Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 26-H7.1A

Date: 2026-06-09

Presentation from Ontario Power Generation

Présentation d'Ontario Power Generation

In the matter of

À l'égard de

Ontario Power Generation

Application to refurbish Pickering Nuclear Generating Station and to renew licences for the Pickering Nuclear Generating Station and Waste Management Facility

Ontario Power Generation

Demande concernant la réfection de la centrale nucléaire de Pickering et le renouvellement de ses permis pour la centrale et l'installation de gestion des déchets

Commission Public Hearing
Part 1

Audience publique de la Commission
Partie 1

June 23, 2026

Le 23 juin 2026

Document ID: QQQVZZNDK725-166150894-12967

Canada

Electrifying life in one generation

CNSC Hearing Part 1

Steve Gregoris
Chief Nuclear Officer

Territory Acknowledgement

OPG's *Reconciliation Action Plan*

- **Leadership** accountability for tracking progress on the plans' commitments.
- Building positive and mutually beneficial **Relationships** based on respect.
- Increasing representation of Indigenous **People** at all levels across the company.
- Advancing **Economic Empowerment** for Indigenous communities and businesses.
- Being a trusted partner in **Environmental Stewardship.**

Who we are

We are the largest clean, low-carbon power generator in Ontario with a **diverse generating portfolio.**

18,236
megawatts

We have a proven track record of safely and successfully executing a refurbishment project **on time and on budget.**

Pickering Site

Power Reactor Operating Licence Renewal

Request to renew the Pickering NGS Power Reactor Operating Licence and the Waste Facility Operating Licence for a 10-year licence term.

January 1, 2027 to December 31, 2036

Pickering NGS has operated safely and reliably for decades and is recognized as a **top-performing nuclear station** in the world.

PWMF has safely managed nuclear waste since 1996 (30 years) when the facility began operation.

CANDU reactors have a strong track record of reliability and are a **robust technology with multiple safety features.**

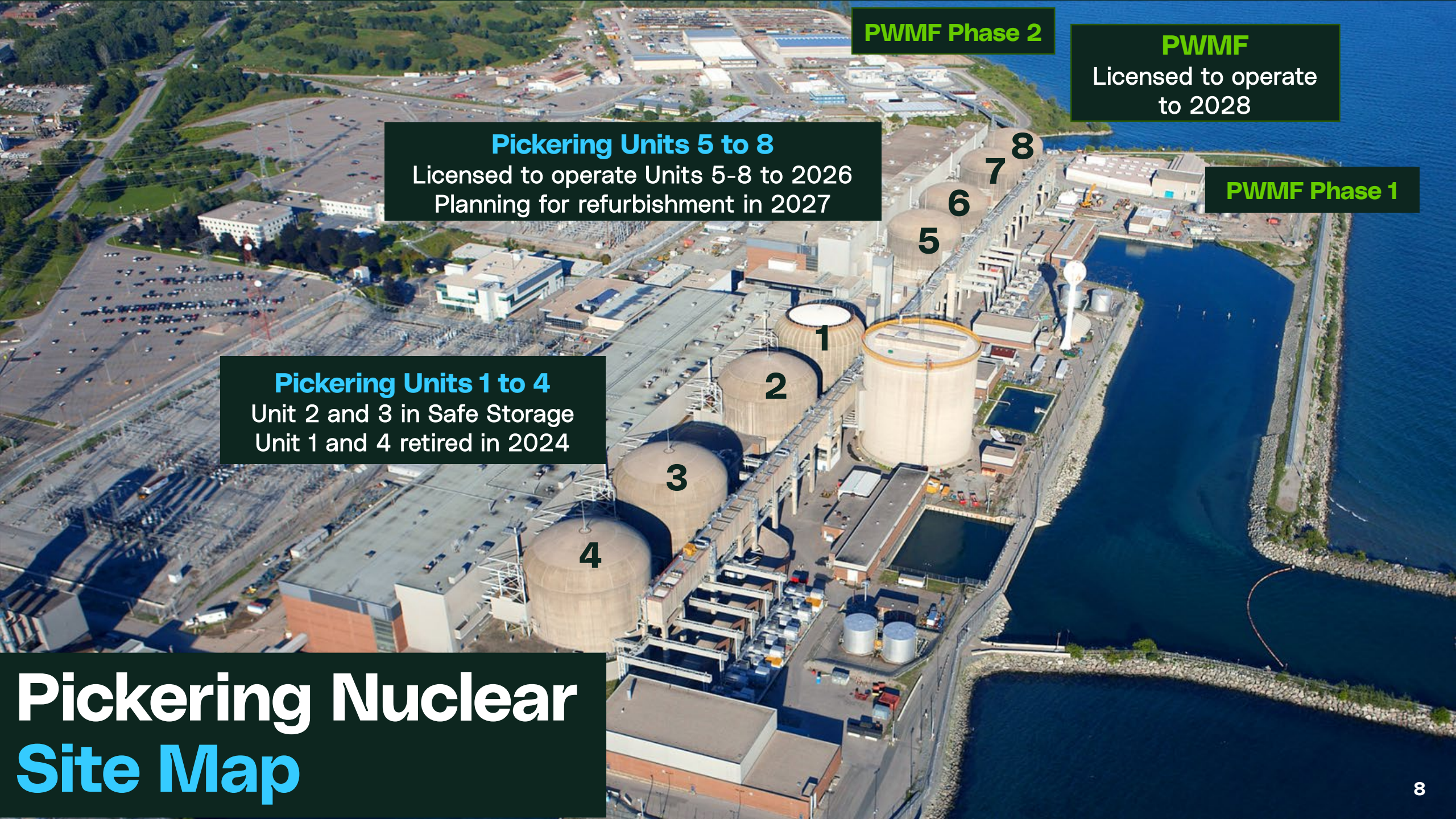
The **Pickering Refurbishment Project** will enable continued safe and reliable operation for 30+ years.

