# EB-2016-0152 Application Presentation


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# Agenda

- Jeff Lyash - Strategic Context for the Application
- Sean Granville - OPG Nuclear
- Barb Keenan - OPG's Workforce Compensation and Benefits
- Chris Fralick - Regulatory Approaches and Outcomes



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# Shaping Our Application

- **Our mission is Power with Purpose** – providing low-cost power in a safe, clean, reliable, and sustainable manner for the benefit of our customers and shareholder

*Strategic Imperatives*

- **Operational Excellence** – We will operate plants safely and reliably each and every day
- **Project Excellence** - Building on success from projects like Peter Sutherland Sr. GS and Darlington Refurbishment will set us on a good path
- **Financial Strength** - It is critical to financing our projects and growing our business in new ways that we look for opportunities to be more efficient and productive
- **Social Licence** - Acceptance from our host communities and shareholder allows us to operate, and it opens doors to new development opportunities

# Operational Excellence

- Operating safely is our number one priority. We must protect the health and well being of our employees and the citizens we serve
- Maximizing asset value reflects our recognition that having been entrusted with responsibility for substantial Provincial assets, we must operate and maintain them to maximize their long-term value
- Driving efficiency is essential to remaining Ontario's low-cost supplier and producing value for the Province

# Project Excellence – Darlington Refurbishment

- Completing the Darlington Refurbishment program safely, on-time, and on-budget will demonstrate our commitment to project excellence
- OPG's Shareholder, Board of Directors, and executive management team are actively focused on the success of Darlington Refurbishment
- OPG is ready to commence refurbishment
    - Extensive planning and contracting effort
    - Experienced team of managers and contractors
    - External expertise and incorporation of lessons learned

# Project Excellence – Darlington Refurbishment

- Refurbishment will deliver benefits to customers and the Province
  - The Province endorsed Darlington Refurbishment to provide Ontario with 30-plus years of clean, reliable, baseload power at a cost lower than alternatives
  - Refurbishment will produce employment and economic benefits during the program and beyond
- Cost of the Darlington Refurbishment Program
  - Over the five-year application term, the nuclear revenue requirement incorporates in-service additions of:
    - $4.8 billion on Unit 2 return to service after refurbishment in 2020
    - Over $700 million for Unit Refurbishment Early In-Service Projects, Safety Improvement Opportunities, and Facilities & Infrastructure Projects
  - Final budget for DRP (Release Quality Estimate) is $12.8 billion and the schedule is 112 months for all four units

# Financial Strength

- As a publicly owned commercial enterprise, we must deliver value for our shareholder and customers to be successful
- The Province expects us to deliver an appropriate return on its investment in OPG to support provincial priorities
- OPG must be able to service current and future financial liabilities
- Cost effective funding supports the spending necessary to sustain and renew existing assets, fund the development of new assets and meet financial obligations

# Social Licence

- Social Licence captures our continuing efforts to build trust with the communities in which we operate and with the customers we serve
- We recognize that community and customer support is key to our existing operations and building new projects
- To build and retain that support, we must deliver outcomes that communities and customers value
- We understand that we must justify our request for new payment amounts and appreciate the important role that regulation plays in promoting the public interest

# This Application Represents a Watershed for OPG

- Adopts new regulatory frameworks for the hydroelectric and nuclear assets covering the next five years
- Reviews the costs of Darlington Refurbishment, a key component of future Provincial electricity supply and the largest project ever to come before the OEB
- Implements rate smoothing to mitigate customer impacts during the Darlington Refurbishment period
- Reviews OPG's capital structure in light of changes to its asset base and risk profile



