

# Darlington New Nuclear Project Project Update

Presentation to:  
Darlington & Pickering  
Community Advisory Councils

**Robin Manley**  
Vice President  
New Nuclear Development

ONTARIO **POWER**  
GENERATION

# Agenda

- Land Acknowledgement
- Key Project milestones
- Our Vision
- SMRs & Technology Assessment
- Community Engagement
- Next Steps
- Question and Answer



# Land Acknowledgement

Ontario Power Generation respectfully acknowledges that the lands on which the Darlington New Nuclear Project is situated are within the Gunshot Treaty.

Further, OPG acknowledges that DNNP and other OPG operations are located in the treaty and traditional territory of the Michi Saagiig and Chippewa Nations, collectively known as the Williams Treaties First Nations.

Ontario Power Generation respectfully acknowledges that the Williams Treaties First Nations are the stewards and caretakers of these lands and that they continue to maintain this responsibility to ensure their health and integrity for generations to come.



# DNNP Key Milestones

- 2012 – OPG received a 10-year Site Preparation Licence from the CNSC.
  - First in a series of licences required for a nuclear facility.
- Licence granted following acceptance of the environmental assessment (EA) by a joint review panel of the CNSC and Canadian Environmental Assessment Agency.
  - 17-day public hearing for EA included extensive Indigenous and public participation.
- Project deferred by Province in 2013; OPG requested to maintain licence.
- June 2020 – OPG Submitted application to renew the Site Preparation Licence.
- November 2020 – OPG announced resumption of planning activities for DNNP, to host a Small Modular Reactor (SMR.)

# PRSL Renewal & Site Preparation

- June 2021- CNSC hearing to consider Site Preparation Licence Renewal:
  - Two-day hearing held virtually.
  - More than 50 positive interventions.
- October 2021 – OPG received PRSL Licence renewal from the CNSC.
- The Licence allows OPG to carry out activities to prepare the site for future construction.
- 1<sup>st</sup> phase of Site Preparation (early works) – Approx. Spring 2022
- 2<sup>nd</sup> phase – Approx. beginning of 2023
- Work includes:
  - Road Works
  - Stormwater
  - Parking Lot & Laydown
  - Construction Power
  - Construction Trailers
  - Water & Fire Line
  - IT Duct Bank

## Vision for New Nuclear at Darlington

- Envision additional nuclear capacity with an aspirational target of towards the end of the decade (2028.)
- Will provide low-carbon, reliable energy to meet Ontario's energy demand, support Canada's climate change goals.
- Currently evaluating options that will support a sound business case:
  - Advanced safety features;
  - Approximately 300 MW output;
  - Meets targeted timeline;
  - Supports Canadian nuclear industry (jobs, supply chain);
  - Advances pan-Canadian nuclear goals (future deployment to provinces, reducing fossil fuel use);
  - Within bounding envelope of EA.

# What are SMRs?

SMRs are a type of advanced nuclear reactor, the next evolution of nuclear energy producing safe, reliable and clean energy.

- Designed to be smaller in physical size and output than a traditional reactor.
- Typically range from community scale (less than 1 megawatt output) to utility scale (~300 MW.)
- Based on technology that has existed around the world for 50+ years:
  - Use fission to create heat energy, which can then be used to generate electricity or for other heat applications.
  - Heat can be used for district heating, water desalination, hydrogen production, process steam, etc.
- Enhanced passive safety features.
- Lower capital cost than traditional reactors and shorter construction time.
- More modular in construction.
- Varying degrees of load following (match output to demand.)



# SMRs: Key to OPG's Climate Change Plan

- OPG has shut down 9,000 megawatts of coal-fired generation over the past two decades
- *What's next? What can we do to make tomorrow better?*
- OPG's Climate Change Plan: our promise to be a catalyst for efficient, economy-wide decarbonization and economic renewal, while protecting the environment

**A net-zero  
carbon  
company by  
2040**

**A net-zero  
carbon  
economy by  
2050**

## **Net-Zero:**

Achieving an overall balance between direct carbon emissions produced and carbon emissions taken out of the atmosphere.