OPG will progress the **decommissioning** of Pickering NGS Units 1 to 4 during the proposed licence period.

Pickering Nuclear

- Eight-unit CANDU station with four units in operation - **provides 2,100 megawatts.**
- Operating **safely and reliably** for over 50 years.
- Producing about **10% of Ontario's electricity.**
- Provides 20% of the North American **Cobalt-60** supply and 10% of the world's supply.
- **Electricity Canada President's Award of Excellence** for Employee Safety.
- **Gold Level Certification** from the Wildlife Habitat Council (WHC).

OPG



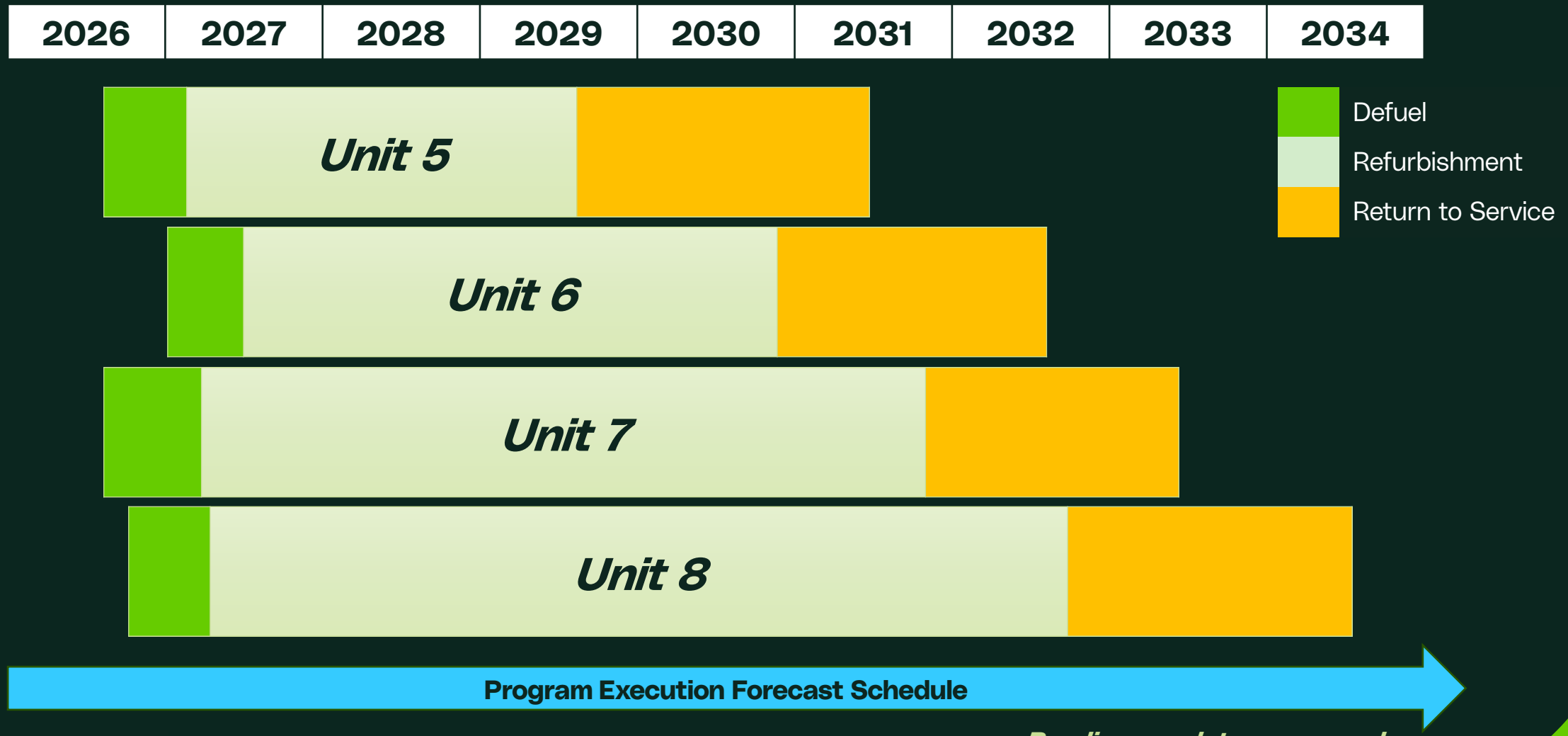
Pickering Nuclear
Site Map

Pickering
Refurbishment Project

Pickering Units 5-8
Refurbishment Project

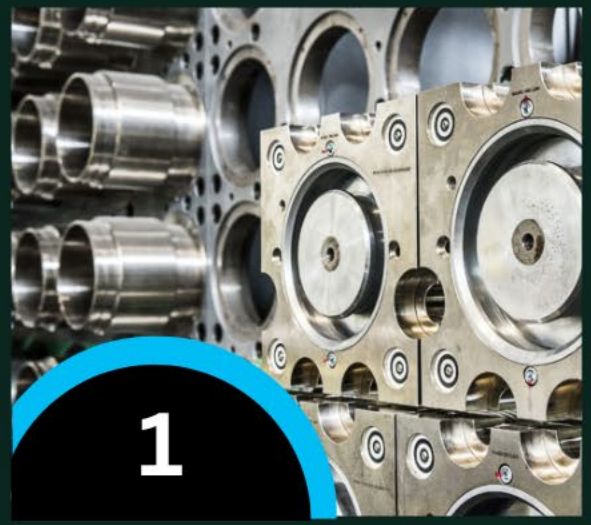
- **Canada's largest** clean energy and infrastructure project.
- Significantly grow Ontario's GDP by $38.2 billion (2024 dollars) over the project's lifespan including **$17 billion during the refurbishment phase.**
- **90% spend within Canada.**
- Creating thousands of highly-skilled jobs.
- Power **~2 million homes and businesses** across Ontario safely and reliably.
- Securing **30+ years of clean, reliable power.**

