



Darlington Licence Renewal Part 2 Public Hearing

November 2 - 5, 2015

ONTARIO **POWER**
GENERATION



Presentation Agenda

- Introduction
- Safety
- Public Engagement
- Vacuum Building Outage Update
- Darlington Refurbishment
- Follow-up Items from Part 1 Hearing
- Intervenor Concerns
- Summary & Conclusion



Safety is a Core Value at OPG



- Darlington rated Fully Satisfactory by CNSC staff 7 straight years
- Industry-recognized safety performance
- State-of-the-art technology minimizes radiation exposure to workers
- Investments in Safety Improvements
- First utility to complete Fukushima Action Plan
- Public dose remains a fraction of 1% of regulatory limit
- Virtually no greenhouse-gas emissions

Public Engagement



- Committed to openness and transparency
- Work closely with the community to share information and understand concerns:
 - Durham Nuclear Health Committee
 - Community Advisory Councils
- Stakeholder sessions for Government Officials, NGOs, and First Nations
- Community newsletters, newspaper inserts, and public website
- Information Centre and mock-up viewing area open daily (~6000 visitors per year)
- Open houses and site tours facilitate understanding of nuclear generation





Vacuum Building Outage Update

- Video – Vacuum Building Outage





Vacuum Building Outage Update

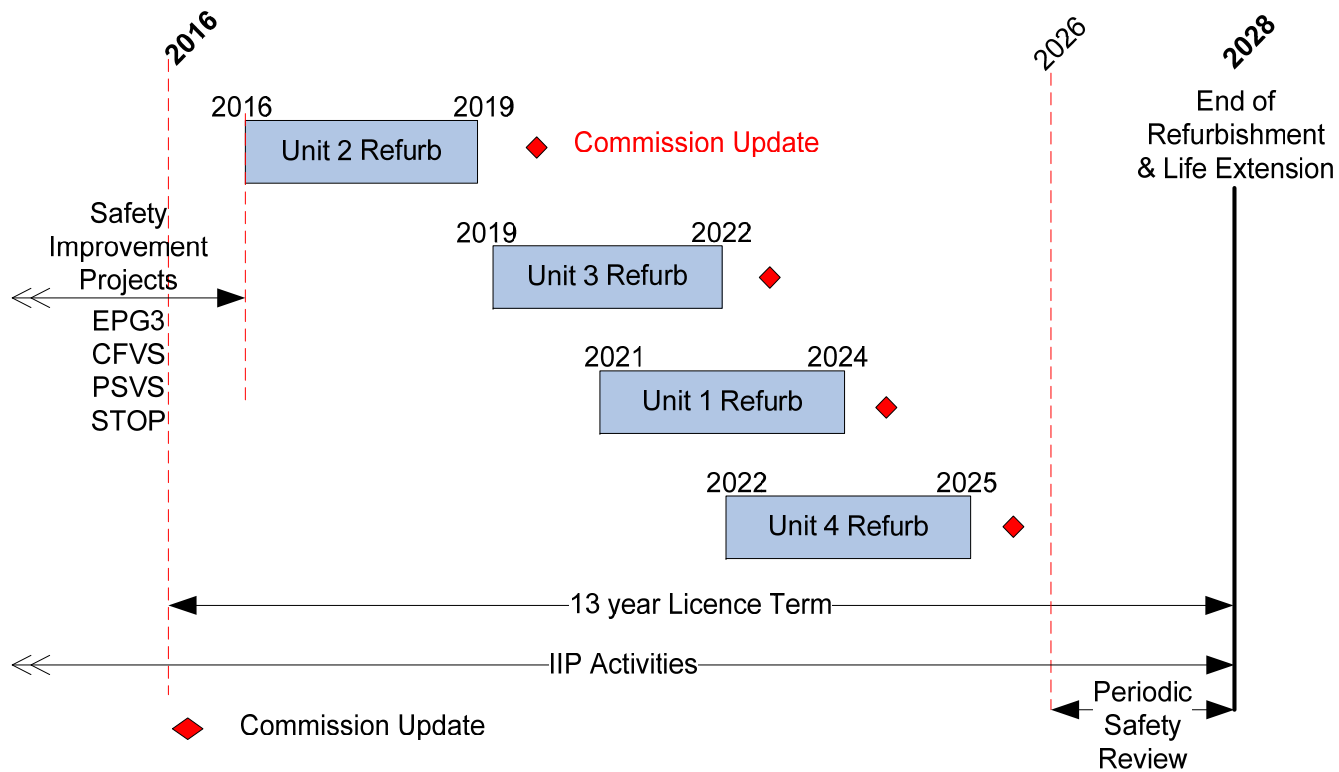
- Unique CANDU Containment safety system includes a Vacuum Building to prevent releases
- Entire Containment system tested to confirm it would contain radiation if called on
- Results confirm concrete integrity and Vacuum Building is leak-tight
- Many inspections and upgrades completed, including work to install Containment Filtered Venting System





