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Supplementary Information

Presentation from
Ontario Power Generation Inc.

On
Overview

In the Matter of

Ontario Power Generation Inc.

Proposed Environmental Impact Statement for OPG's Deep Geological Repository (DGR) Project for Low and Intermediate Level Waste

Joint Review Panel

September 16 to October 12, 2013

Renseignements supplémentaires

Présentation d'
Ontario Power Generation Inc.

Sur
Aperçu

À l'égard de

Ontario Power Generation Inc.

Étude proposée pour l'énoncé des incidences environnementales pour l'Installation de stockage de déchets radioactifs à faible et moyenne activité dans des couches géologiques profondes

Commission d'examen conjoint

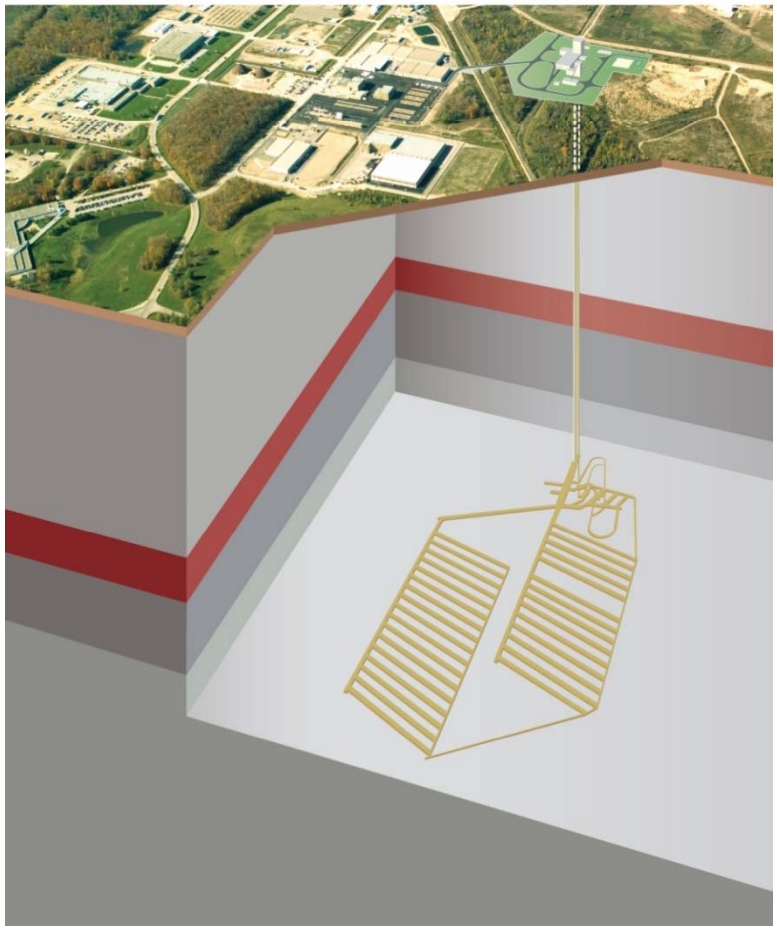
Du 16 septembre au 12 octobre 2013

Canada

OPG's L&ILW DGR Joint Review Panel Hearing

OPG Overview

September 16, 2013



ONTARIO POWER GENERATION

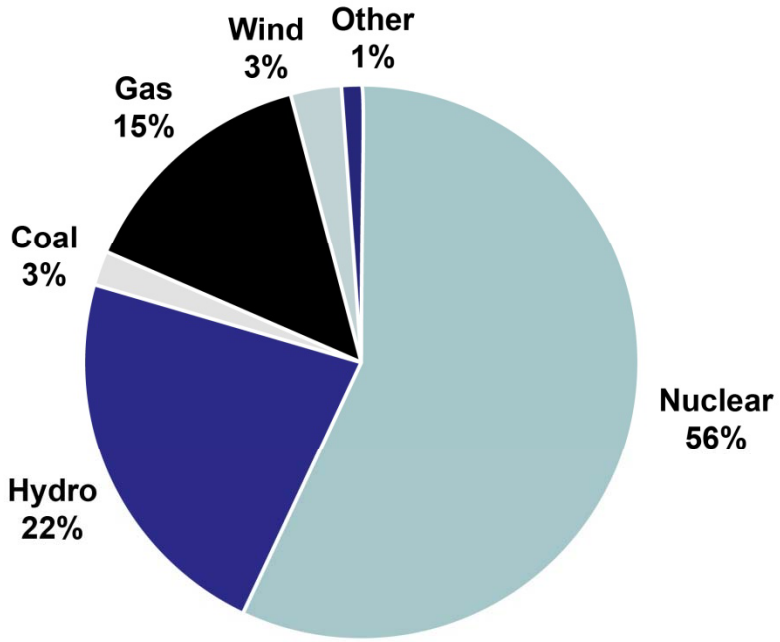
Presentation Outline

- Introductions to:
  - OPG
  - Nuclear Waste
  - L&ILW DGR Project

- Overview of L&ILW DGR Environmental Assessment:
  - Process
  - Results
  - Conclusions