Pickering Refurbishment Schedule



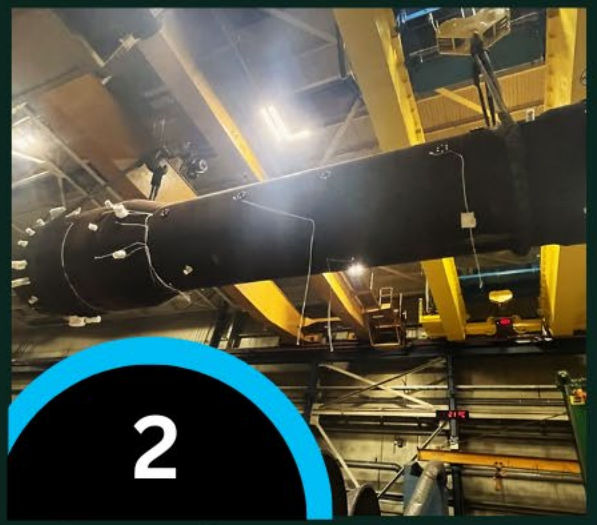
Pending regulatory approvals

Refurbishment Project Bundles



1

Retube & Feeder Replacement



2

Boiler Replacement

3

Turbine Generator

4

Deep Water Intake

5

Balance of Plant

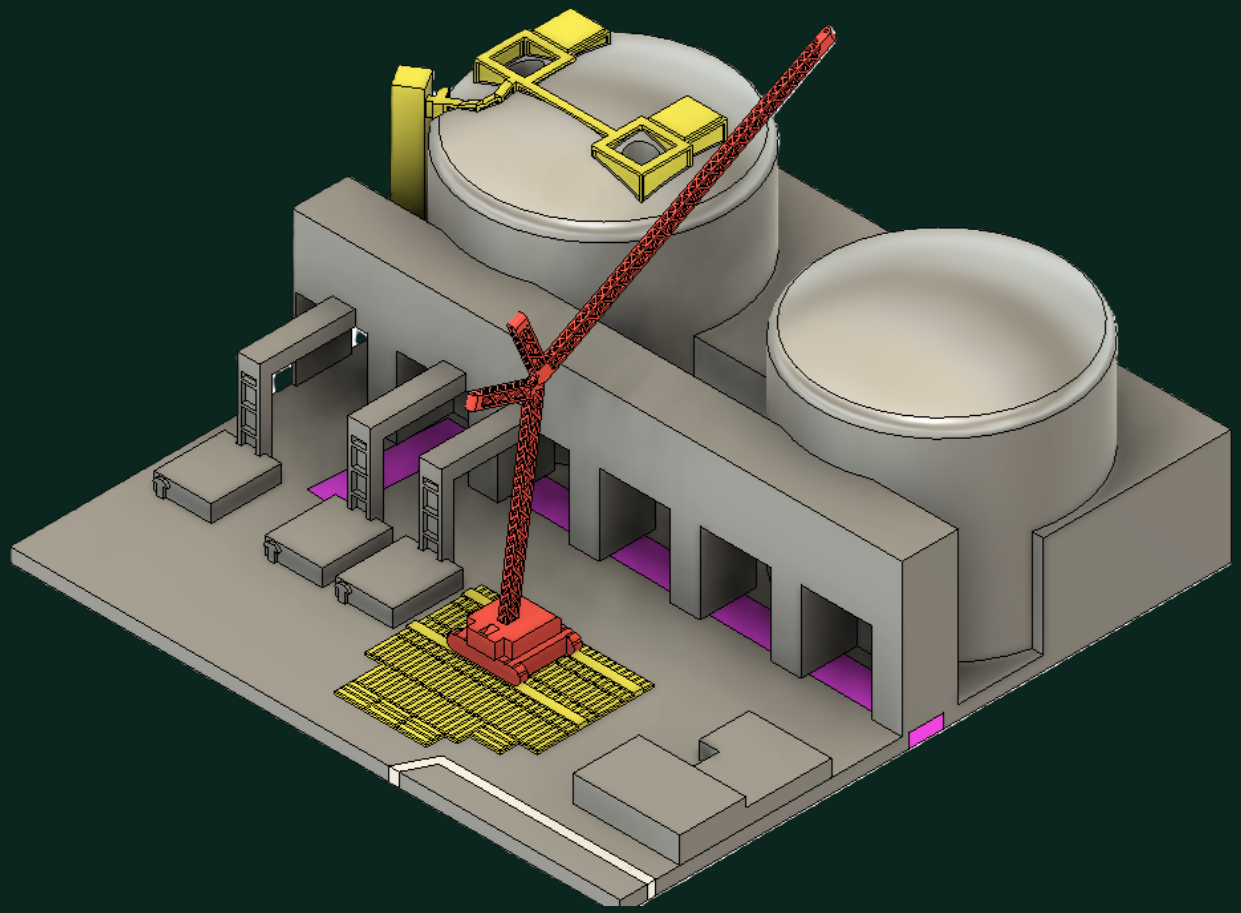
6

Facilities & Infrastructure

1

Retube and Feeder Replacement

- Removal and replacement of fuel channel components, including pressure tubes and calandria tubes, end fittings, feeders and annulus spacers.
- Replacement of 760 feeder tubes and 380 fuel channel assemblies in each reactor.



