for such investments by 2021.

Business Development investment categories:

Innovation & Services
OPG will consider investing in near commercial emerging technologies

Acquisition and Development
OPG will develop assets and consider acquisitions in Ontario and other North American markets

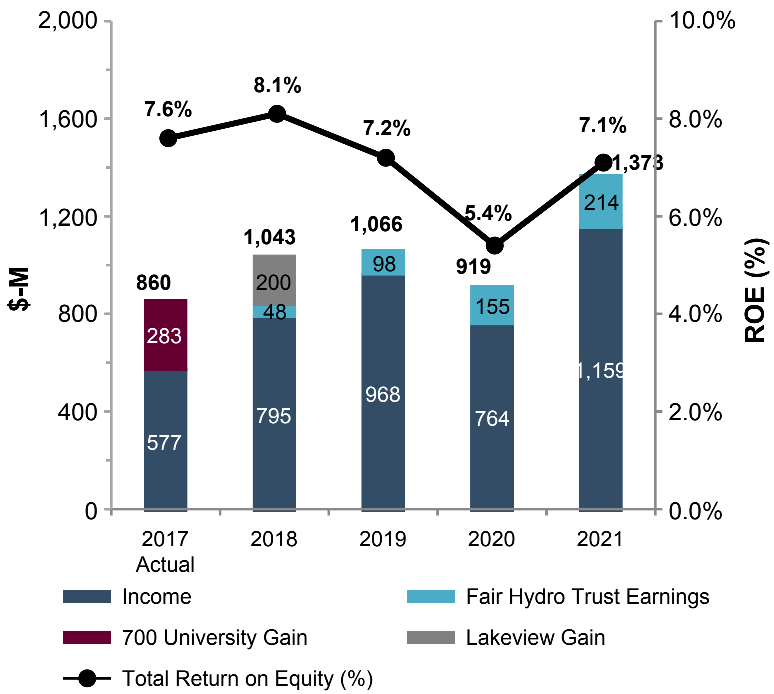
- The Ministry of Energy will work with OPG on behalf of the Shareholder to ensure that OPG's investments align with the Province's objectives.

Financial Performance

Business Plan Results as presented by OPG

- Plan forecasts total net income attributable to the Shareholder to reach $1.37 billion in 2021, from $860 million in 2017
- OEB Decision provides rate stability over the planning period.

Net Income and Total Return on Equity



Above graph is on Dec.31 year-end

OPG reports on Total ROE and Operating ROE. Operating ROE removes impact of FHP, and Head Office & Lakeview sales.

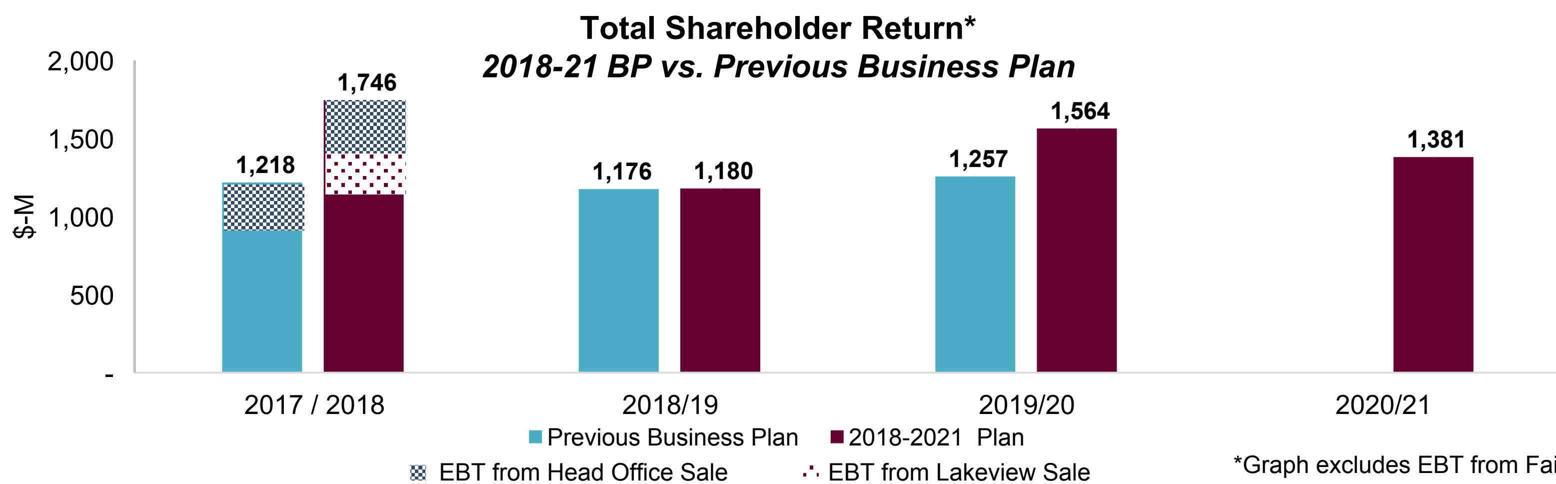
- OPG shareholder return (Net income + PILS) are consolidated to the Province.
- The plan reflects the OEB's December 2017 Decision on OPG's regulated rates through 2021, providing stability in the planning period.
- The chart on the left is Total Return on Equity (ROE). OPG also reports Operating ROE, which excludes impact of Fair Hydro Trust and one-time real estate gains. Operating ROE, a performance metric for executive compensation, is forecasted to increase from 5.3% in 2017 to 8.1% in 2021
- Should OPG fail to meet targets for production, operating cost reductions or capital expenditures, net income improvements may not materialize.
- Total net income in 2017/18 is impacted by one-time asset sales (Head Office and Lakeview), with net proceeds credited to the Trillium Trust.