Darlington Refurbishment

- Massive and complex project, rigorously planned
- Part of Ontario's Long Term Energy Plan
- Extensive internal, external and regulatory oversight





Safety Improvements

- Third Emergency Power Generator (EPG3)
- Containment Filtered Venting System (CFVS)
- Powerhouse Steam Venting System (PSVS)
- Shield Tank Overpressure Protection (STOP)
- Emergency Make-up to the Heat Transport System (EHS)



Third Emergency Power Generator



Containment Filter Venting System
Construction Site



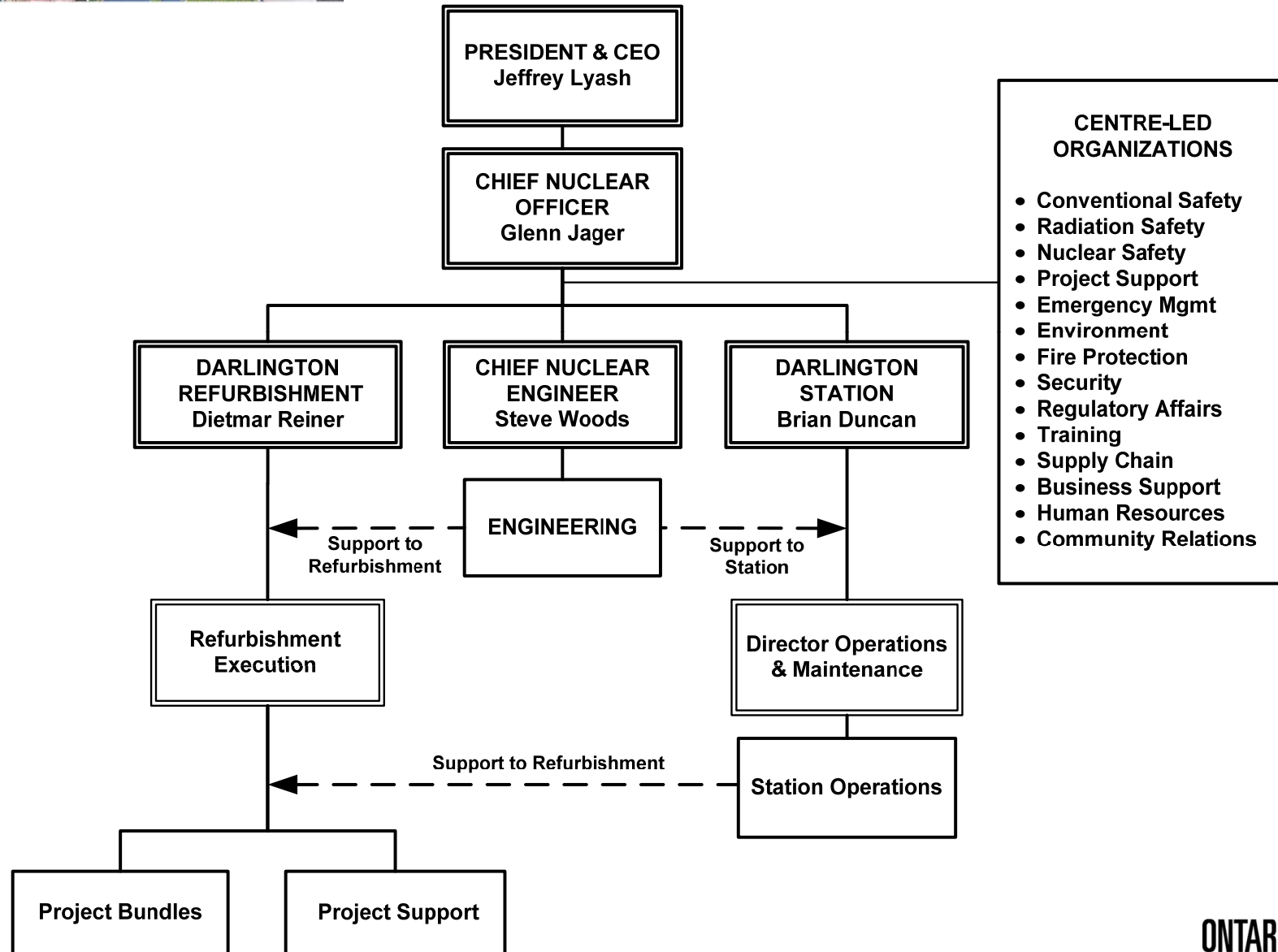
Follow-up Items from Part 1 Hearing

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Organizational Structure





KI Pill Predistribution

- Distribution to homes and businesses in the primary zone is complete, additional pills available for pick-up
- Secondary zone residents may order pills online for delivery at preparetobesafe.ca
- Stockpile of pills available at Ontario Government Pharmacy
- Public awareness campaigns continue