## **Our key climate change initiatives**



**Darlington Refurbishment >**



**Small modular reactors >**



**Electrification and electric  
vehicles >**

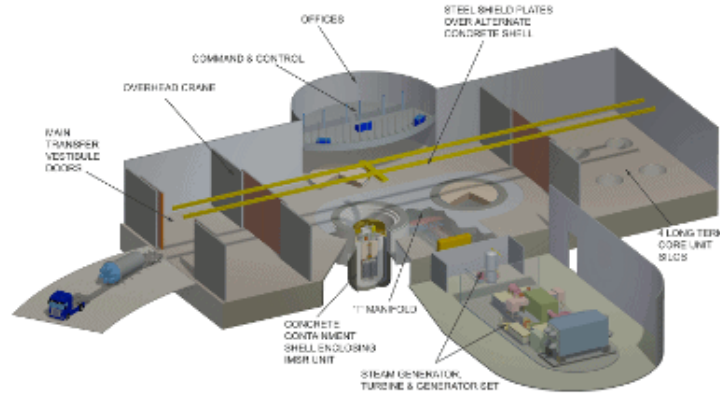


# Technologies under consideration

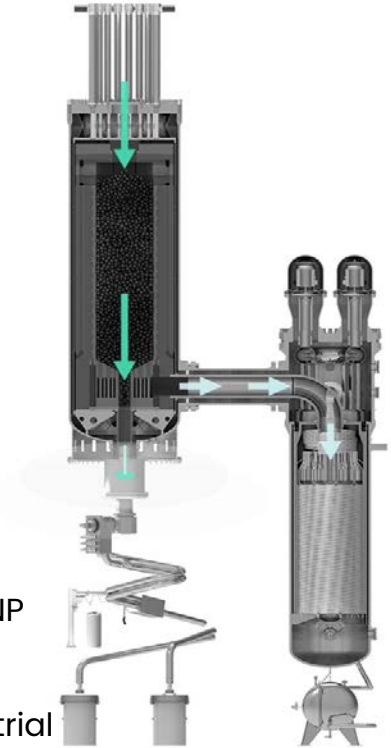
- **GE Hitachi BWRX-300**
- 300 MWe light water, boiling water reactor
- Relatively “conventional” compared to the others.
- Based on 9 previous generations.



- **X-energy Xe-100**
- 80 MWe high temperature gas reactor
- Build as a ‘four-pack’ 320 MWe power plant for DNNP
- Design has medium previous experience
- High temperature secondary side for industrial applications



- **Terrestrial Energy IMSR**
- Integrated Molten Salt Reactor; 195 MWe
- Combine for a 2-unit plant 390MWe at DNNP
- Design has least pedigree from previous reactors
- High temperature secondary side for industrial applications



# Our Commitment to Engagement

- OPG takes pride in the relationships we have built with our local communities and key stakeholders.
- **OPG outreach for this project includes:**
  - Proactively contacting stakeholders/groups/individuals
  - Targeted meetings and briefings with stakeholder groups
  - Tours of the DNNP Lands with key stakeholders
  - Workshops with special interest groups
  - Proactively engaging with local media
  - Information posted to OPG's public website & printed media



## Our Commitment to Indigenous Engagement

- OPG is committed to working with Indigenous communities to develop positive relationships and generate shared social and economic benefits.

### Engagement with indigenous communities includes:

- Environmental consultation
- Employment and training opportunities
- Business and procurement opportunities
- DNNP site tours and regular meetings with the project team





# Minister of Energy DNNP Lands Tour

- Darlington welcomed Minister of Energy, Todd Smith, and other ministry officials on Friday, Aug. 13, for a tour of the Darlington New Nuclear Project (DNNP) lands.
- What stood out to me on the tour is the pride and care everyone here at Darlington takes in operating and refurbishing the station, and the outstanding teamwork that made it possible to keep the power on for Ontario during this pandemic.”
  - **Minister of Energy, Todd Smith**



# Next Steps

- **November 2021** – OPG to recommend a technology to the Board of Directors.
- **December 2021** – Shareholder (Government of Ontario) decision on technology selection & project expected.
- OPG will then work with a developer to further advance the design of the technology with a goal to build an SMR that provides safe, low-carbon, low-cost power for the people of Ontario.
- In parallel, OPG is preparing to submit an application for a Licence to Construct to the CNSC by the end of 2022.





[www.opg.com/newnuclear](http://www.opg.com/newnuclear)