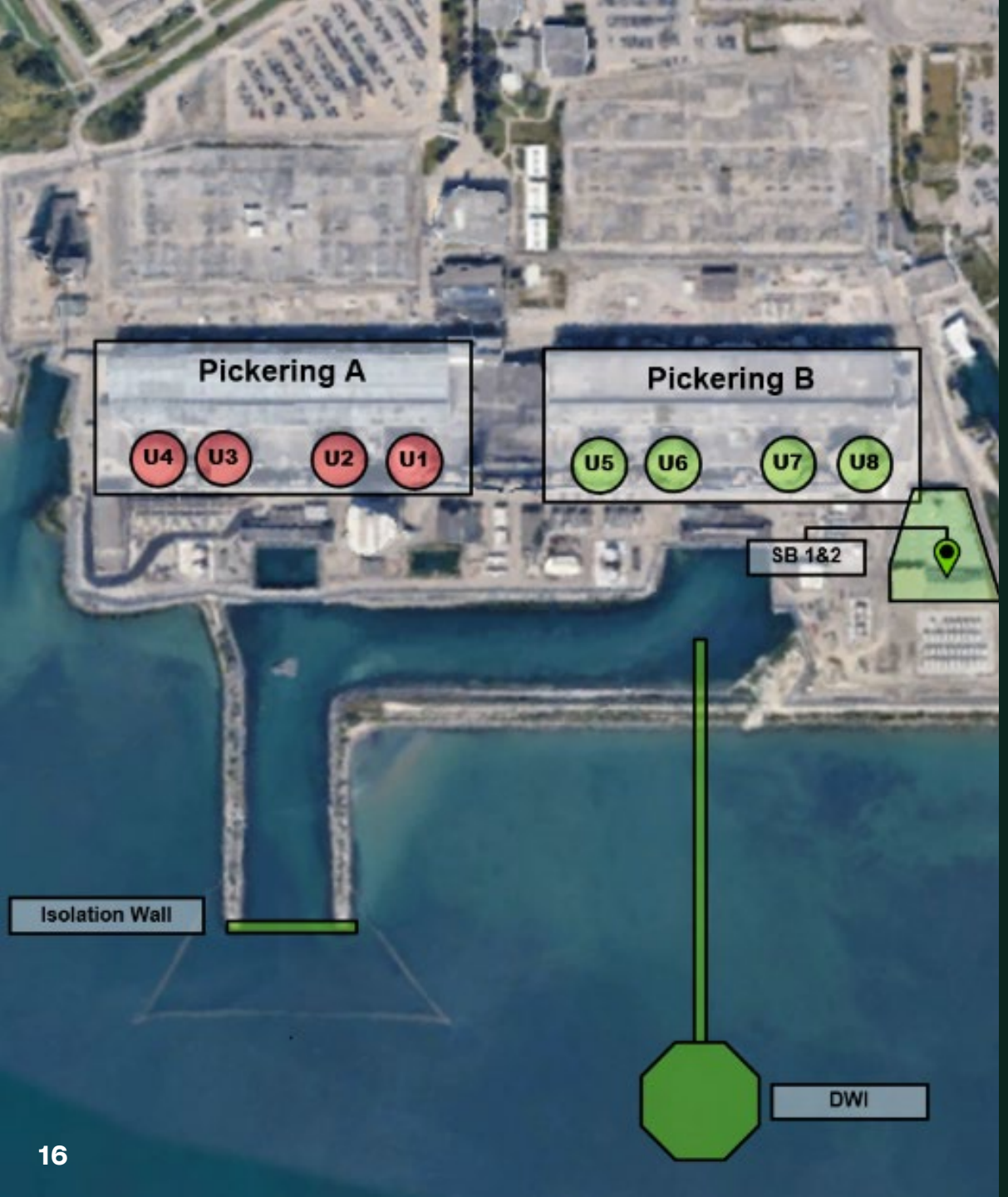
Boiler Replacement

2

- Replacement of all 12 boilers in each unit, for a total of 48 boilers.
- The boilers will be lifted through an engineered access point at the top of each reactor building.
- Existing boilers will be removed and new boilers installed using a crane.
- After the replacement of the boilers, the engineered access points will be restored.

3 Turbine Generator

- Refurbishment of Turbine Generator systems including the replacement of high-pressure turbine spindles, turbine control system upgrades, rotor and stator rewinds.
- This investment will increase unit output by about 30 megawatts per unit, securing approximately 2,200 megawatts for the station.



