

The Nuclear Future

A perspective from Canada



Sean Granville

Retired COO and CNO
Ontario Power Generation



OPG Assets



2

6,612 MW

Nuclear
Stations



2

6,430 MW

Leased
Nuclear
Stations



2

2,305 MW

Thermal
Stations



1

44MW

Solar
Facility



66

7,478 MW

Canada
Hydroelectric
Stations



86

640 MW

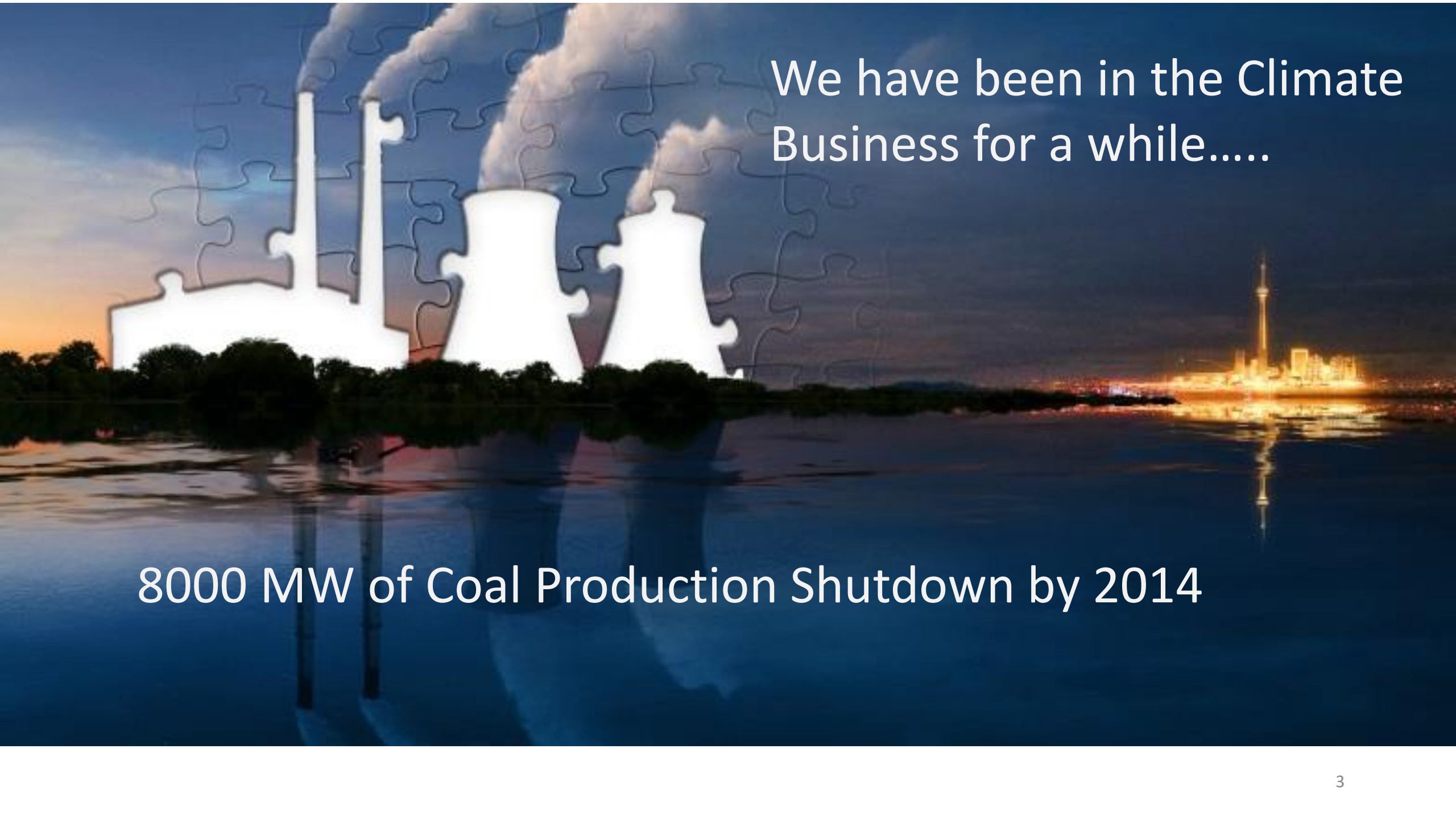
US Eagle Creek
Renewable Energy
Hydro Stations



4

2,715 MW

Atura Power
Gas-Fired
Stations

The image features a puzzle overlay on a background scene. The puzzle pieces form a white silhouette of a power plant with two tall smokestacks and two large cooling towers, set against a dark blue sky with some clouds. In the background, a city skyline is visible at night, with lights reflecting on a body of water. The overall tone is somber and industrial.