# Sean Granville

## Deputy Chief Nuclear Officer

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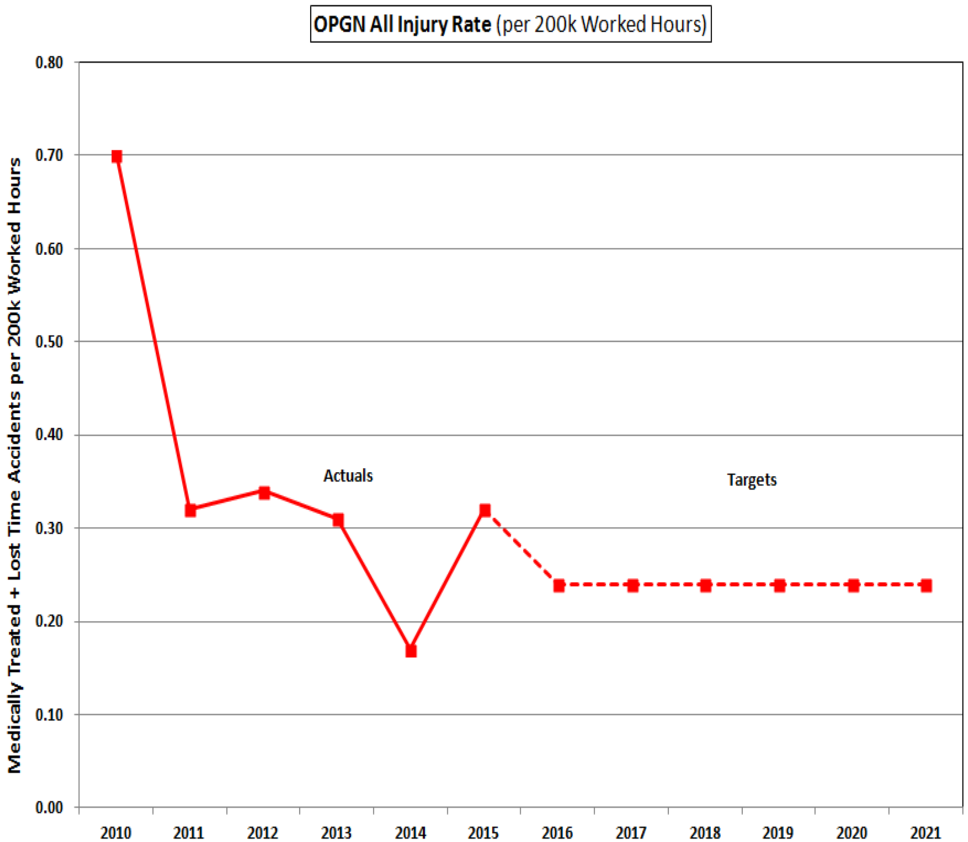
# Nuclear Strategic Imperatives

- **Operational Excellence**
  - Protect the health and safety of workers, public, environment, and plant
  - Optimize reliable operation of nuclear facilities over their entire life cycle
- **Project Excellence**
  - Execute projects to support Darlington operations before, during and post-refurbishment and Pickering Extended Operations
  - Continuous improvement in project management and project outcomes
- **Financial Strength**
  - Meet our generation commitments while implementing cost efficiencies
  - Complete assessments to enable Pickering extension to 2024
- **Social Licence**
  - Operate with integrity, including compliance with all applicable laws, codes, and regulations
  - Ensure safety of the public and environment
  - Strong community and stakeholder relations

# Performance Trending - Safety

- The Canadian Nuclear Safety Commission awarded Pickering and Darlington its highest safety performance rating in its 2015 regulatory oversight report
- OPG Nuclear recorded its best All Injury Rate (AIR) performance in the company's history in 2014
- OPG encourages a proactive reporting culture that seeks to identify hazards and address them before they can lead to employee injuries





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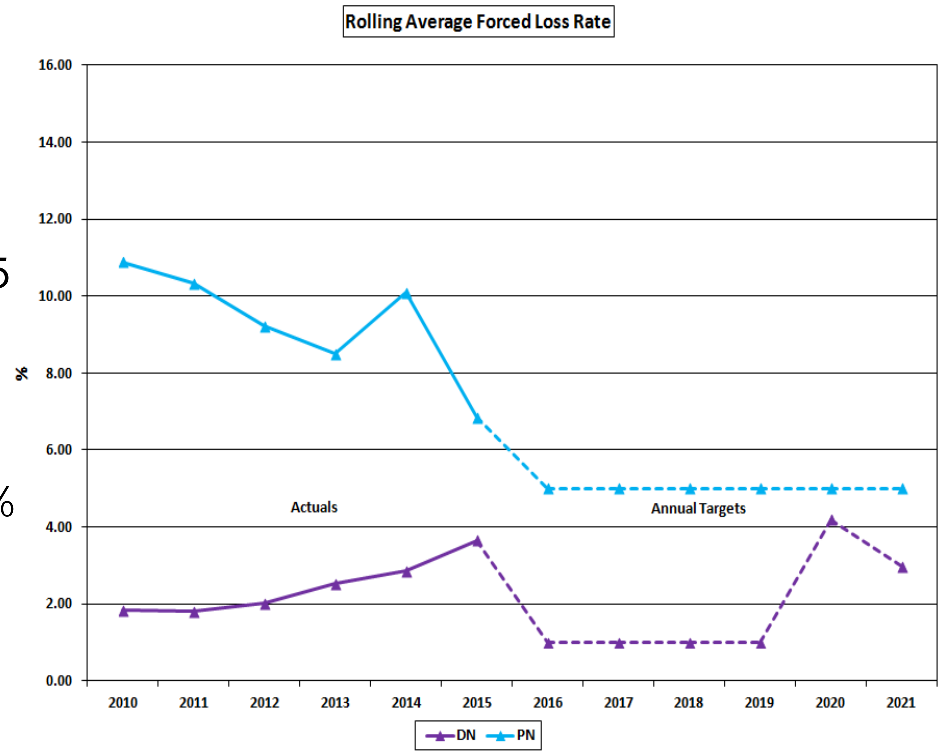
# Performance Trending - Reliability

