

Ontario Power Generation



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June 21, 2022 – CAC Joint meeting

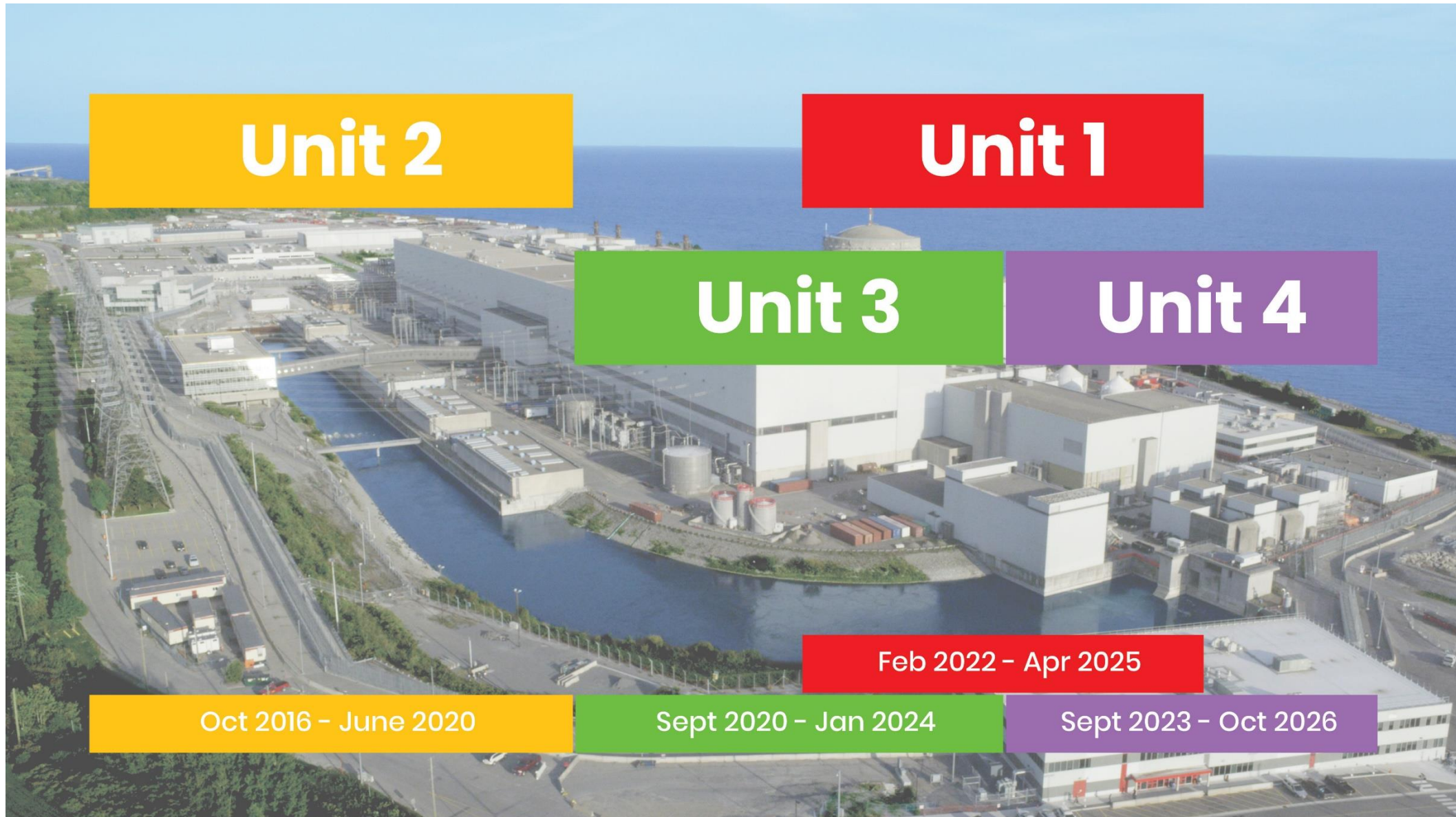
ONTARIO**POWER**
GENERATION

Darlington Refurbishment



- **Darlington Nuclear Station placed in-service in the early 1990's providing over 25 years of clean, reliable power to the people of Ontario.**
 - Four Units: 3524 MW net output
 - 20 per cent of Ontario's Electricity – power for 2 million homes (approx.).
- **Recognized internationally as one of the top performing nuclear stations in the world.**
- **Darlington's design requires a mid-life refurbishment to allow for 30 or more years of ongoing operations.**
 - 10 yrs planning, 10 yrs execution
 - \$12.8 Billion investment
 - 12,800 jobs; \$89.9 Billion boost to Ontario's GDP.

Refurbishment Outage Timeline



Refurbishment Scope and Vendors

Defuel, Fuel Handling, Special



Retube and Feeder Replacement



SNC • LAVALIN
Nuclear

AECON
Joint Venture

Turbine / Generator



SNC • LAVALIN
Nuclear

AECON
Joint Venture

Steam Generators



Balance of Plant



Cyclic Outage



Unit 2 – Complete & Lessons Learned

On June 4, 2020, Unit 2 was reconnected to Ontario's electricity grid, after a three-and-a-half year refurbishment.

- Over 4,000 lessons learned from the knowledge and experience gained on Unit 2 during planning and execution.
- Ongoing lessons learned built into plans for Units 3, 1 & 4.



Unit 3 Status Update

Unit 3 Refurbishment started September 3, 2020.

Safety, Quality, Schedule and Cost are tracking very well.