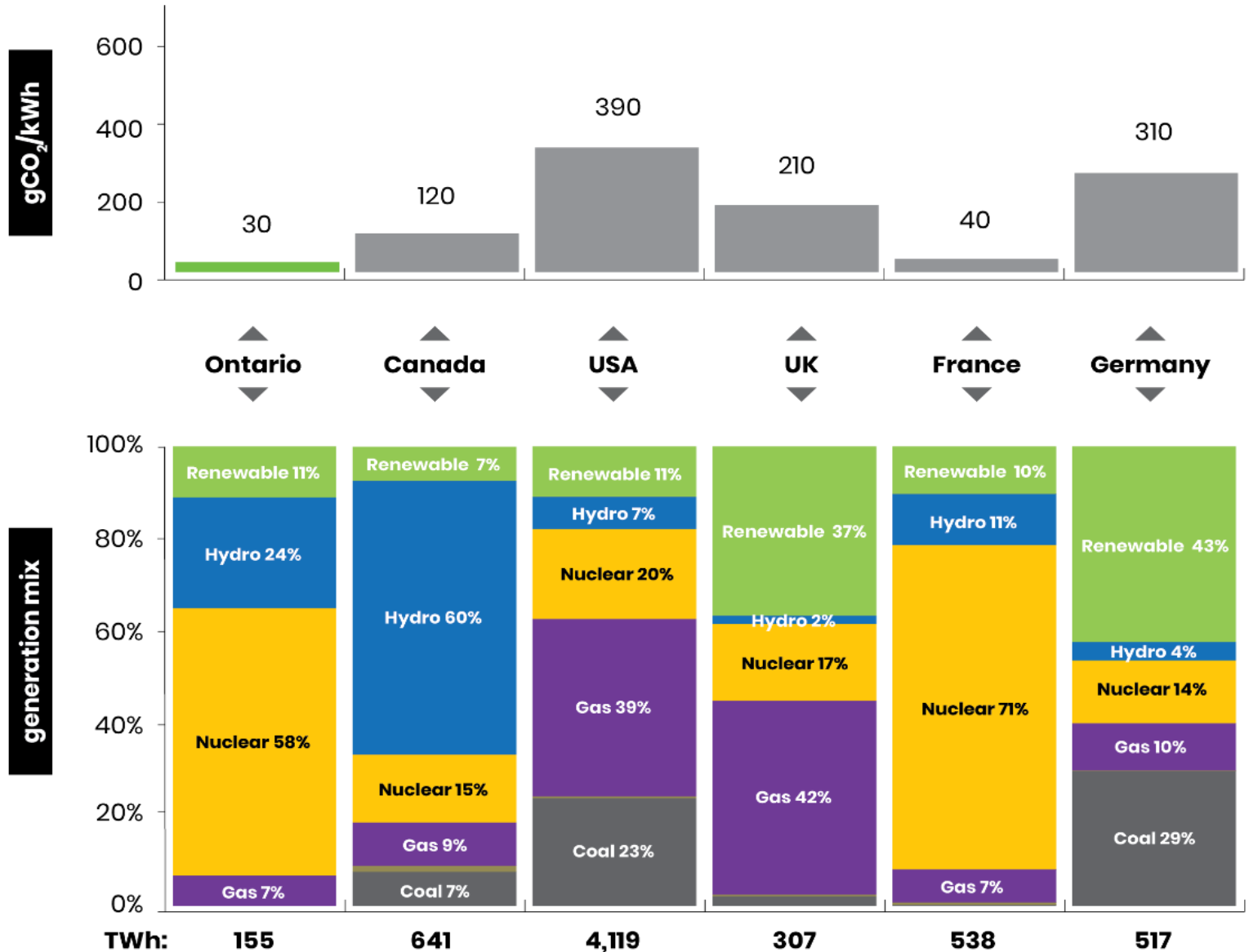
We have been in the Climate
Business for a while.....