OPG and Role of Nuclear Power

- OPG is owned by the Province of Ontario
- OPG supplies 60% of Ontario's electricity
- Overall nuclear power currently supplies more than half of the electricity consumed by Ontarians
- Nuclear generation has safely provided Ontarians with reliable, low-cost, low-emission power
- OPG has safely managed nuclear waste for over 40 years



Ontario Electricity Generation 2012

Categories of Radioactive Waste

- Low-Level Waste (LLW)
  - Non-processible low-activity waste
  - Compacted low-activity waste
  - Incinerator ash
  - Heat exchangers, etc.
- Intermediate-Level Waste (ILW)
  - High-activity ion-exchange resins
  - Reactor core components
  - Reactor water system filters, etc.
- Used Nuclear Fuel
  - ➢ Not in OPG's L&ILW DGR

Handling of LLW at WWMF

Underground Storage of ILW at WWMF

OPG's Western Waste Management Facility

WWMF provides safe interim storage for low and intermediate level waste from OPG-owned or operated reactors.

5

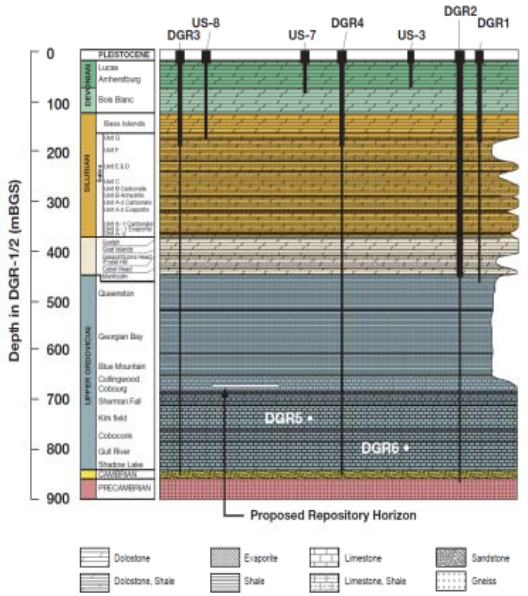
Project Need

- OPG responsible for short-term and long-term management of L&ILW
- Some constituents of the L&ILW inventory remain hazardous for the long term, hence a long-term solution is required
- This generation should provide solution

6

Selection of Bruce Nuclear Site for DGR

- Excellent geology for hosting a DGR
  - Predicted in 2002
  - Confirmed through detailed site characterization
- Willing host municipality
  - Kincardine approached OPG
  - Positive community poll
- Location near WWMF L&ILW interim storage site
  - Avoids additional off-site transportation



Opening of DGR Storefront in Kincardine (2004)