- Pickering's reliability has significantly improved since 2010, achieving its best ever forced loss rate (FLR) in 2015
- An aggressive but attainable annual target of 5% has been set for Pickering
- Darlington's 3-year rolling average FLR performance deteriorated slightly from 2.85 in 2014 to 3.65 in 2015. Darlington continues to drive reliability improvements through system health improvement
- Darlington has set annual FLR targets of 1% up to 2019. FLR increases in 2020 and 2021 with return to service of Unit 2. This increase reflects industry experience post-refurbishment
- Pickering and Darlington are the only CANDU plants that continue to operate at 100% of their original design capacity



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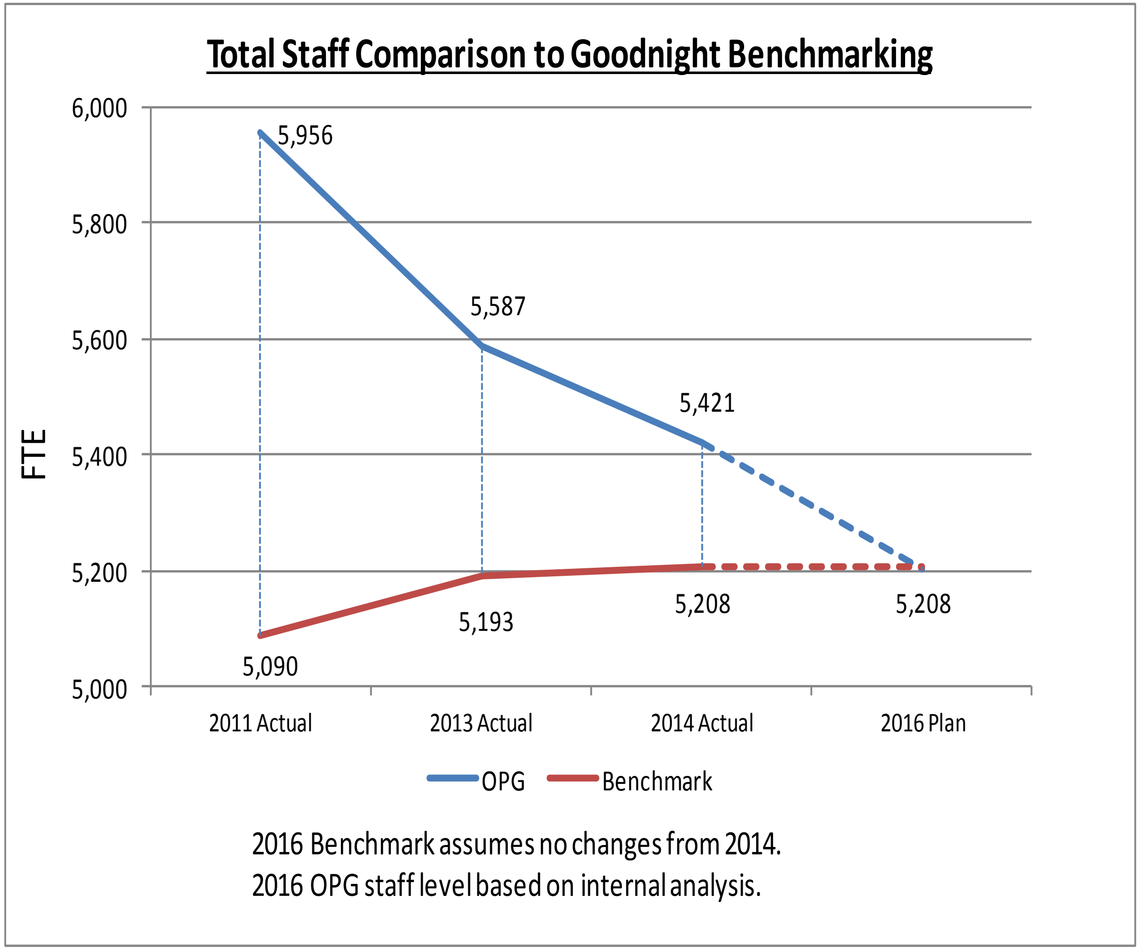
# Nuclear Staffing

