



# Darlington Refurbishment Program

June, 2020



**CANATOM**  
POWER GROUP



**BWXT**  
BWXT Canada Ltd.



**ONTARIO POWER**  
GENERATION



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# Darlington Nuclear Refurbishment Project

- Mid-life refurbishment - part of CANDU design
- Provides 30+ years of clean, safe, reliable, baseload electricity
- \$12.8 B investment
- Replace major reactor components and upgrade key plant systems, plus substantial safety and equipment investments
- 1,000's of jobs generated - \$90B boost to the economy
- Over 300 million tonnes of CO2 avoided



# Darlington Refurbishment

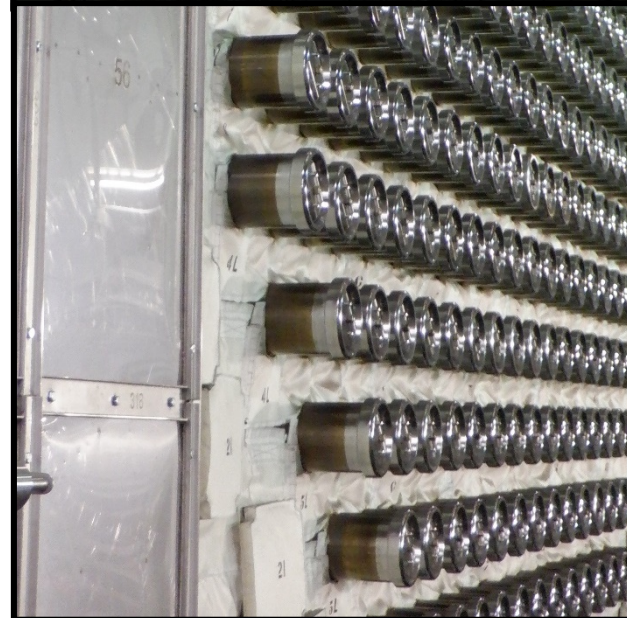
Unit 2 synchronized to the electricity grid on May 13<sup>th</sup>

- 24 Million hours of work – 1 LTA
- Quality of work has been excellent
  - exceeded past refurbishments
- Completed safely with COVID restrictions
- Four Unit Refurbishment remains on budget on time

## • ONE TEAM SUCCESS!

- Staff
- Project Partner Vendors
- contractors/skilled trades
- manufacturers
- government/ community