Location of DGR on Bruce Nuclear Site

Bruce Nuclear Site L & ILW DGR Project Location

0 250 500 1,000 Metres

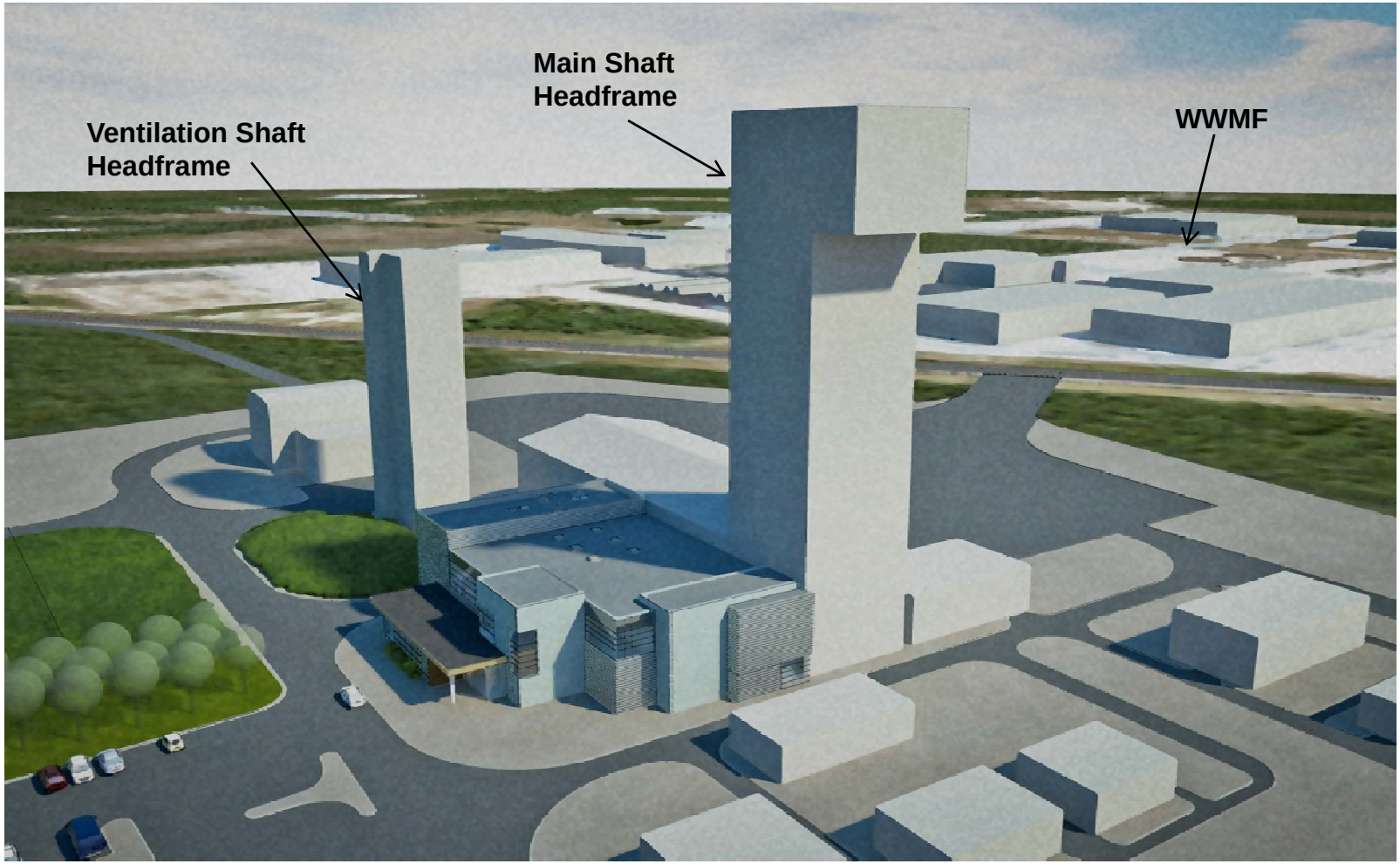
Aerial Photography: November 15, 2006

8

DGR Capacity

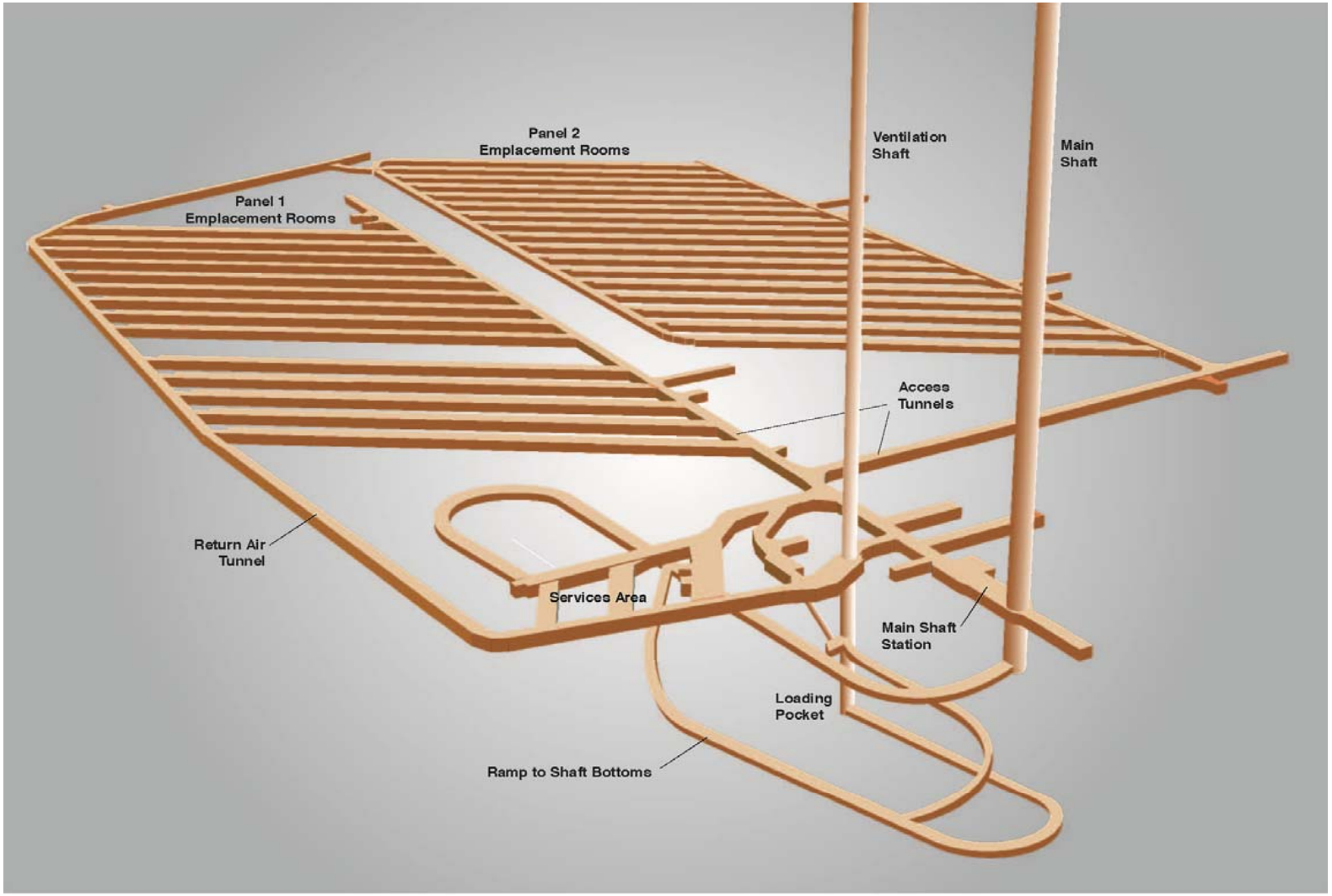
- DGR is sized for 200,000 m^3 of L&ILW
  - arising from the operation and refurbishment of the current fleet of OPG owned or operated nuclear reactors
- Any identified need to expand the DGR in future will follow applicable regulatory processes at the time
- L&ILW arising from reactor decommissioning is not part of this application

DGR Surface Buildings



10

DGR Underground Facilities



11

DGR Project Milestones

- ❑ 2002: Memorandum of Understanding with Kincardine
- ❑ 2004: Hosting Agreement signed with Kincardine
- ❑ 2005: Letter of Intent to construct submitted to CNSC
- ❑ 2007: Licence Application
- ❑ 2009: Final EA Guidelines issued
- ❑ 2011: Environmental Impact Statement and Preliminary Safety Report and other supporting documents submitted
- ❑ 2013: Public Hearing

12

April 2011 Submission Package

The L&ILW DGR Project Roles

- Ontario Power Generation
  - Provides oversight of DGR Engineering, Procurement and Construction Management (EPCM) contractor
  - Future operator of DGR
- Nuclear Waste Management Organization
  - Contracted by OPG to provide geoscientific, design, environmental assessment, safety assessment and engagement services
  - Will be the DGR EPCM contractor if licence is granted