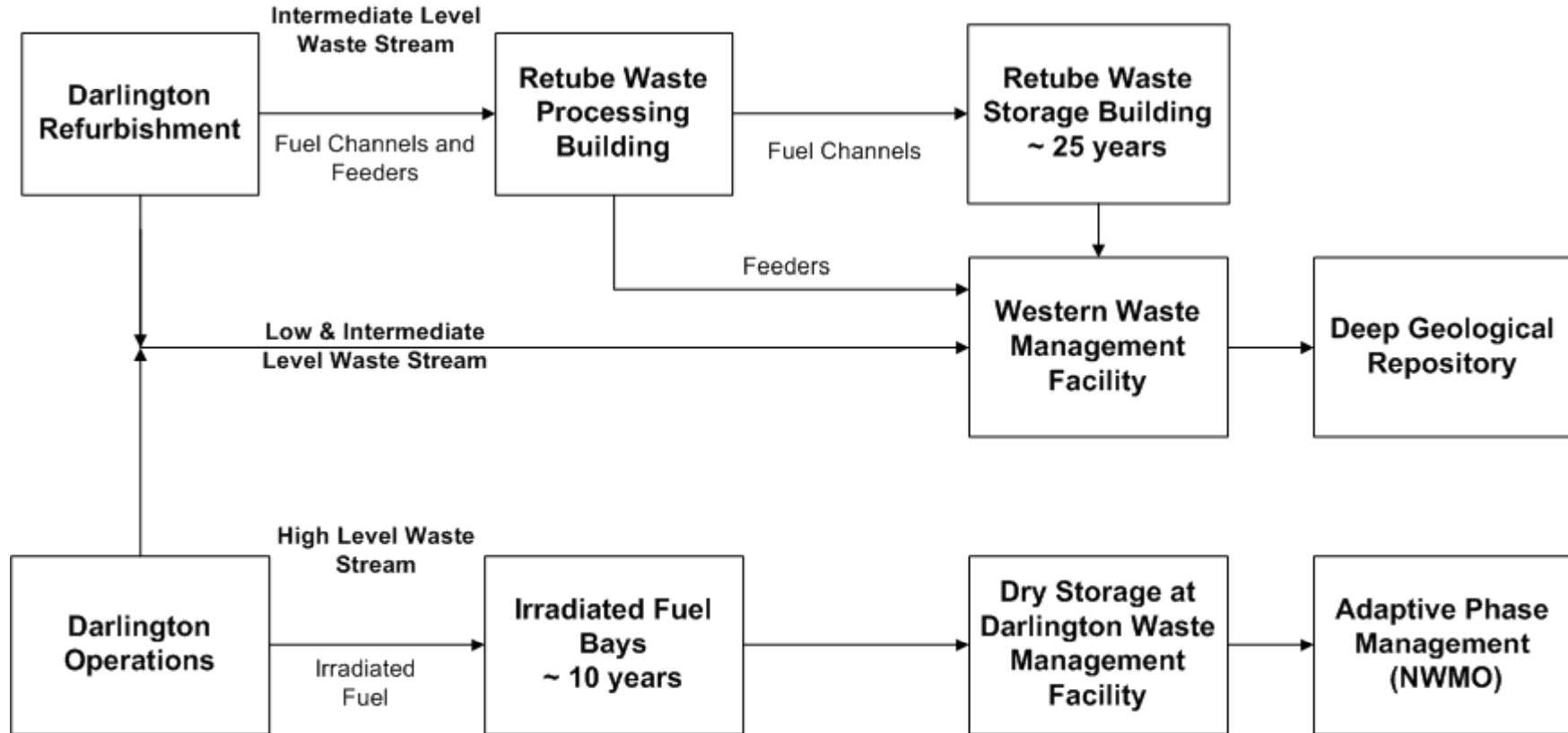
Intervenor Concerns

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Refurbishment Waste Management





Emergency Management

- Video – Exercise Unified Response





Evacuation Time Estimates (ETE)

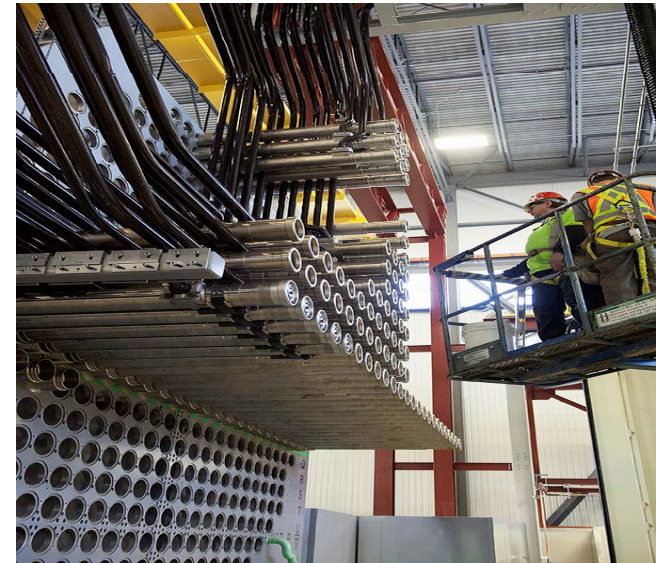
- As committed, ETE updated for 2015 using latest census data, including projections for each subsequent decade
- Methodology based on latest US NRC guidance
- Evacuation scenario considerations include:
 - Time of day/ week
 - Weather/ road conditions
 - Schools/ hospitals
- Entire primary zone evacuation in < 5 hours, well within containment hold-up time of the Darlington plant
- Results will be made publicly available



Worker Safety



- Darlington has long-standing excellent Radiation Protection and worker safety performance
- Radiation hazards are well understood, ongoing surveys will be performed throughout Refurbishment
- All nuclear workers including contractors receive radiation protection training
- OPG's Alpha Radiation Program has been thoroughly benchmarked, evaluated and tested





Probabilistic Safety Analysis

- Understanding, minimizing, and communicating risk is fundamental to safe operations
- Risk is further reduced by installing Safety Improvement equipment in the plant prior to Refurbishment
- PSA is one of many tools used by engineering & certified staff to manage our plants to prevent events and protect the public
 - PSA performed in accordance with S-294
 - Concludes very low risk to public
 - All results better than safety goal limits
 - 2015 PSA summary posted on opg.com
- Action Plan in place to further reduce risk, including additional enhancements to Emergency Mitigating Equipment