- OPG has closed the benchmark gap in Nuclear staffing
- This was achieved by decreasing staff in a number of functions since 2011, most notably in Management
- The Pickering amalgamation helped OPG achieve efficiencies and improve variances from the benchmark







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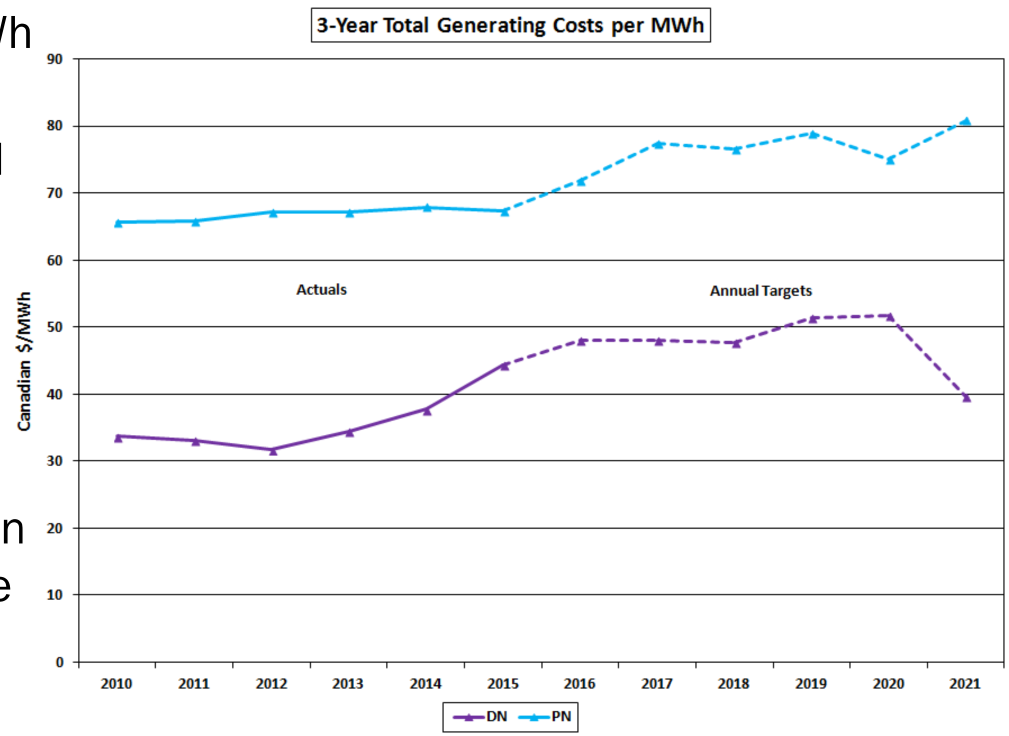
# Performance Trending – Value for Money

- Since 2010, Pickering has maintained a stable Total Generating Cost (TGC)/MWh
- Pickering targets reflect lower generation due to incremental planned outage days required for Pickering Extended Operations
- Pickering TGC/MWh is impacted by smaller unit size
- Since 2012, Darlington TGC/MWh has been impacted due to higher FLR and in 2015 due to a Vacuum Building Outage
- Darlington targets through 2020 are impacted by costs for life cycle management and planned outages
- Darlington targets are normalized after 2016 for generation foregone during refurbishment