13

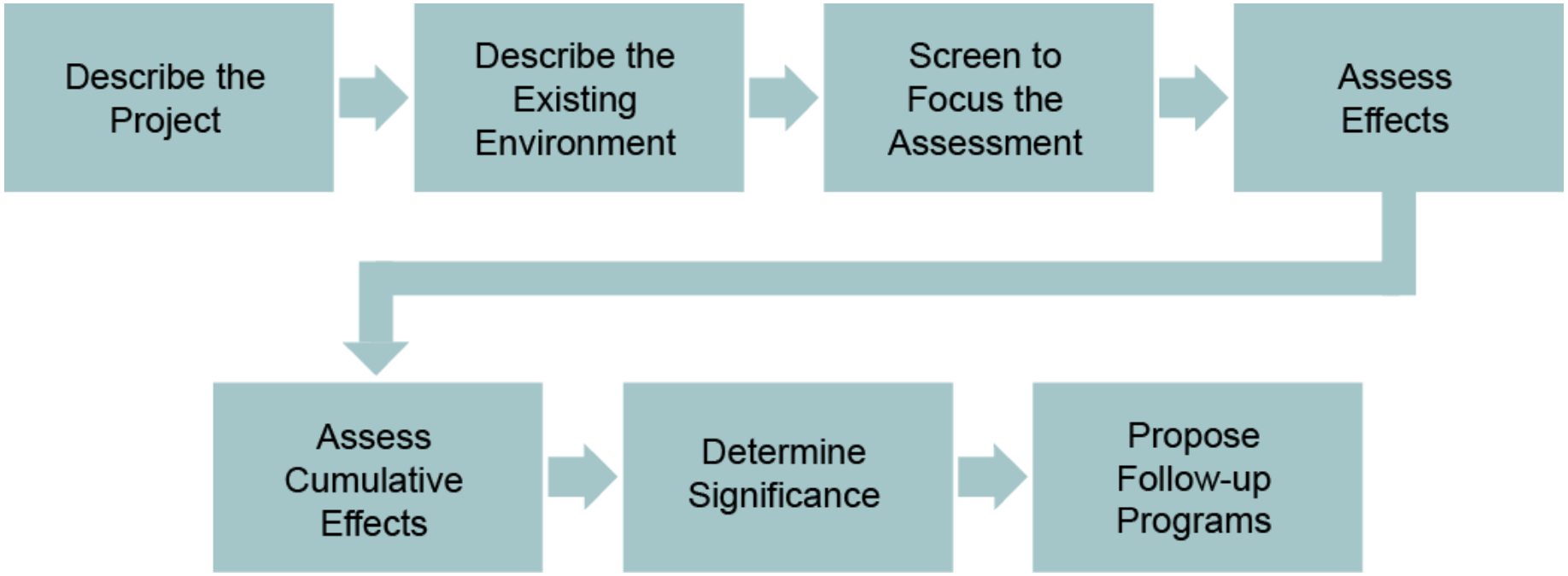
Licence Application

- OPG requests a Licence to Prepare the Site and Construct the L&ILW DGR at the Bruce nuclear site
  - Conventional activities
  - No nuclear substances under this licence
- OPG's licence application and the supporting documentation meet the requirements of the Nuclear Safety and Control Act
- Other required approvals will also be obtained

14

ENVIRONMENTAL ASSESSMENT

Environmental Assessment Process