- Building OPG/Community reputation: World Class



Unit 2

100%

Complete

24

million  
hours worked

58

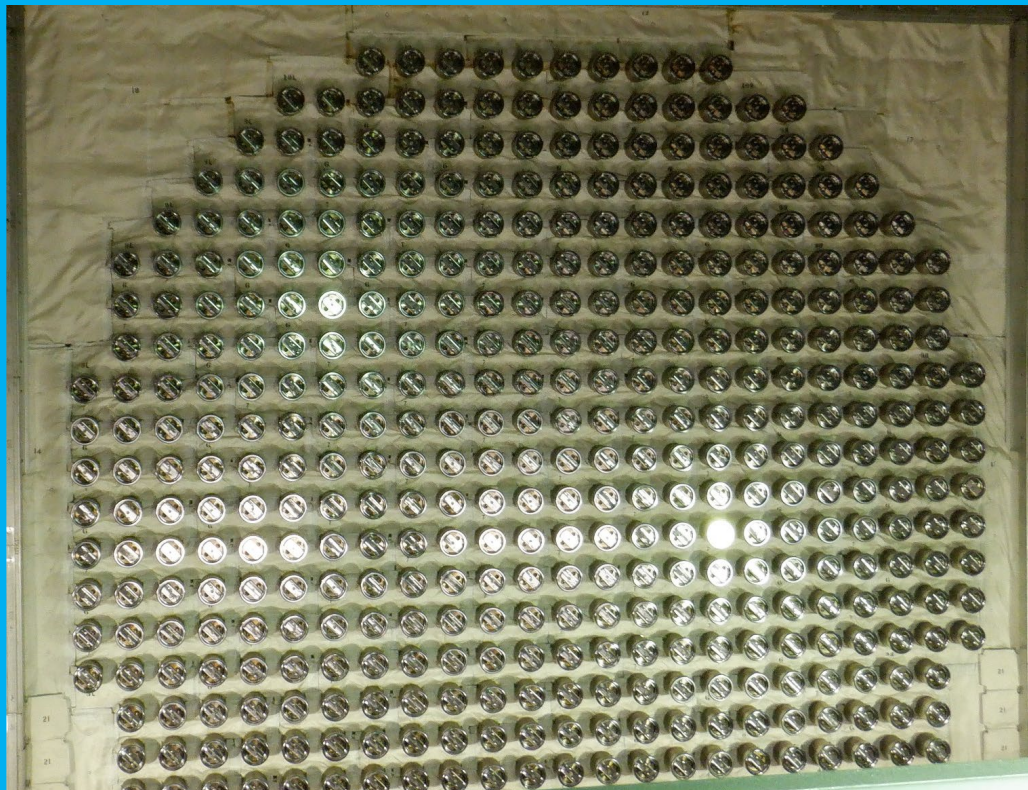
Systems  
in Service

18

Major safety  
infrastructure projects



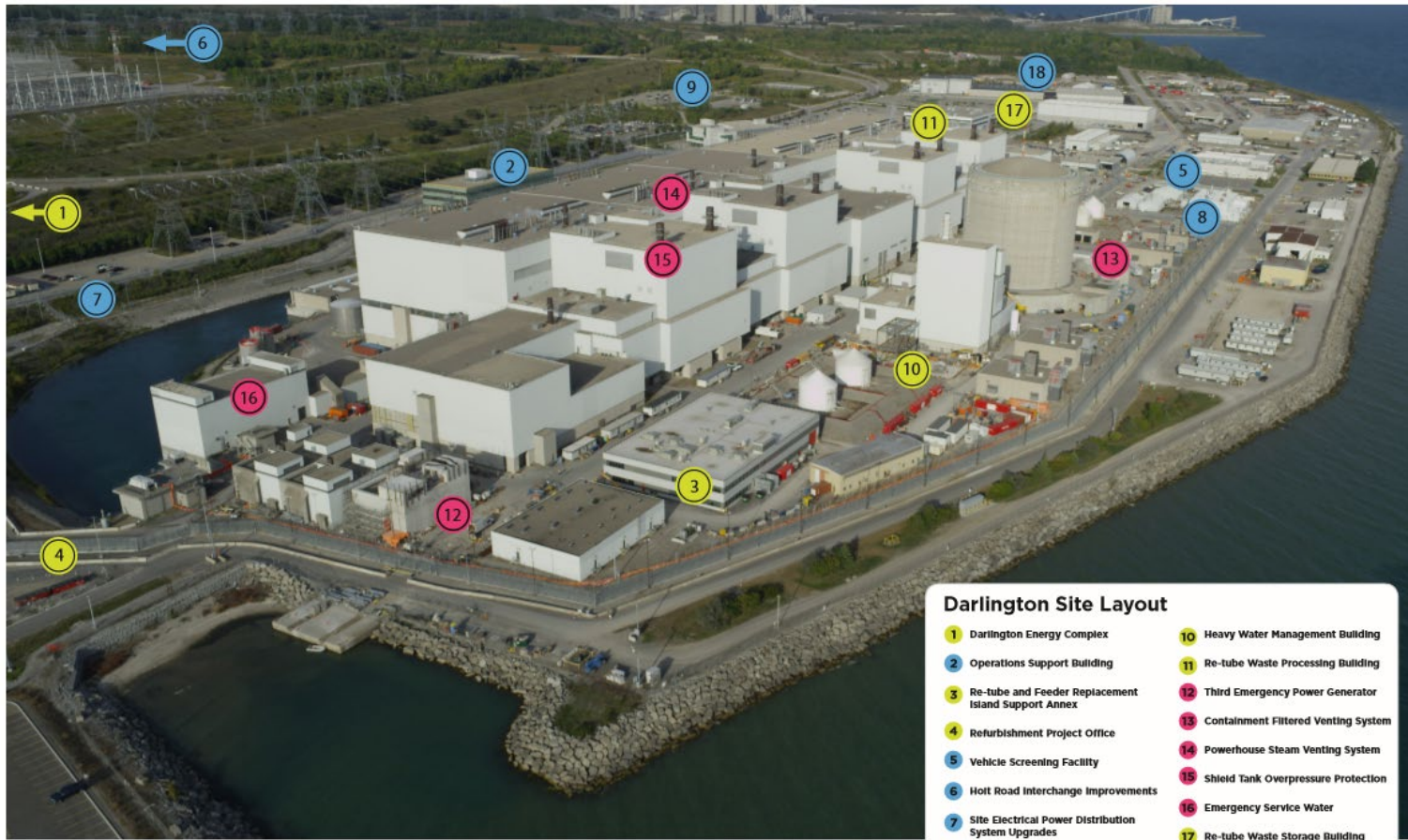
# Unit 2 Reactor Vault





## Safety and Infrastructure Projects:

- 18 of 18 Complete



**Darlington Site Layout**

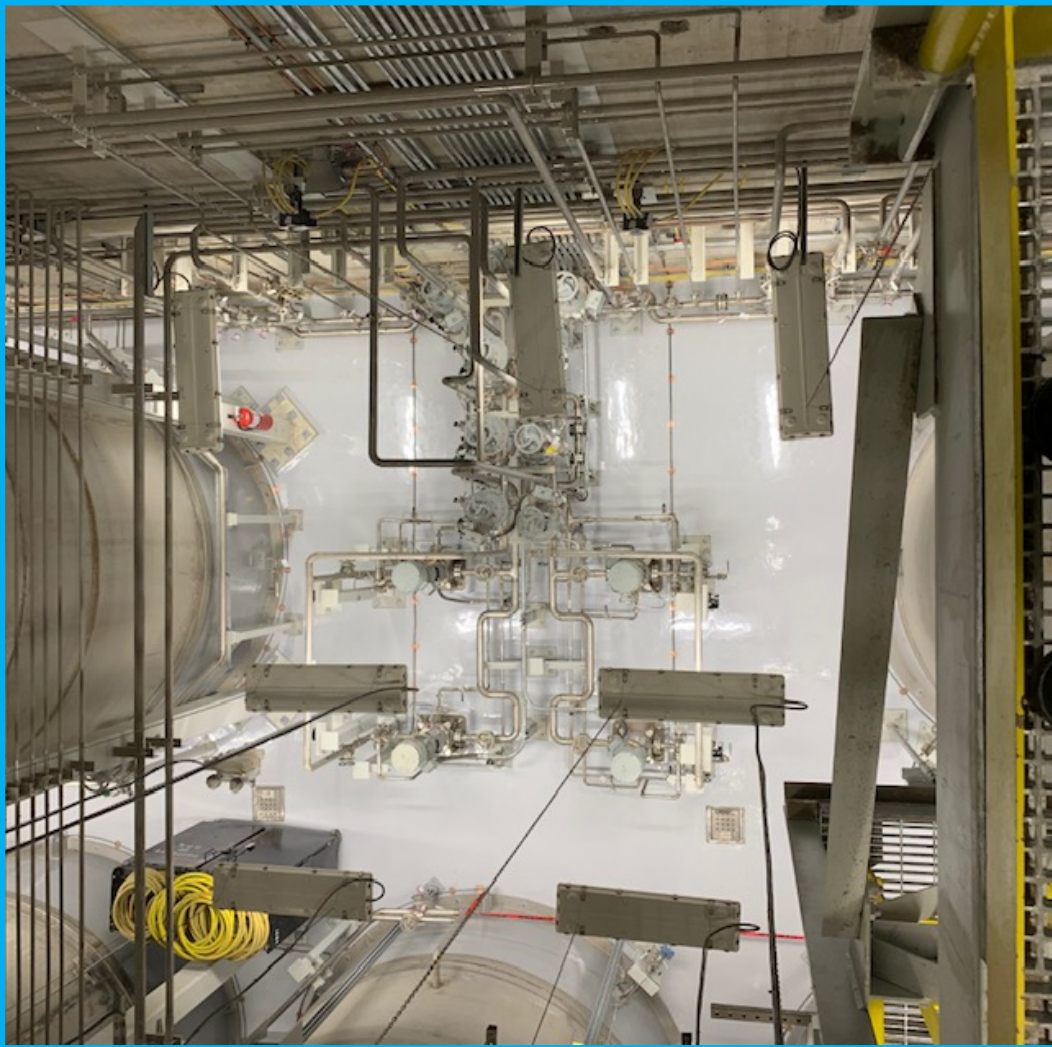
1 Darlington Energy Complex	10 Heavy Water Management Building
2 Operations Support Building	11 Re-tube Waste Processing Building
3 Re-tube and Feeder Replacement Island Support Annex	12 Third Emergency Power Generator
4 Refurbishment Project Office	13 Containment Filtered Venting System
5 Vehicle Screening Facility	14 Powerhouse Steam Venting System
6 Hot Road Interchange Improvements	15 Shield Tank Overpressure Protection
7 Site Electrical Power Distribution System Upgrades	16 Emergency Service Water
8 Auxiliary Heating Steam Facility	17 Re-tube Waste Storage Building
9 Water and Sewer	18 Darlington Waste Management Facility

● Safety Improvement Projects    
 ● Refurbishment Projects    
 ● Site Infrastructure Projects

## Critical Safety Upgrades

- Third Emergency Generator
- Containment Filtered Venting System
- Powerhouse Steam Venting System
- Shield Tank Overpressure Protection
- Emergency Service Water