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# Extending Pickering Operations

- In 2015, Pickering safely produced approximately 14% of the energy in Ontario while achieving its highest level of reliability
- OPG's plan, as endorsed by the Ministry of Energy, is to operate six units until 2022 and four units until 2024
- The plan builds on the prior successful initiative to continue the life of the Pickering units, which are now providing approximately 20 incremental TWh of energy each year
- IESO analysis shows that operating Pickering to 2024:
  - produces system benefits of $300 - $500M
  - avoids approximately 8 million tonnes of greenhouse gas emissions
  - provides capacity during nuclear refurbishments
- Estimated incremental OM&A expenditures of $307M between 2016 and 2020 are required to enable Pickering operations to 2024
- OPG is seeking the required Canadian Nuclear Safety Commission approval to operate Pickering to 2024 - Pickering is currently licenced to operate until August 31, 2018



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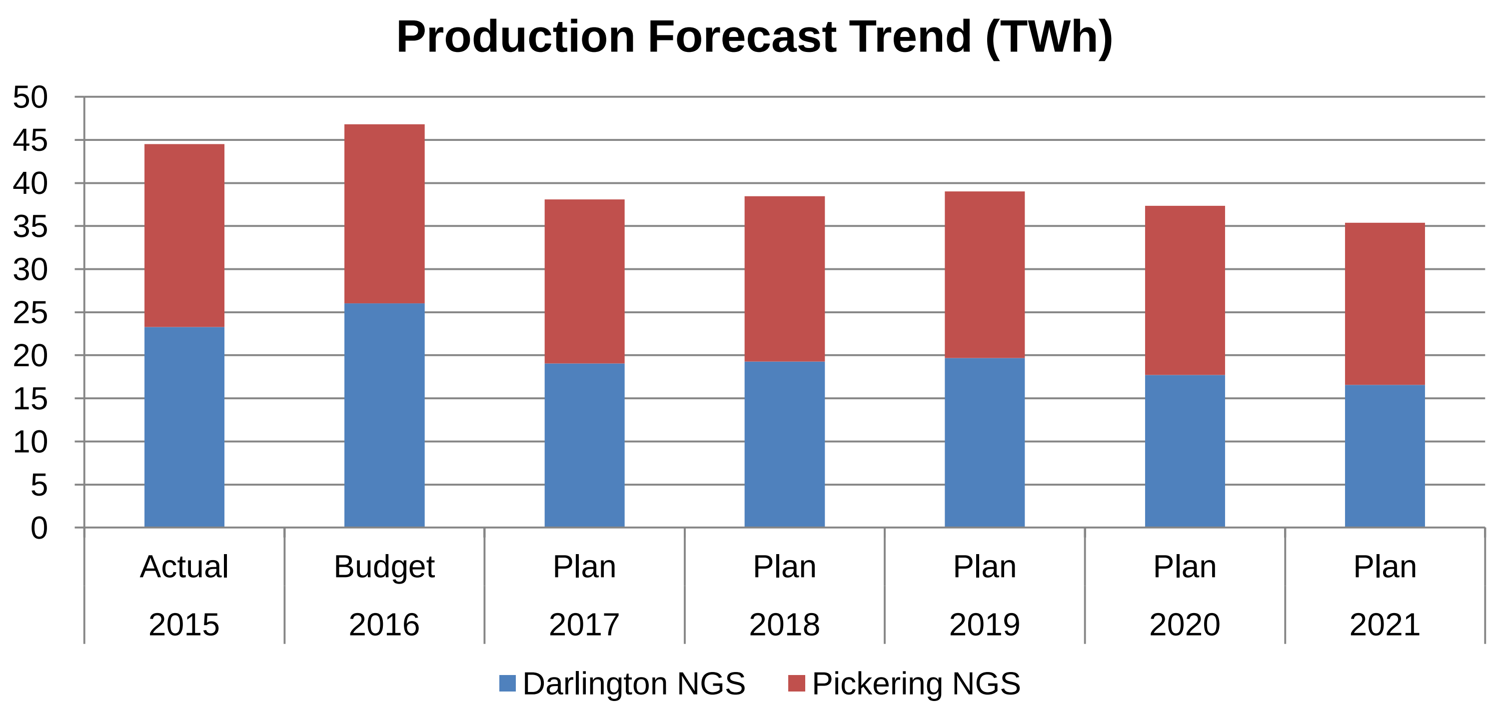
# Nuclear Projects Portfolio