Financial Performance

2018-21 Business Plan compared to previous plan

- ❖ Improved net income and shareholder return over previous plans.
- ❖ Projections impacted by efficiency measures and one-time real estate gains.

- The plan's total shareholder return is higher than last year's 2017-19 business plan.
- The financial performance reflects increased efficiency leading to revenue increases from higher production and lower operating costs. Head Office and Lakeview sales lead to higher than normal return in 2017/18:
  - Head Office sale generates $283 million in net income and ~$93 million in PILS. The return is ~$80 million higher than assumed in previous business plan.
  - Lakeview sale generates $200 million in net income and ~$70 million in PILS. The Lakeview sale was not included in the previous business plan.



*Graph excludes EBT from Fair Hydro Trust

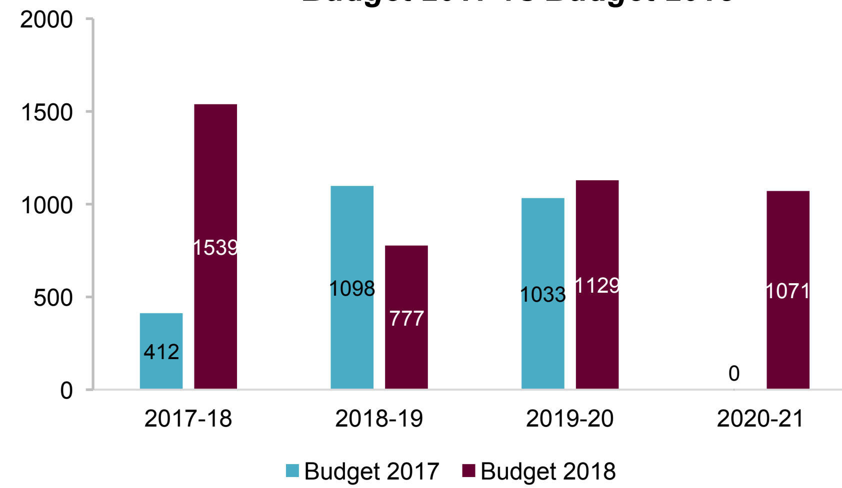
Financial Performance

Impacts to Province

- The Ministry of Finance is responsible for incorporating OPG's financial projections into the Province's Fiscal Plan and fiscal plan updates, and Treasury Board Secretariat is responsible for the fiscal consolidation of OPG's financials on the Province's financial statements, which may include accounting adjustments.
- Budget 2018 reflects the impacts of OPG's 2018-2021 Business Plan

- When OPG's planning projections and financial results are consolidated into the Province's Budget and Public Accounts, some adjustments are required
  - **IFRS:** OPG uses US GAAP accounting standards for financial reporting. The Province consolidates OPG's results adjusted to an International Financial Reporting Standards (IFRS) basis.
  - **Nuclear Funds:** For the operating statement for Public Accounts, an adjustment is made to a realised gains basis, vs a fair value basis on OPG's statements.
  - **Fair Hydro Income:** While OPG separates out this income in its Business Plan, OPG's Financial Services Manger revenue is added to OPG net income when consolidated.