Deep Water Intake

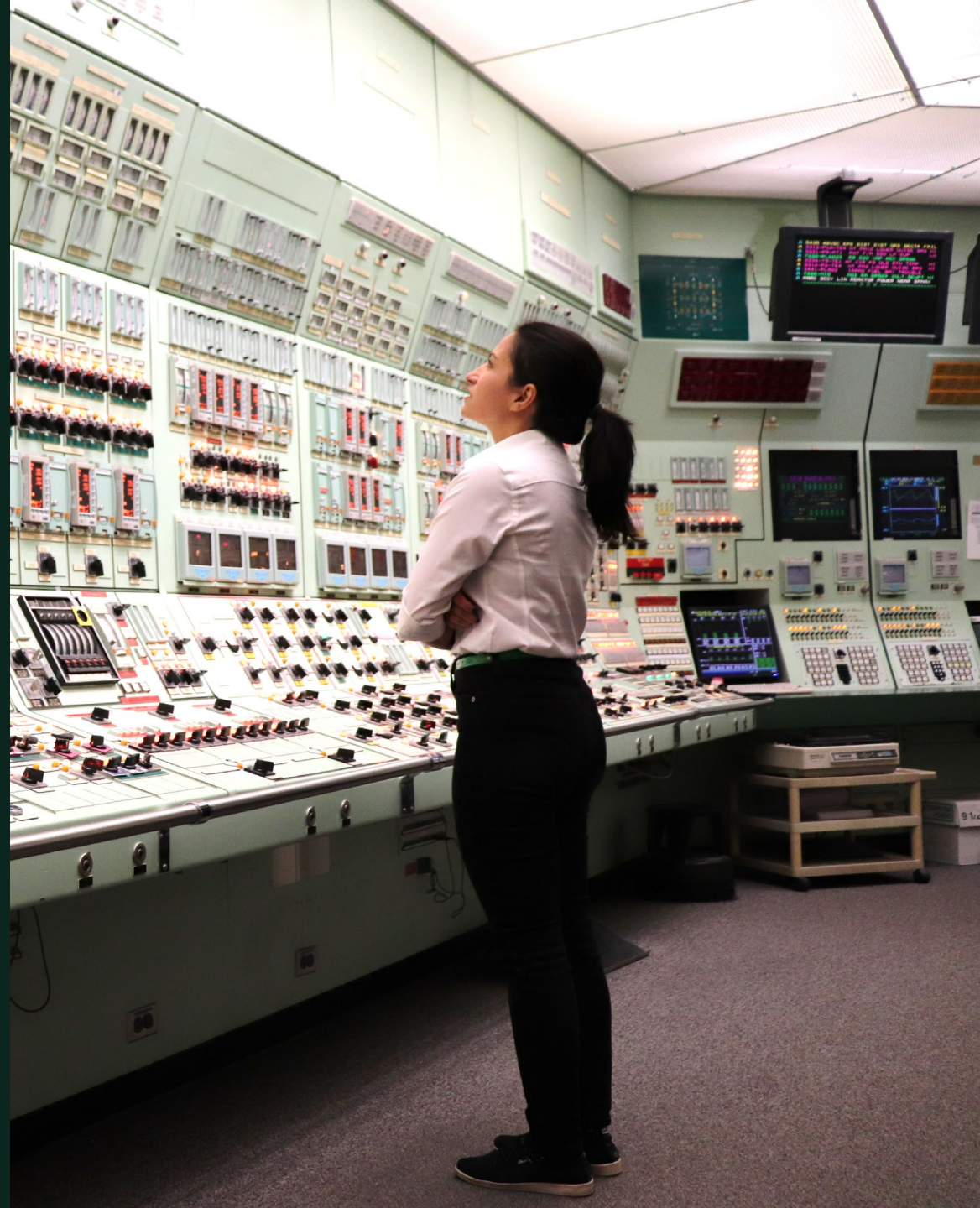
4

- DWI is OPG's preferred option; alternative is to maintain surface intake with improvements.
- Construction of a new intake structure. Industry-proven, safe and reliable cooling water intake method.
- Provide lower temperature cooling water improving station efficiency.
- Engagement with Indigenous Nations is ongoing to understand and address interests and concerns

5 Balance of Plant

System upgrades intended to enhance both component and overall system safety and reliability, including:

- Modification, replacement, and/or upgrades to systems, structures, and components.
- Conventional, electrical, and nuclear system modifications.
- Additional modifications to auxiliary systems across the station.