- Increase in capital expenditures in the nuclear portfolio over 2017-2020, before declining in 2021, reflects:
  - Regulatory programs
  - Additional capital funding, distinct from refurbishment, to replace obsolete or life-expired equipment at Darlington
  - Maintaining expenditures at Pickering to address life cycle management of equipment, before expenditures decline in 2021
- Initiatives for continuous improvement in project management, including a Centre of Excellence for project management

# Nuclear Production

- The reduction in generation starting in 2017 is largely due to the Darlington Refurbishment schedule (Unit 2 out of service date – October 2016) and an increase in outage scope associated with Pickering Extended Operations





# Barb Keenan

Senior Vice President, People, Culture & Communications

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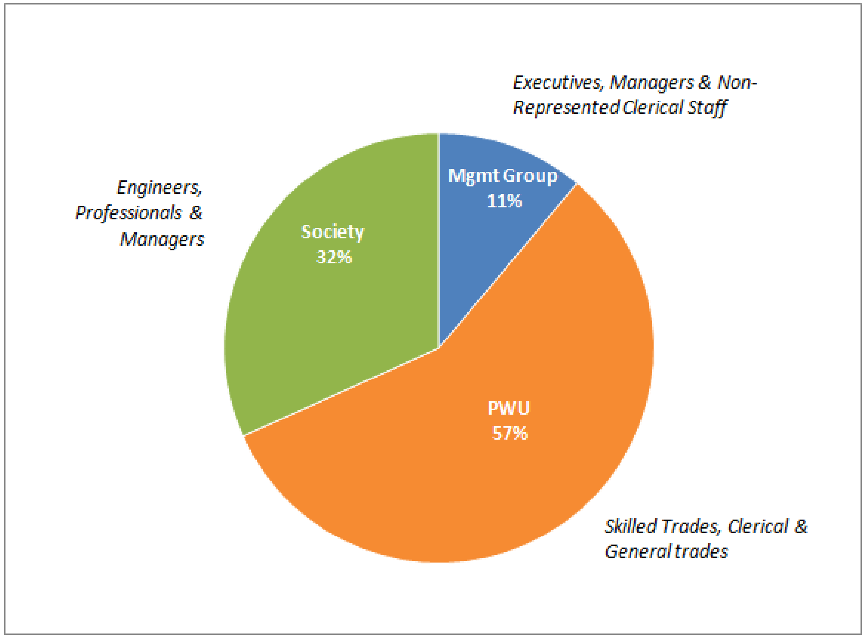
# OPG's Workforce and Demographics

- OPG employs workers in facilities throughout the Province with the largest number concentrated in Durham Region
- OPG has a mature and experienced workforce. By year-end 2016, approximately 20% of active employees will be eligible for retirement (undiscounted pension) with an additional 4% of employees becoming eligible in each subsequent year
- About 90% of employees represented by the Power Workers' Union or The Society of Energy Professionals



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# Recent Collective Agreements

- Collective agreements with the Power Workers' Union and The Society of Energy Professionals were renegotiated in 2015
- Below inflation wage increases and pension reforms were significant achievements in bargaining
- Over the IR term, the costs of the lump sum payments and Hydro One shares are about equal to the savings from the pension reforms, but the pension savings continue to grow over time

| | |
|---|---|
| **Wage Increase** | 1% Increase each Year |
| **Cost of Living Adjustment** | None |
| **Employee Pension Contributions** | ~1% Increase each Year (corresponding reduction in OPG costs) |
| **Other Pension Reforms** (effective 2025) | High Three → High Five<br>Rule of 82 → Rule of 85 |
| **Lump Sum Non-Pensionable Payment** | 1% in first year of contract and 2% in second year |
| **Hydro One Shares** (% of base salary used to set number of shares to be awarded each year, for up to 15 years) | 2.75% for PWU and 2.0% for Society |