16

Precautionary Approach

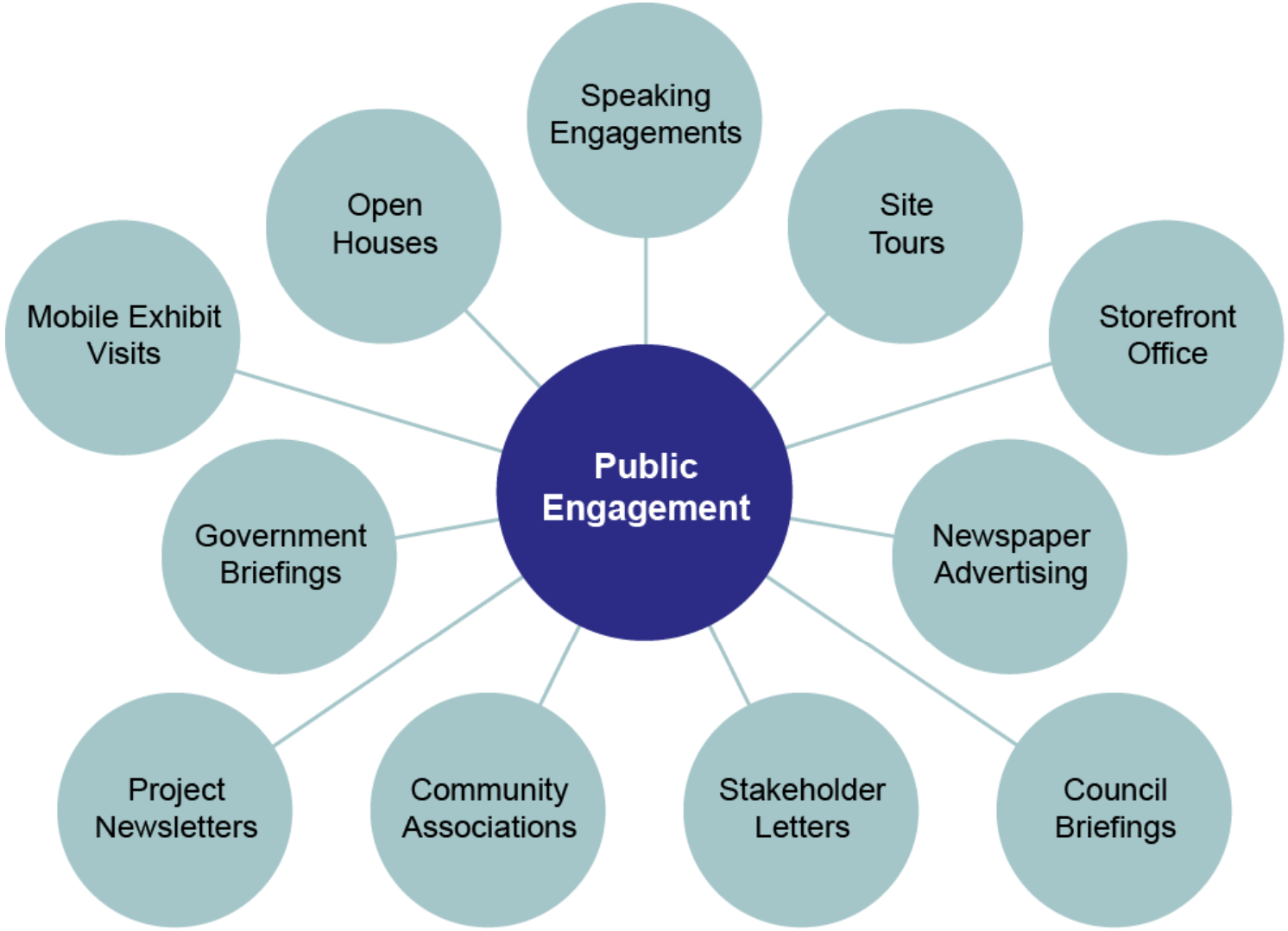
- Precautionary principle: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation"
- Precautionary principle incorporated by:
  - Use of conservative models and assumptions in predicting effects
  - Assuming all identified residual effects will occur in determining significance of effects
  - Use of conservative design inputs
- DGR project has followed precautionary approach