# Heavy Water Storage Facility





# OPG COVID-19 Response

OPG's dedicated employees #poweredON - Ensured safe generation of electricity

## Response Priorities:

- safely operate of the station's operating units
- Defer Unit 3 refurbishment – keep Unit 3 running when needed most
- Safely return Unit 2 to service

## **COVID -19 Measures:**

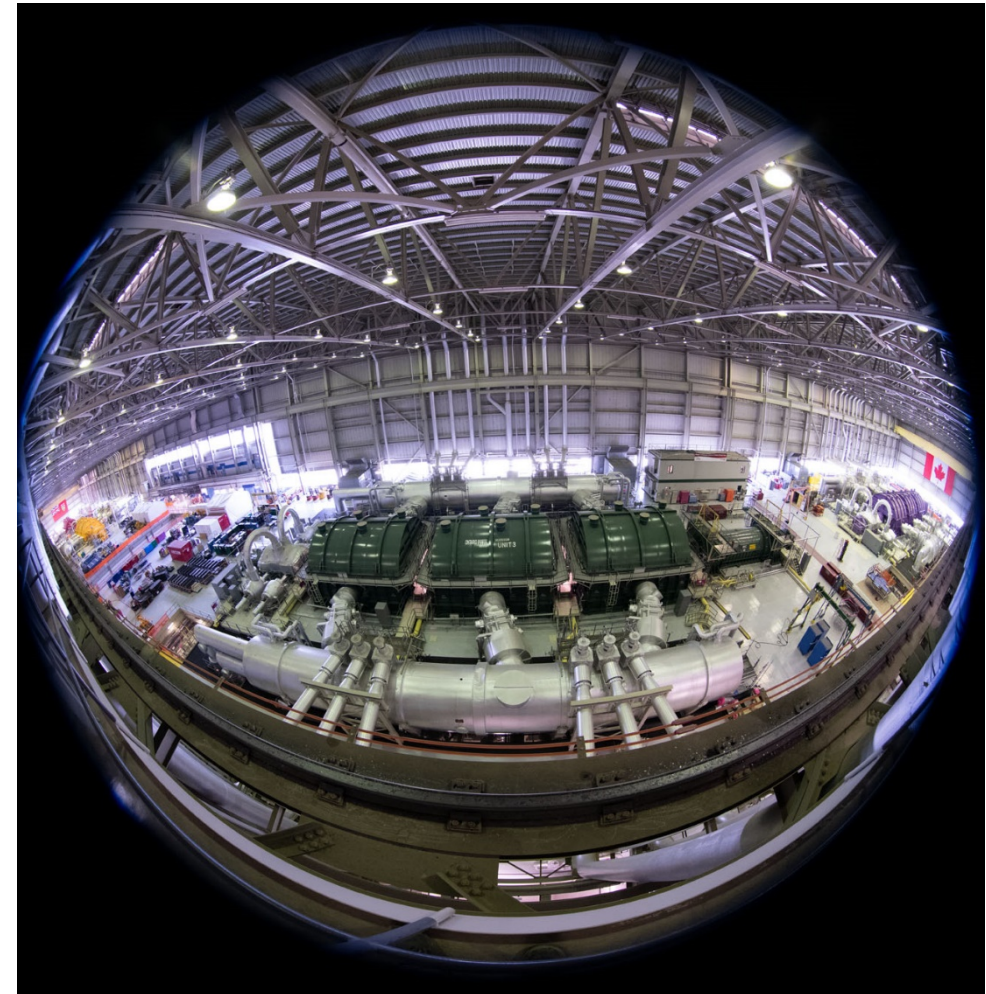
- Implemented a work from home strategy in March: staggered return to workplace underway
- Limiting staff in the station to support physical distancing guidelines
- Restriction of visitors to site
- Staggered and staged work schedules and lunch breaks to facilitate social distancing
- Increased use of Personal Protective Equipment (PPE) / Elevated cleaning practice
- Use of temperature screening in place



# Unit 3 – Second Unit to be Refurbished

- Deferral of start of Unit 3 ( from April) – COVID-19 impact
- No impact to 2026 four-unit commitment
- 40 month schedule – no impact to material procurement
- Unit 3 refurbishment to begin in earnest (Sept)
  - Breaker open July 31 for station outage
  - Safety our top priority
  - Effective COVID measures in place to protect staff
  - On-boarding of staff and field work underway

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- Ready to Build on our Success for Units 3, 1 and 4
  - One continuous project until 2026
  - 3500+ lessons learned
  - Additional innovative tooling and processes to be used





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