Currently in the Reassembly stage – Ahead of schedule

- Feeder Pipe install and Fuel Channel install

Key Lesson Learned: First-of-a-kind evolution on Unit 3 (or refurbishment anywhere!) with the simultaneous Pressure Tube and Calandria Tube (CT-PT) removal. Safely and successfully completed

- Improved radiological and conventional safety for workers
- Savings of 30 days compared to separate PT and CT removal series on Unit 2
- Fewer material storage containers needed by volume reduction of CT-PT together

On track to complete March 2024



Units 1 Status Update

Breaker opened on Unit 1 (Feb. 15) marked the halfway point in the Darlington Refurbishment Project and for the first time ever at Darlington, the refurbishment of two different units at the same time.

Key lesson learned: Defuel of Unit 1 successfully implemented a first-of-a-kind evolution consisting of two-trolley systems alternating on the unit to improve efficiency

Critical Path continues to progress ahead of schedule. Reactor vault preparation nearly complete – allowing for fully open airlock door to allow unobstructed access of workers, tools and material in and out.

Scheduled completion April 2025



Unit 4 Status Update

Work planning, design engineering efforts, procurement and execution of pre-requisite work continues to progress well.

Planning for Unit 4 is underway and scheduled to commence its Refurbishment execution in July, 2024.

Lessons learned and future opportunities from Units 2, 3 and 1 are being incorporated into Unit 4 planning.



OneTEAM

~ 2,000 trades required to support the remaining Refurbishment activities for Units 3, 1, & 4.

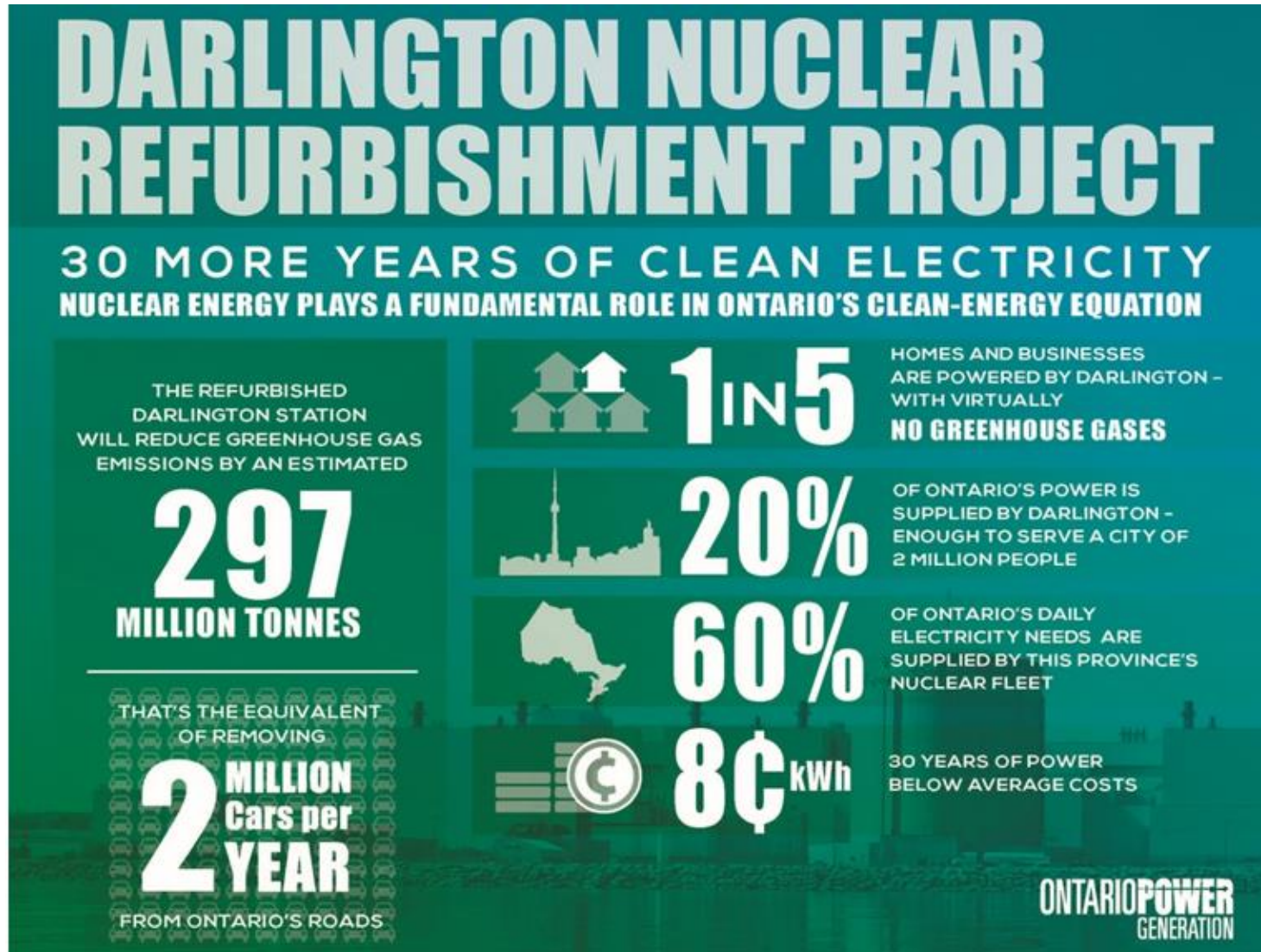


SNC • LAVALIN

AECOM



Darlington Refurbishment



Summary

Safety performance continues to exceed the construction industry in Ontario.

- Project execution continues to progress well.
- Overall program is tracking to budget.
- Additional opportunities are being identified and incorporated in the plan to achieve further gains.
- Darlington Refurbishment is one OPG's key climate change initiatives.
- The refurbishment of the four Darlington units remains on plan for completion by the end of 2026.





Questions?

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