8000 MW of Coal Production Shutdown by 2014

Setting a global example

Globally, Ontario's electricity sector ranks among the best from a carbon intensity perspective when compared to other progressive jurisdictions.

CO₂ emissions intensity – Ontario vs. world

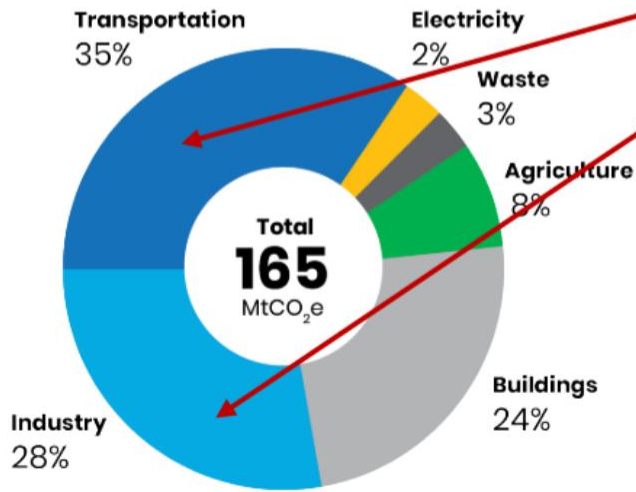


Climate Change Plan

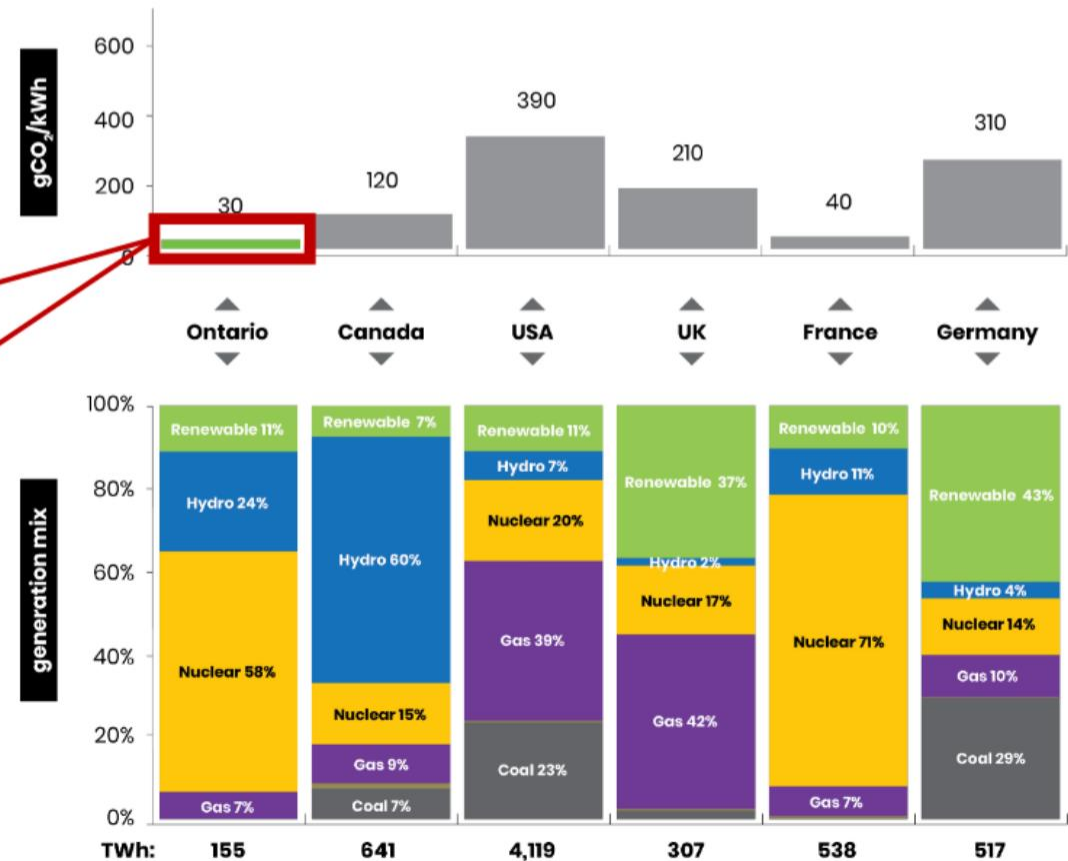
Electrification initiatives are an enabler for OPG's Climate Change targets

OPG is committed to being a catalyst for a net-zero economy by 2050. Electrifying the heavy-emitting sectors, such as transportation and industry, with Ontario's low-carbon electricity is central to that effort.