Total OPG Revenues to the Province
Budget 2017 vs Budget 2018



2017/18 positive variance due to:

- $646M for real estate sales included as OPG revenue in Budget 2018. In Budget 2017, projected OPG real estate revenues were included in the Sales and Rentals line.
- Positive ONFA Adjustments included in Budget 2018 not in Budget 2017
- Lower IFRS adjustment in Budget 2018 than Budget 2017

2018/19 negative variance due to:

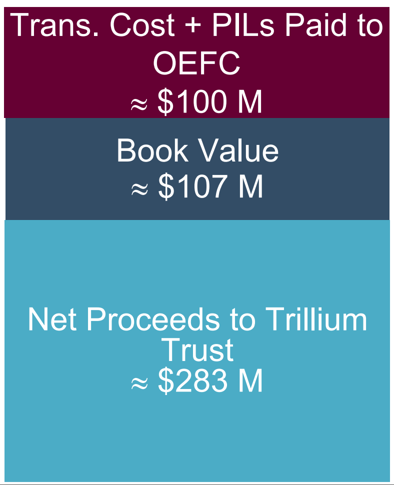
- Negative IFRS adjustment included in Budget 2018-

Financial Performance

Contribution to the Trillium Trust

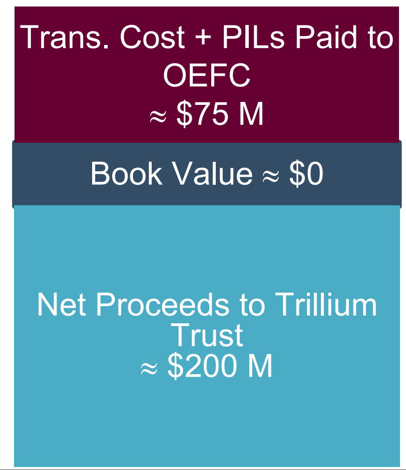
- Net proceeds from the sale of OPG's ~~its~~ Head Office (700 University) and Lakeview site are paid by OPG to the CRF and credited to the Trillium Trust.
- The Province has received a dividend payment from OPG for the OPG Head Office Sale. OPG will be required to pay the net proceeds from the Lakeview sale once a Trillium Trust regulation is filed.
- The Head Office sale closed in April 2017. Lakeview closed in March, 2018.

<u>Head Office:</u> Net Proceeds to Trillium Trust from OPG



- Shareholder Declaration & Resolution received: December 2015
- Sale closed: April 2017
- Amount credited to Trillium Trust: Mar 2018

<u>Lakeview:</u> Estimated Net Proceeds to Trillium Trust from OPG



- Shareholder Declaration & Resolution received: June 2016
- Sale closed: March 2018
- Regulation required to prescribe amounts to Trillium trust

Key Business Plan Risks

- The Ministry of Energy identified the following risks with OPG achieving its Business Plan targets:

Risk	Proposed Mitigation
1. Capital project completion	
Led by Darlington Refurbishment, the plan includes extensive capital spending. Failure to meet project timelines and budgets reduces income due to lower production revenues and higher costs.	OPG improved its project management planning in recent years. In the 2017-21 regulated payments Decision, the OEB stated it was satisfied with OPG's planning approach to Darlington and approved all project costs. OPG executive compensation is tied to milestone achievement on Darlington Refurbishment, and completion of other capital projects such as Ranney Falls and Nanticoke Solar.
2. Efficiency Improvements	
The plan forecasts higher production and lower costs due to efficiency improvements. Targets may not be achieved if these measures do not materialize as planned.	Investments at Pickering contribute to efficiency targets. Some efficiency strategies have already been implemented. OPG is implementing its "OPG25" strategy aimed at preparing the organization for a post Pickering / post Refurbishment future where company operations and support functions are sized appropriately. Implementing strategies on staffing plans, use of non regular staff and use of "term" employees will help achieve efficiencies targeted in the plan and mitigate future staff downsizing costs associated with Pickering closure in the future.

Key Business Plan Risks

Risk	Proposed Mitigation
3. Collective Bargaining Many of OPG's strategies to reduce OM&A costs are dependent on successful outcomes of 2018 collective bargaining with PWU and Society.	OPG hopes to build on successful 2015 agreement where it made progress on managing staff costs, reduced pension liability and introduced the use of term employees that carry reduced pension and severance obligations. . The Minister of Energy wrote to OPG in March 2018 signalling support for continued progress in managing costs through collective bargaining.
4. Pickering License Extension The plan assumes the CNSC will approve the extension of the Pickering Station's license without conditions in summer 2018. Production revenues and costs will be impacted if Pickering cannot operate beyond 2020.	OPG has met filing requirements for the Pickering license extension. In its rate application, OEB approved costs for OPG to move forward with enabling work on Pickering. In March 2018 CNSC staff recommended a 10-year license extension.
5. Attracting talent & leadership Inability to retain and attract leadership talent and qualified management employees could impact the execution of Darlington refurbishment, Pickering operations and other priorities.	OPG plans to strengthen its leadership pipeline and increase diversity through the recruitment / selection process, and employee and leadership development programs. OPG's executive compensation program allow OPG to benchmark against private sector and international comparators, helping it to attract and retain executive talent.