Public Involvement

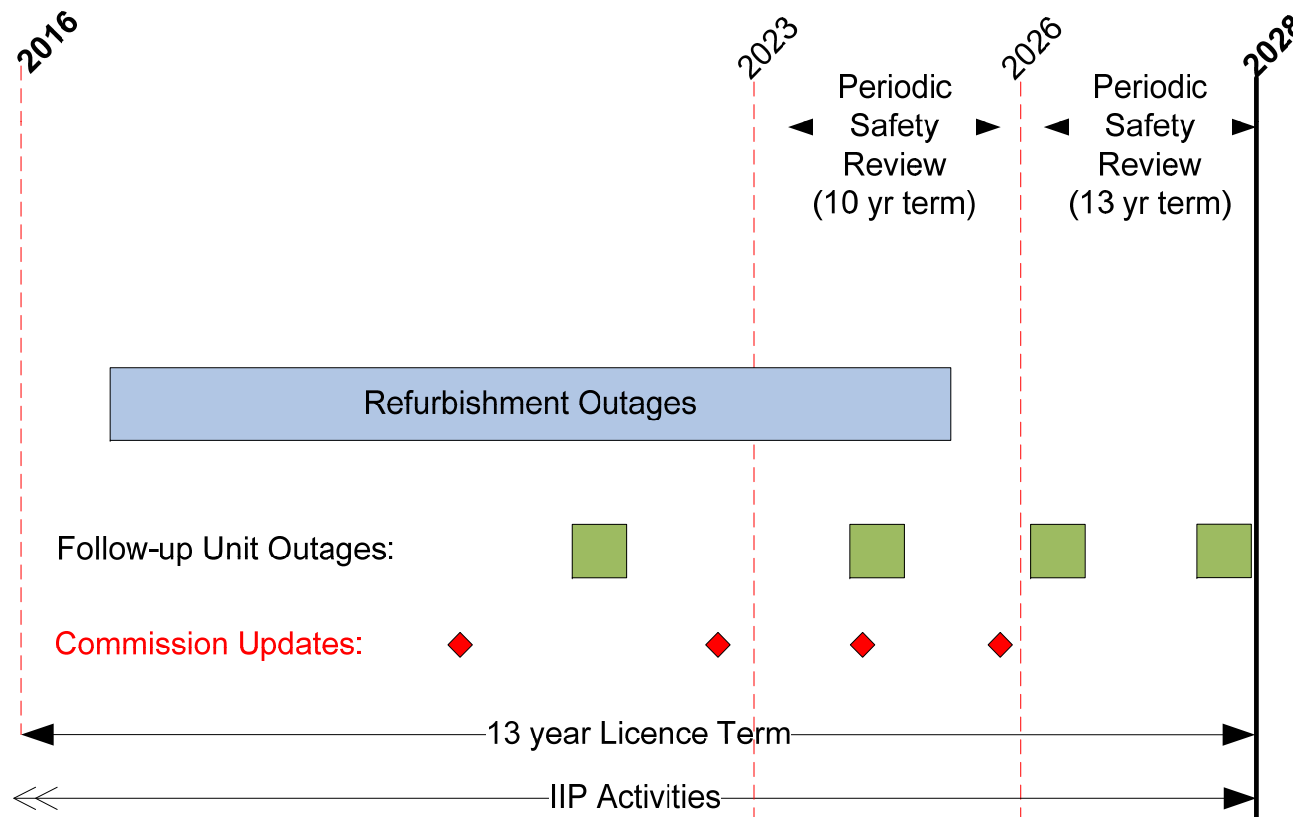


- Canadian licensing process provides opportunity for public review of licensee performance and future plans
- OPG has made publicly available our licensing reference documents
- Committed to updating the Commission in a public forum following each unit refurbishment
- Regulatory framework facilitates public involvement:
 - Status Report on Power Reactors (~monthly)
 - Regulatory Oversight Report for Canadian NPP (annual)
 - Participant funding program enables the public to better participate in the regulatory process, including original research to better inform interventions
 - CNSC process for oral and written interventions enables challenging questions



Licence Renewal/ PSR Timeline

Refurbishment of all units under same set of regulatory requirements maintains consistent approach and maximizes safety





Summary

- Managing configuration of complex project is key
- Safest place to be is on the plan – the 13 year IIP plan
- Comprehensive assessments confirm safety case to 2055
- Meets all the regulatory requirements (RD-360)
- Billions being invested in major safety improvements and infrastructure upgrades to ensure long-term safe, clean power for Ontario
- Top performing plant – recognized by CNSC and industry





Conclusion

- OPG is qualified to continue operation to Dec 1, 2028, and has made provisions for protection of the environment, the health and safety of workers and the public, and Canada's international obligations
- A 13 year licence will allow OPG to efficiently operate to the highest levels of safety through the refurbishment and safety improvements of each Darlington unit