Facilities and Infrastructure

6

Infrastructure-related work occurring onsite in preparation for refurbishment:

- Construction of new buildings to accommodate growing needs and improve functionality.
- Upgrade existing infrastructure.
- Optimize space allocation for both personnel and material.

Periodic Safety Review 3

✓ **PSR3 Basis Document Complete** – March 5, 2024

✓ **Safety Factor Reports Complete** – May 19, 2025

Global Assessment Report - Expected Q3 2026

Integrated Implementation Plan - Expected Q3 2027

Summaries of the **Global Assessment Report** and **Integrated Implementation Plan** will be posted on **opg.com.**

Global Assessment

The Global Assessment provides an overall review of station safety to ensure objectives are met.

The Global Assessment Report concluded:

- Strong, demonstrated safety performance.
- Robust defense in depth with minimal residual risk.
- Global Issues are understood, prioritized, and managed.

The results of the Global Assessment Report will form the basis for OPG's Integrated Implementation Plan, identifying safety enhancements over the proposed licence period.

Safety Improvement Opportunities

Core Cooling

- Diesel firewater make-up
- Emergency water supply system
- Heat sink diversity - alternate water supply to the moderator

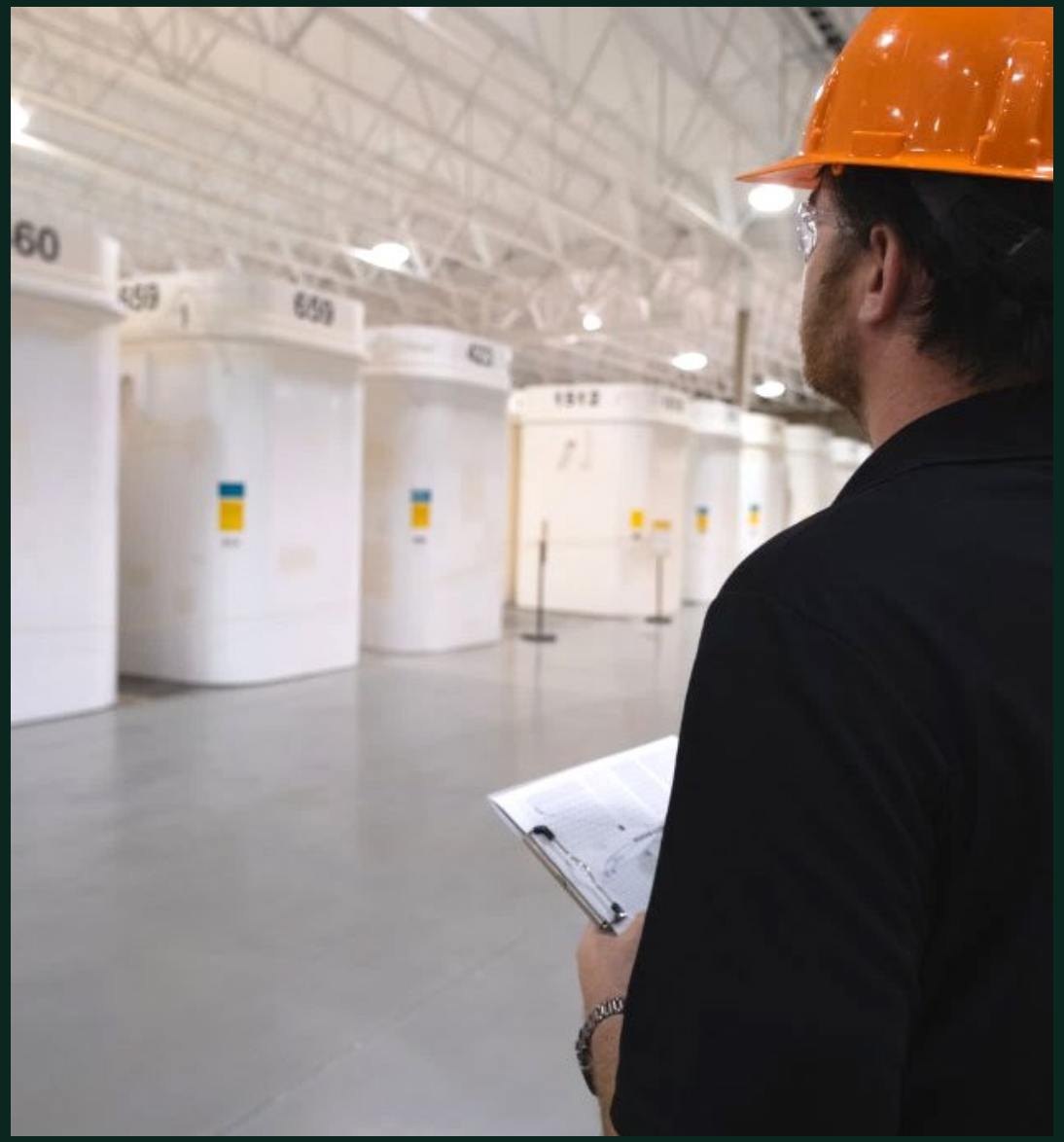
Containment Enhancement

- Containment filtered venting system
- Calandria vault overpressure protection

External Hazard Protection

- High wind protection

Pickering NGS
Waste and Decommissioning



Pickering Waste Management Facility

- **Safely process and store** used fuel generated from the Pickering NGS in Dry Storage Containers (DSCs).
- Safely managed for over **30+ years.**
- **Interim onsite storage** of DSCs supported by a new storage building with a planned design capacity of up to 1,410 DSCs.
- **Ongoing processing and interim storage** of used fuel and reactor components from PNGS.
- Operation of new **Pickering Component Storage Structure building.**

PNGS Units 1-4
Decommissioning

- PNGS Units 2 and 3 have been in **Storage with Surveillance (SWS)** since 2010.
- OPG will complete stabilization activities on Units 1 and 4 and **progress to SWS.**
- **OPG will proceed with select dismantling of non-nuclear components and outbuildings** per the CNSC staff-accepted Detailed Decommissioning Plans (DDP).

Safety and Control Areas

Safety Analysis

- Includes **comprehensive safety assessments** performed at regular cycles demonstrating regulatory and design requirements are met.
- OPG **collaborates with industry** and applies lessons learned.
- Safety Analysis is **compliant with CNSC** regulatory documents.
- The Pickering **Probabilistic Safety Assessment** is updated every five years.

Operating Performance

- **Proven track record** of safe and reliable operating performance managed through OPG's effective operations program.