Considerations

- Based on these materials, ENERGY is seeking approval to provide OPG with business plan concurrence.

- At this point OPG has rate stability through the planning period and has demonstrated success in key projects including Darlington refurbishment. The plan is in line with government expectations on reducing costs in order to drive value for Ontario ratepayers and the Province, as Shareholder.

- OPG identified risks that the Ministry will continue to monitor. These include
  - Meeting efficiency targets for cost-savings and production.
  - Successful collective bargaining negotiations with PWU and Society; and
  - Completion of capital projects on budget and schedule

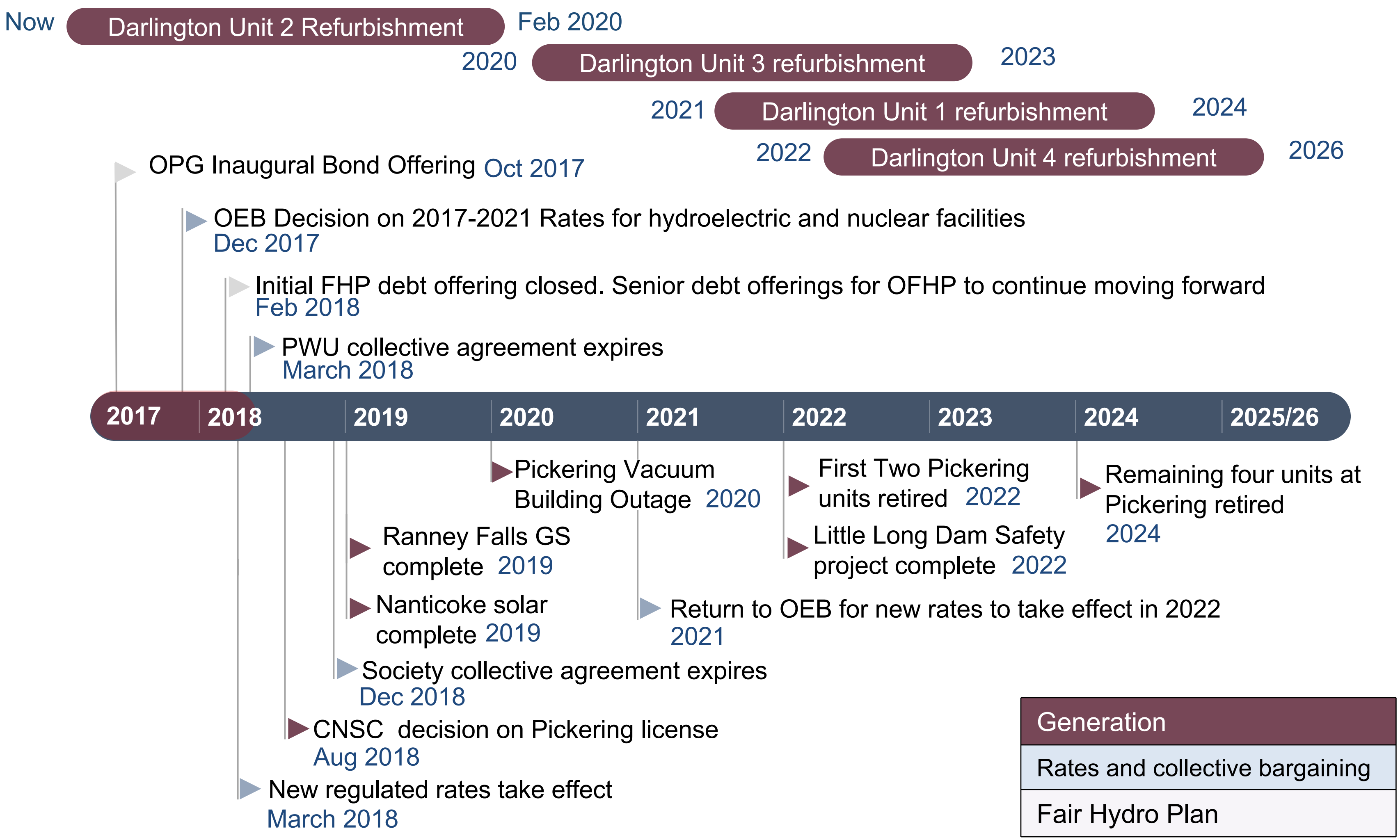
- OPG will continue to seek new business opportunities within Ontario and other jurisdictions. OPG will seek comfort from the Province for any new acquisitions.