2018 Ontario CO₂ emissions by sector

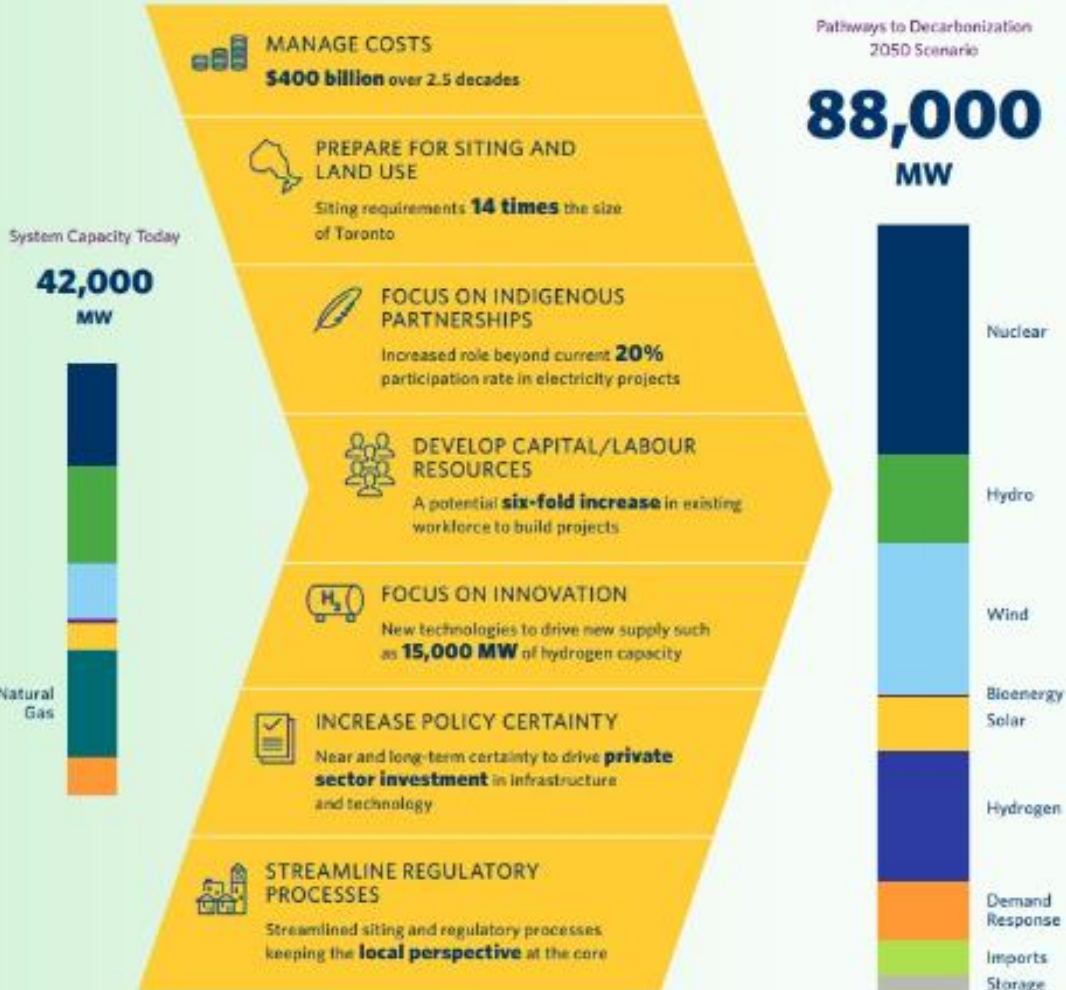


CO₂ emissions intensity – Ontario vs. world

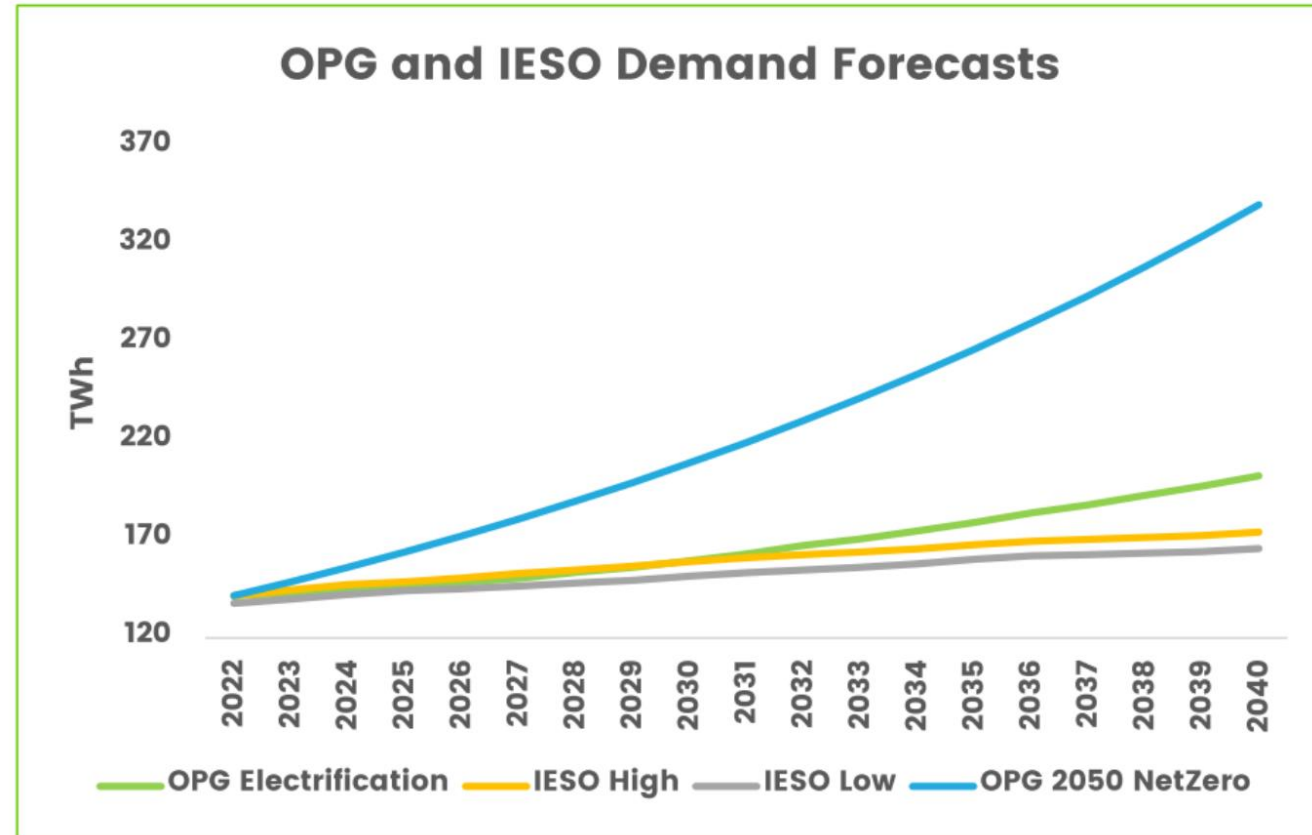


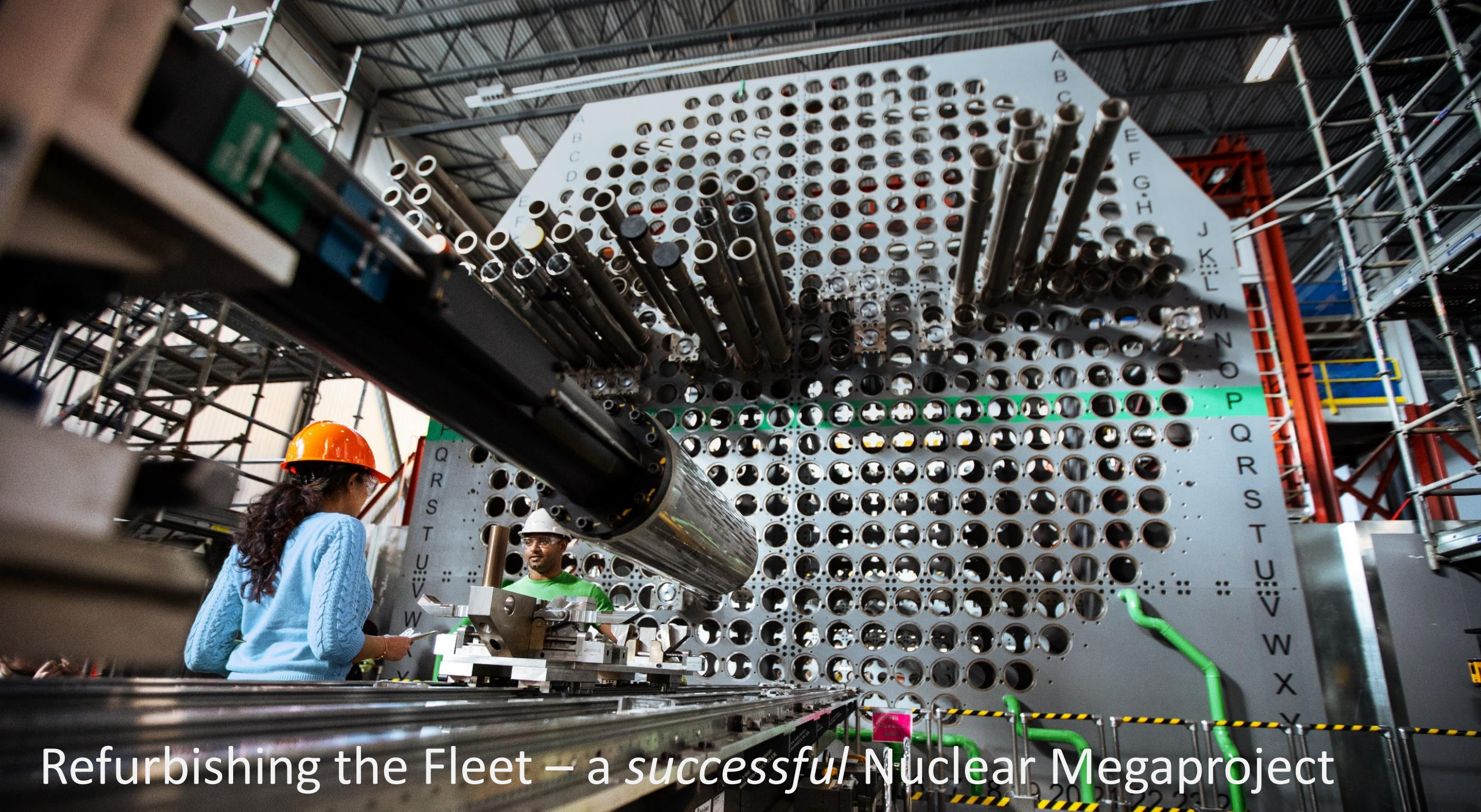
Decarbonizing Ontario's Electricity System

Bridging the work of today with the needs of a decarbonized world will be challenging and complex. Ontario's electricity system is well positioned to make the transition, but will need to address a series of challenges in order to achieve decarbonization.



One thing is for sure, demand is going up





Refurbishing the Fleet – a *successful* Nuclear Megaproject



Excellent Operations + Excellent Project Execution = Opportunities

A scenic view of a paved road winding through a forested landscape under a cloudy sky. The road is the central focus, leading the eye into the distance. The sky is filled with soft, white clouds, and the overall lighting suggests a bright but slightly overcast day. The forest consists of tall, dark evergreen trees lining both sides of the road.

Canadian SMR Roadmap 2018

Aligning

- All levels of Government
- Industry
- Regulators
- Stakeholders

Darlington New Nuclear Project



HITACHI

BWRX-300





- Joint Venture
- Proposing to construct and operate a Micro Modular Reactor™ at the Chalk River Laboratories site
- Expected first power by 2026



Cross-section of the Micro Modular Reactor™
For more information, please visit globalfirstpower.com



Over the course of Pickering's life, it has saved just over 1 billion tonnes of greenhouse gas emissions for Ontario.

Scheduled to shut down by 2025, the demand for clean power has OPG assessing the business case to refurbish 4 units at Pickering



There is no path to Net Zero
without Nuclear