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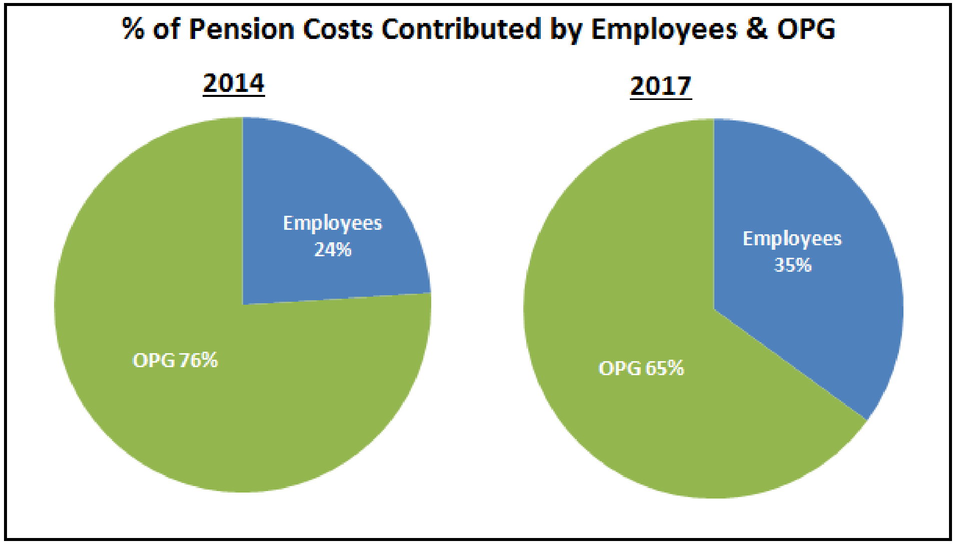
# Managing Compensation

- Similar pension reforms were introduced for Management Group employees, as well as new salary structures that are aligned to the market
- The combined impact of increased employee contributions for all employees will reduce OPG's share of pension costs from 76% in 2014 to 65% in 2017

| | |
|---|---|
| **Salary** | New Market Based Salary Structure (by Segment) |
| **Employee Pension Contributions** | ~1% Increase each Year (corresponding reduction in OPG costs) |
| **Other Pension Reforms** (effective 2025) | Rule of 84 → Rule of 90 |



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# Compensation Benchmarking

- Based on recent benchmarking, OPG's **total direct compensation** is at market
- Some challenges remain:
  - PWU and Society positions in the general industry segment remain above market
  - Management positions in the utility and nuclear segments are below market

**Total Direct Compensation** *(% Above or Below Target Market)*

| | OPG 2015 | Utility 2015 | Nuclear 2015 | General Industry 2015 | % of OPG Population 2015 |
|---|---|---|---|---|---|
| PWU | 8% | 4% | 10% | 27% | 58% |
| Society | 8% | 7% | -14% | 27% | 31% |
| Mgmt Group | -13% | -19% | -27% | 1% | 11% |
| OPG | 5% | 2% | -3% | 19% | |
| % of OPG Population | | 69% | 4% | 27% | 100% |

***Legend***
*Below Market*
*At Market (+/- 10%)*
*Above Market*

- OPG has reduced its ongoing pension cost, but pension and benefits as a percentage of base salary continue to benchmark above market

# Progress is Being Made

- Total direct compensation is “at market”
- Through negotiations, pension reforms introduced to manage these costs going forward
- Negotiations also achieved below inflation wage increases
- New salary structures introduced for management to align compensation with the market and manage these costs
- Pensions and benefits continue to benchmark above market

***The Result:*** *The compensation costs included in OPG’s rate application remain relatively stable, declining slightly over the 5-year IR term.*



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# Chris Fralick

## Vice President, Regulatory Affairs

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# Hydroelectric Incentive Rate-Making Methodology

- No rebasing of hydroelectric rates
- Consistent with price-cap index methodology in the RRFE for a 5-year IR term
- Annual adjustment formula: Base Rates x (1+I-X)
- Inflation factor ("I") based on the same input sub-indices as the OEB's 4GIRM I-factor, weighted to reflect the input cost of hydroelectric generation industry (1.8% as determined by an independent consultant)
- "X" factor consists of Total Factor Productivity ("TFP") and stretch factor based on independent total-cost benchmarking study
  - OPG is proposing a productivity factor of zero, in light of a negative TFP finding by the independent consultant
  - OPG is proposing a 0.3% stretch factor based on performance against benchmarks
- Annual Reporting based on key performance measures for safety, reliability and cost effectiveness