- OPG will consider investing in near-commercial emerging technologies, acquisitions and development.

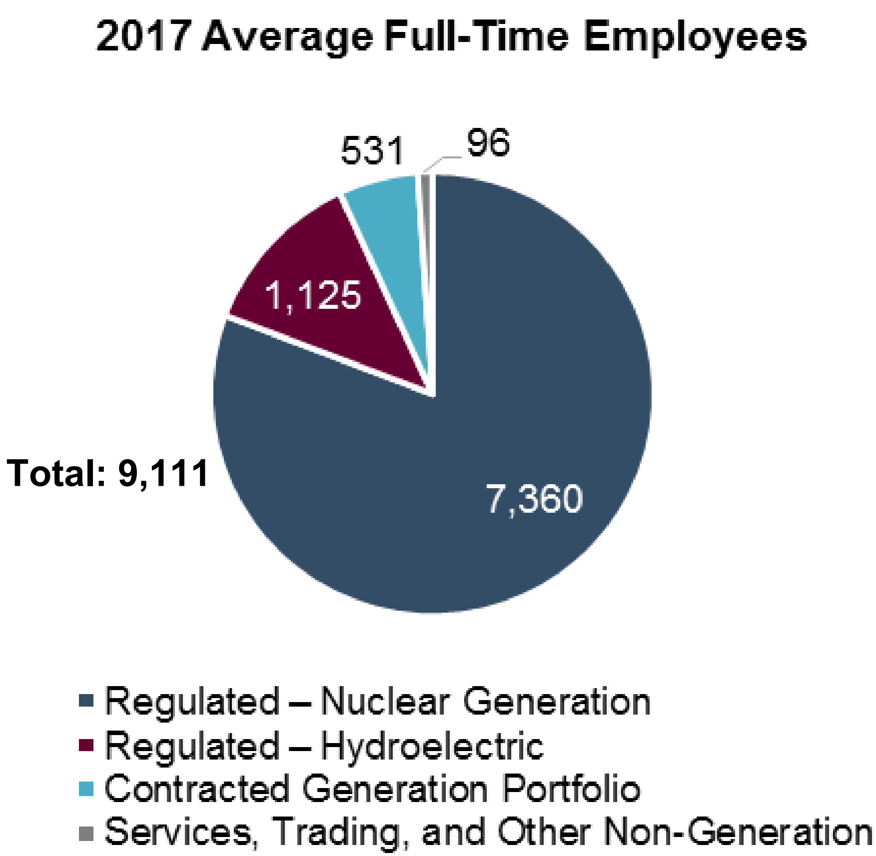
Appendix

Timeline of Key Events

- Outcomes from the Business Plan are impacted by the following events:



Company Profile



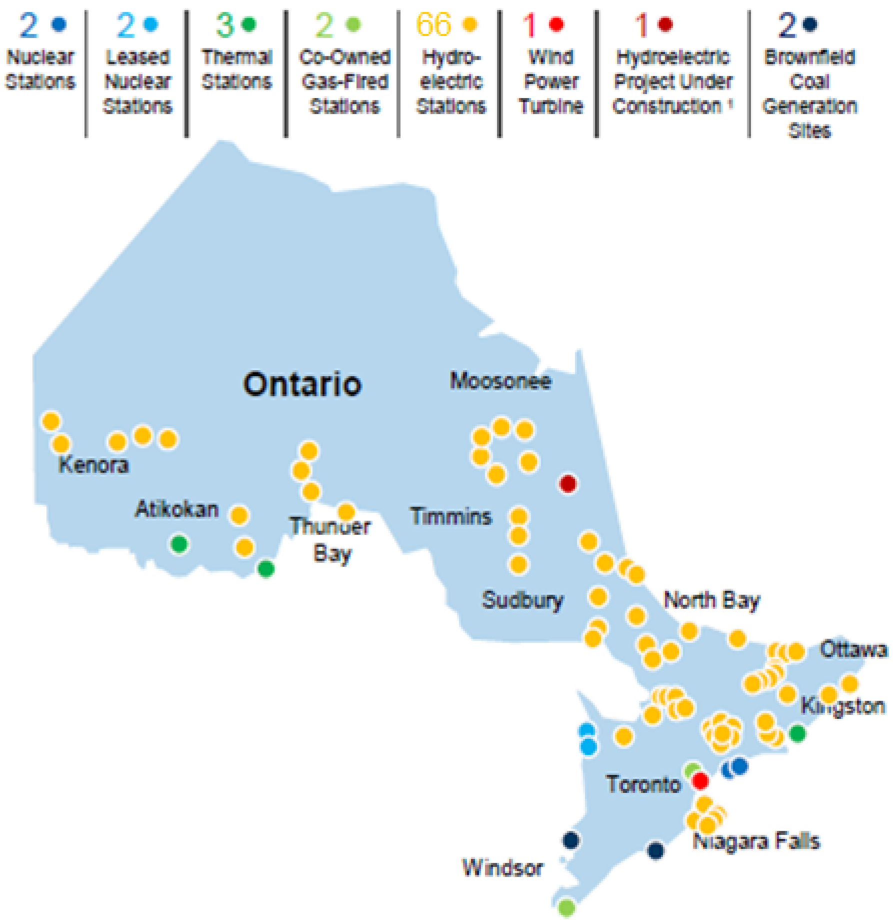
- Majority of OPG's employees are represented by one of two unions:

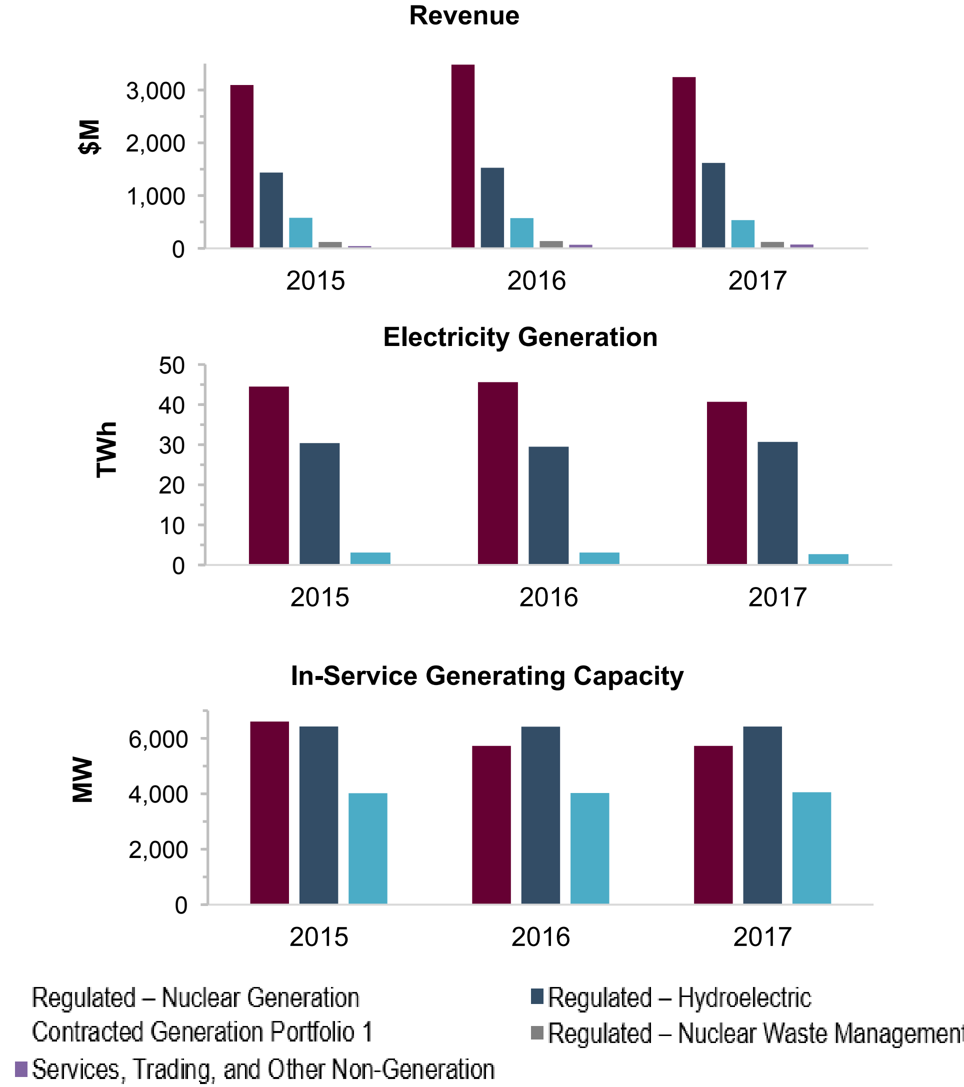
    1. The Power Workers' Union (PWU); and
    2. The Society.