17

Sustainable Development

- Sustainable development seeks to meet the needs of present generations without compromising the ability of future generations to meet their needs
- DGR Project contributes to sustainability by:
  - Providing a passively-safe solution for L&ILW produced by this generation
  - Minimizing impacts on sensitive lands and species
  - Not impacting the capacity of renewable and non-renewable resources to meet current and future needs
  - Avoiding the need for off-site waste transportation
  - Providing employment and revenue to the local area

Communication and Engagement



19

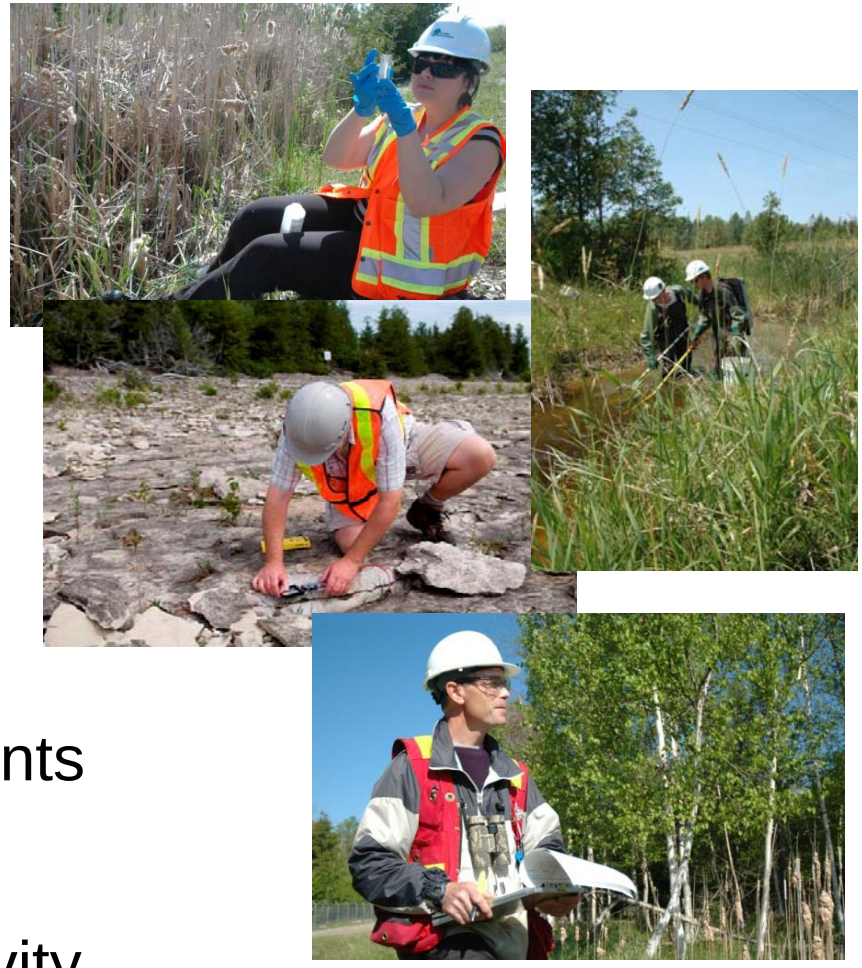
Aboriginal Engagement

- OPG is committed to building long-term, mutually- beneficial working relationships with First Nation and Métis communities proximate to its present and future operations
- Protocol and Participation Agreements signed with local First Nation and Métis communities
- Capacity provided for community consultation, traditional knowledge studies, technical experts, peer reviews and professional services
- Traditional knowledge sought as input to EA
- Ongoing dialogue with First Nation and Métis communities

20

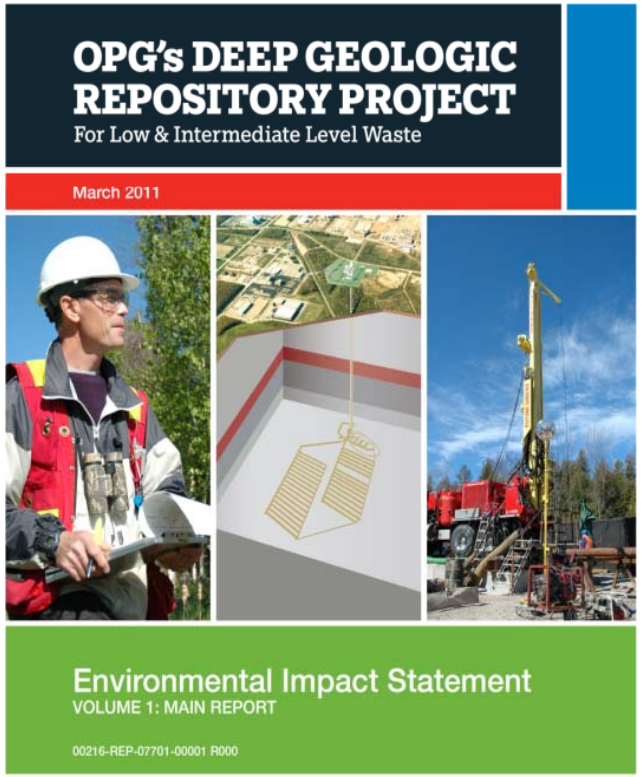
EA Studies Completed

- ❑ Atmospheric
- ❑ Hydrology
- ❑ Aquatic
- ❑ Terrestrial
- ❑ Geology
- ❑ Socio-economic
- ❑ Aboriginal Interests
- ❑ Malfunctions and Accidents
- ❑ Human Health
- ❑ Radiation and Radioactivity



EA Findings

- Small number of residual adverse environmental effects were identified. None determined to be significant.
- Environment will not adversely impact the DGR Project
- No residual adverse cumulative effects were identified
- DGR project not expected to adversely affect renewable resources
- Socio-economic benefits provided