- **Maintenance activities are prioritized** based on operational and safety requirements.
- Recognized with **Electricity Canada President's Award of Excellence for Employee Safety** – Generation (for seven consecutive years).

Conventional Health & Safety

- **Nothing is more important** than the safety of our workers, the environment and the communities we serve.
- Pickering NGS continues to **demonstrate excellent safety performance** across its operations.
- **PWMF continues to operate safely** without a Lost Time Accident (30+ years).

Radiation Protection

- Radiation Protection program meets all **regulatory requirements**.
- Protects the **health and safety** of persons and the environment.
- **Drives continuous improvement** to align with industry best practices and latest innovations.
- Electricity Canada's Centre of Excellence Award and the **Canadian Nuclear Society's Innovation Achievement Award** issued to OPG.

Environmental Protection

- **Mature and robust environmental protection programs** ensuring monitoring and evaluation of environmental parameters.
- The **Environmental Risk Assessment** concluded the site operates in a manner that is protective of the health of the public and environment.
- The **Predictive Environmental Risk Assessment** found most project activities are not predicted to result in adverse effects. OPG will implement mitigation measures and environmental monitoring.
- **PNGS and PWMF Climate Change Resilience Assessments** confirmed both facilities can operate safely under future climate conditions.

Emergency Management & Fire Protection

- Pickering NGS and PWMF have **effective nuclear, conventional and fire emergency** preparedness and response programs.
- Our station and facilities **meet all standards and regulatory requirements** to ensure our communities are always safe.
- **OPG applies the four Pillars of Emergency Management:** Prevention, Mitigation, Preparedness, Response and Recovery Efforts.

Community Engagement

OPG continuously engages with the local community through its comprehensive public outreach and communications program.

- Public Information Centres
- Educational programs and community events
- Committees and councils
- Community partnerships

Conclusions

Pickering NGS and PWMF have a **proven history** of safe and reliable performance.

The **Pickering Refurbishment Project** enables continued safe operation through the next 30+ years.

OPG continues to be qualified to carry-on our licensed activities and will:

- make adequate provisions to protect the health, safety and security of persons and the environment;
- maintain national security and measures required to implement international obligations.

Pickering NGS and PWMF will continue to operate **safely and reliably**, enabling OPG to meet the growing energy needs expected in the province.