- The PWU includes most workers below the level of first line manager
- The Society includes supervisors, professional engineers, scientists and other professionals.
- Construction work is performed through 19 craft unions.

Company Profile

Map of OPG Generating Stations:





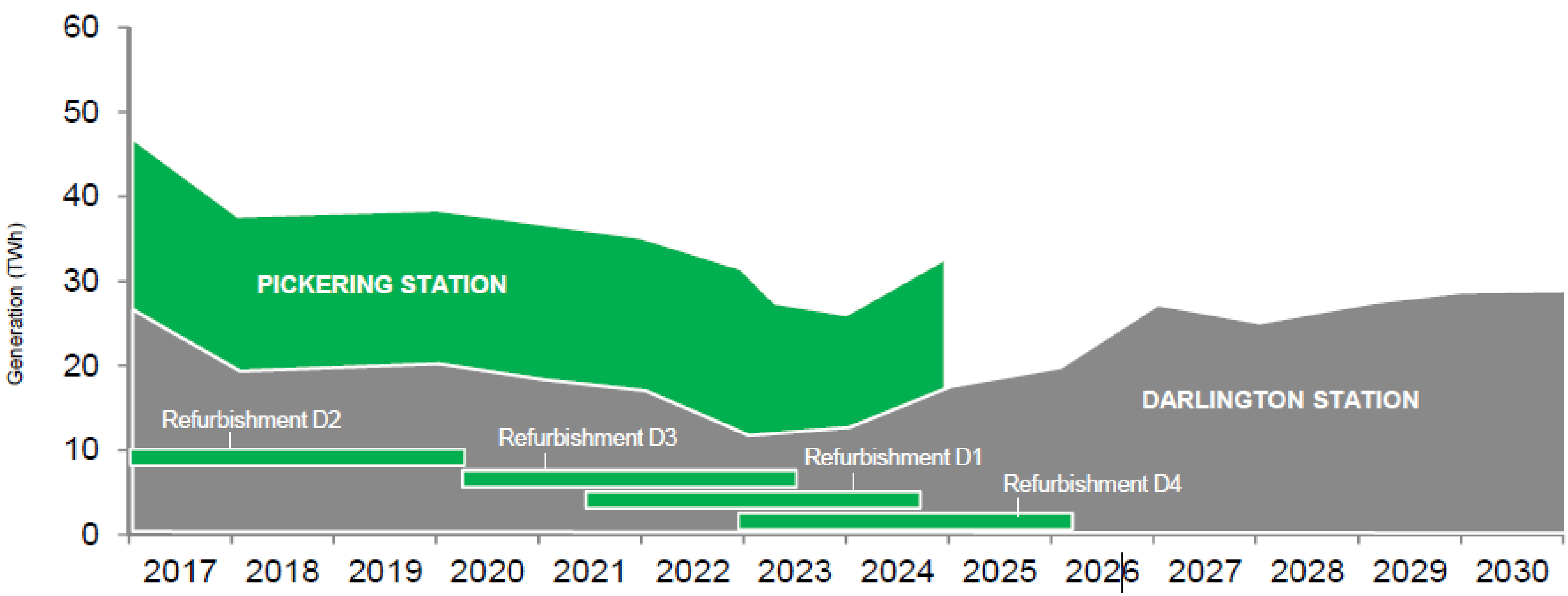
Key Projects: Nuclear

1. Pickering Extension

- OPG is continuing work to extend operations of the Pickering GS to 2024. It is currently licensed to operate to 2020.
- OPG has applied for a license renewal from the CNSC. The ruling is expected in August 2018.

2. Darlington Refurbishment

- OPG is refurbishing the Darlington Nuclear station to extend the operating life of the station by 30 years.
- Status: tracking on schedule and budget.
- Total Budget: $12.8 billion.



Source: OPG Initial Public Debt Program, 2017

Key Projects: Renewables

Renewables

Biomass

1. **Atikokan**
   Capacity: 205 MW
   Converted from coal in 2014
   Capex: ~$170M
2. **Thunder Bay**
   Capacity: 153 MW
   Converted from coal in 2014

Indigenous Relations

OPG's corporate governance includes an Indigenous Relations policy to help build and develop mutually beneficial working relationships with Indigenous communities proximate to the Company's present and future operations.