# Nuclear Custom Incentive Rate-Making Methodology

- Custom IR Methodology for a 5-year IR term based on the principles of RRFE and the OEB's prior guidance to OPG
- Application of a stretch factor in addition to an already challenging Business Plan
- Stretch factor reductions that persist year over year
  - Combined stretch factor of 0.3% based on weighted average of Darlington and Pickering Total Generating Cost/MWh benchmarking quartiles
  - Applied to Base OM&A and allocated Corporate Support Services costs (in total, about 75% of OPG's total Nuclear OM&A)
  - The cumulative reductions from the stretch factor are equal to forecast cost growth between 2020 and 2021, resulting in no increase in Base OM&A and allocated Corporate Support Services costs for 2021
- Annual reporting based on nuclear benchmarking measures

# Rate Smoothing

- Intended to mitigate nuclear rate impact and volatility associated with Darlington Refurbishment Program and Pickering End of Commercial Operations
- Pursuant to the rate smoothing amendments to O. Reg. 53/05, which came into force in January 2016
- OPG will defer recovery of a portion of the revenue requirement using a new deferral account to smooth the impact on rates
- The smoothing proposal mitigates customer impacts while balancing longer-term intergenerational impacts and recognizing the need to maintain OPG financial metrics
- OPG's rate-smoothing proposal limits the annual increase in nuclear payment amounts to 11 per cent during the IR term

# Mid-term Review

- OPG is proposing a mid-term review in the first half of 2019 to update the nuclear production forecast for the final 2.5 years of the 5-year IR term
- Factors such as Darlington Unit 2 return-to-service and Pickering Extended Operations results may lead to substantially higher or lower production than currently forecast
- The mid-term review will allow customers to benefit from any forecast production increases while allowing OPG a reasonable opportunity to recover its nuclear revenue requirement if production is forecast to decrease
- OPG proposes a new deferral account to implement the results of the midterm review
- OPG also proposes to clear audited 2018 deferral and variance account balances as part of the mid-term review

# Revenue Requirement

- As the application for Hydroelectric Payment Amounts relies on the OEB's IRM formula without rebasing, OPG is not seeking approval of a Hydroelectric revenue requirement
- The Nuclear revenue requirement requested in each of the five years of the IR term is as follows:

| Year | Revenue Requirement |
|---|---|
| 2017 | $3,189.9M |
| 2018 | $3,250.0M |
| 2019 | $3,285.0M |
| 2020 | $3,774.8M |
| 2021 | $3,489.4M |

# Proposed Payment Amounts and Riders

| Hydroelectric and Nuclear Rates | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Base Hydro Rates ($/MWh) | $40.72 | $41.71 | $42.33 | $42.97 | $43.61 | $44.27 |
| Hydro Riders ($/MWh) | $3.83 | $1.44 | $1.44 | TBD | TBD | TBD |
| Hydro Rates and Riders ($/MWh) | $44.55 | $43.15 | $43.77 | $42.97 | $43.61 | $44.27 |
| Hydro Annual Increase | | -3.2% | 1.4% | -1.8% | 1.5% | 1.5% |
| Base Smoothed Nuclear Rates ($/MWh) | $59.29 | $65.81 | $73.05 | $81.09 | $90.01 | $99.91 |
| Nuclear Riders ($/MWh) | $13.01 | $2.85 | $2.85 | TBD | TBD | TBD |
| Smoothed Nuclear Rates and Riders ($/MWh) | $72.30 | $68.66 | $75.90 | $81.09 | $90.01 | $99.91 |
| Smoothed Nuclear Annual Increase | | -5.0% | 10.5% | 6.8% | 11.0% | 11.0% |
| Production Weighted Blended Rate ($/MWh) | $60.66 | $57.37 | $61.76 | $64.45 | $69.26 | $74.27 |
| Blended Annual Increase | | -5.4% | 7.7% | 4.3% | 7.5% | 7.2% |

2016 rates are the 2015 OEB approved rates as per EB-2013-0321. 2016 riders are per EB-2014-0370.

# Customer Impacts

- The five-year average annual residential customer increase is 0.7% or about $1.05 per month

| Typical Residential Customer Impact | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|
| Annual % Change | -0.9% | 1.1% | 0.7% | 1.2% | 1.3% |
| $/Month Change | ($1.29) | $1.73 | $1.07 | $1.86 | $1.89 |



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