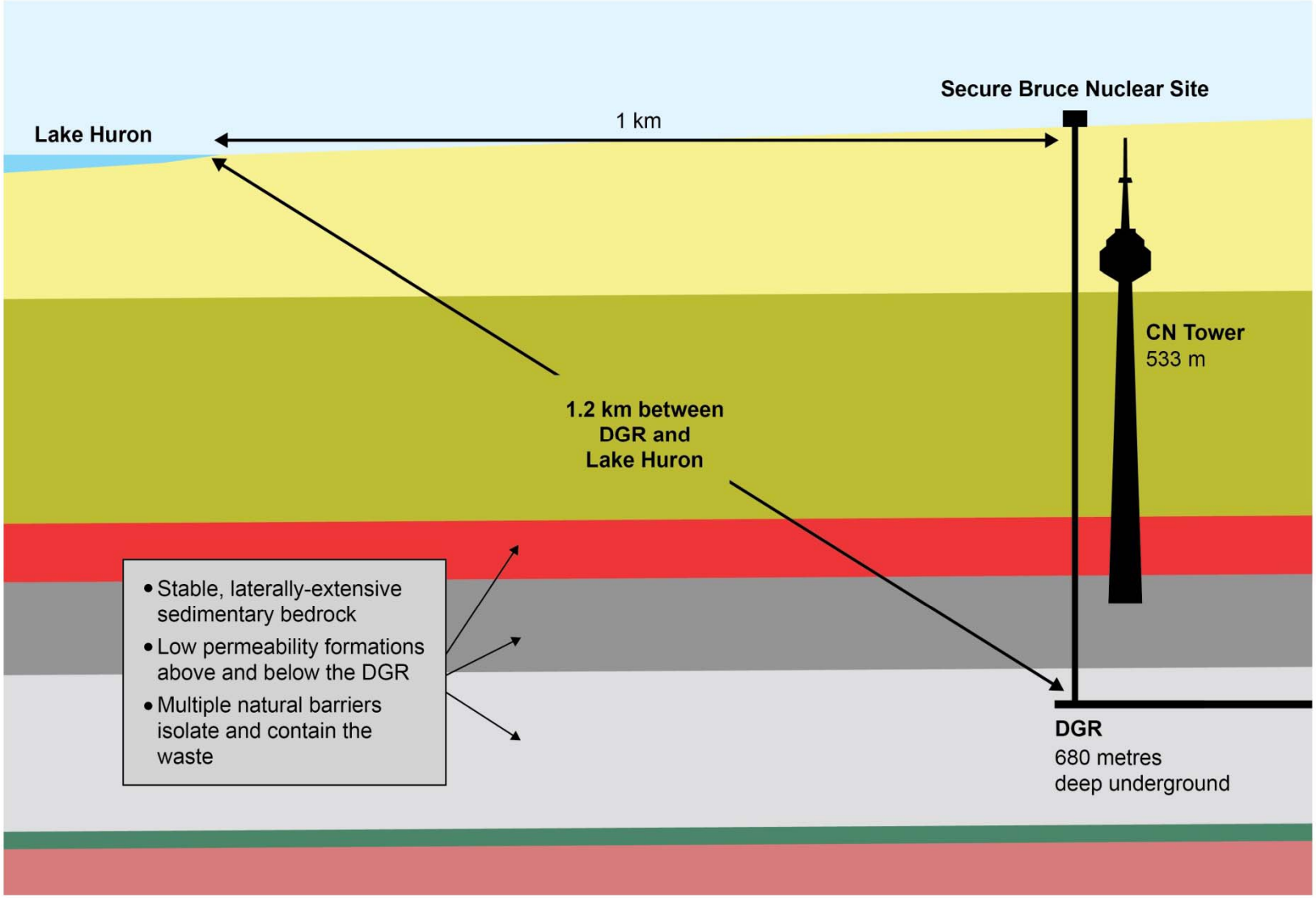


22

Long-Term Safety

- Expected long-term impacts from the DGR are essentially zero
- Analysis of postulated disruptive ('what if') scenarios demonstrate the robustness of the DGR design
- DGR provides for passively-safe, long-term management of L&ILW

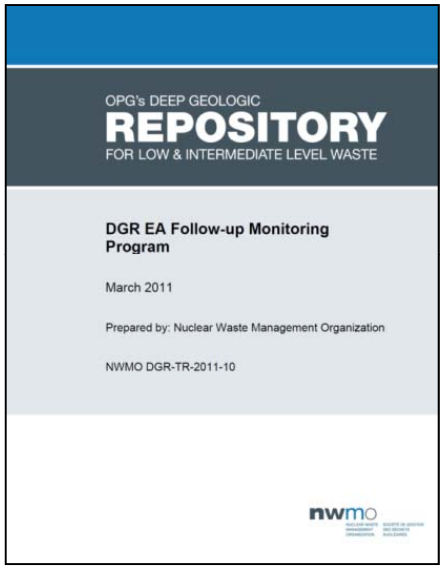
Lake Huron is Protected



24

Follow-up Monitoring Program

- Types of monitoring included in the proposed Follow-up Monitoring Program:
  - EA Follow-up
  - Environmental Management Plan
  - Radiological regulatory
  - Conventional regulatory
- The effectiveness of the sampling program will be reviewed annually
- Monitoring Program results will be made public annually



25

Environmental Assessment Conclusion

"Taking into account the findings of the EA studies, including the identified mitigation measures, it is OPG's conclusion that the DGR Project is not likely to result in any significant adverse effects on the environment"

26