Hydroelectric

1. **Peter Sutherland Sr.**
   Capacity: 28 MW
   Completed: March 2017
   Capex: <$300M
2. **Lower Mattagami**
   Capacity: 438 MW
   Completed: 2014
   Capex: $2.5BN

Solar

1. **Nanticoke Solar**

Project partnership between OPG and a subsidiary of the Six Nations of Grand River Development Corporation to build the new facility.
   Capacity: 44 MW
   Commenced: Q4 2017
   Expected completion: 2019

Role of OFHP Financial Services Manager

- In June 2017, the Province enacted the *Ontario Fair Hydro Plan Act, 2017* in order to ensure the costs and benefits associated with the Province's clean energy initiatives are allocated fairly between present and future electricity consumers.
    - The policy goals of the Act are being achieved through the refinancing of a portion of the Global Adjustment (GA).
    - OPG was appointed Financial Services Manager (FSM) under the Act.

- OPG's duties as FSM include:
    - Establishing one or more financing entities to incur funding obligations. OPG established the Fair Hydro Trust in 2017.
    - Preparing a financing plan to evaluate how and when funding obligations should be incurred.
    - Administering investment assets purchased from IESO
    - Determining the monthly clean energy adjustment for each reference period
    - Establishing and charging fees to recover costs, expenditures and earn a return
    - Seeking best available terms for incurrence of a funding obligation
    - Fulfilling various reporting requirements

Board of directors

- OPG's Board of Directors is made up of 14 individuals. Each Director holds office until he or she resigns or a successor is elected or appointed:

Director	Role	Appointed
1. Bernard Lord	Chair	November 2013
2. Jeffrey Lyash	President and CEO of OPG	August 2015
3. William Coley	Director	January 2013
4. Elisabeth DeMarco	Director	April 2014
5. Jean Paul Gladu	Director	November 2015
6. John Herron	Director	November 2013
7. Ani Hotoyan-Joly	Director	March 2017
8. Wendy Kei	Director	March 2017
9. M. George Lewis	Director	February 2005
10. Margaret Mulligan	Director	December 2005
11. Yezdi Pavri	Director	September 2015
12. Gerry Phillips	Director	January 2013
13. Jim Reinsch	Director	August 2015
14. James Sheppard	Director	March 2017

Compensation

2017 Statement of Executive Compensation

- OPG exceeded many of the measures in its Corporate Scorecard, impacting incentive payments.
- Scorecard is based on a predetermined scale of Threshold/Business Plan/Stretch targets (i.e., low/medium/high) and given a weighting. The scorecard is summarized below.

Category	**Performance Measure**	**Threshold Target (0.5)**	**Business Plan Target (1.0)**	**Stretch Target (1.5)**	**2017 Results**	**Score (0 to 1.5)**
Social Licence	All Injury rate (AIR)	0.49	0.37	0.31	0.48	0.54
	Addressing Safety Focus Areas No significant impacts to OPG's reputation	CEO assessed target			1.5	1.46
Financial Strength	Earnings Before Taxes, ($M)	675	875	1075	1296	1.50
	OM&A Expenses ($M)	2675	2550	2425	2474	1.30
Operational Excellence	Production (TWh)	70.3	72.4	74.6	78.1	1.50
Project Excellence	Refurbishment Project Cost – 2017 actual expenditures ($M) as a percentage of approved 2017 budget [1]	100%	97.50%	95%	120%	0.00
	Refurbishment Unit 2 Critical Path Execution – Commencement of Feeder cabinet removal (Milestone	05-Aug-17	26-Jul-17	28-Jun-17	22-Jun-17	1.50
	Refurbishment Unit 2 Critical Path Execution: Progress of Critical path on Dec 31, 2017	All Bellows Severed	50% End Fitting Removed	400 Pressure Tubes Removed	45% of End Fittings Removed	0.95
	Pump Generating Station: In service	06-01-2017	04-01-2017	03-01-2017	02-04-2017	1.50
	Peter Sutherland Generating Station: Both Units in service	10-19-2017	06-30-2017	04-30-2017	03-31-2017	1.50
	Total In-service Capital -	$578 (+/- 10% to +/- to 15%)	$578 (+/- 3% to +/ - 10%)	$578 (to +/- 3%)	$625 (+8%)	1.00
	Total Weighted Score					**1.19**

1. 2017 expenditures higher than budget due to change in schedule. Overall refurbishment remains on budget.
2. Table is part of OPG's Annual Information Form found here https://www.opg.com/about/finance/Documents/OPG_2017_AIF.pdf

Exceeded Stretch Target
Exceeded BP Target
Below BP Target
Below Threshold