

January 3, 2017

ONTARIO POWER GENERATION SUBMITS FURTHER STUDIES INTO DEEP GEOLOGIC REPOSITORY

TORONTO – Ontario Power Generation (OPG) has submitted the information requested on Feb. 18, 2016, by the federal Minister of Environment and Climate Change with respect to OPG's proposal for a [Deep Geologic Repository](#) (DGR) in Kincardine, Ontario.

The information submitted to the Canadian Environmental Assessment Agency includes:

- [A study](#) that details the environmental effects of technically and economically feasible alternate locations for OPG's DGR project. Two alternate locations - one in crystalline rock and one in sedimentary rock - were studied, along with the incremental costs and risks associated with the off-site transportation.
- An updated analysis of the cumulative environmental effects of the project, assuming a used-fuel repository is sited in close proximity to OPG's DGR. A site for a used-fuel facility has not yet been determined by the Nuclear Waste Management Organization.
- An updated list of OPG's commitments to mitigate adverse environmental effects under the Canadian Environmental Assessment Act, 2012.

The studies show that relocating the DGR to an alternate location would result in increased environmental effects and significant incremental costs, with no assurance of increased safety to workers and the public, or protection of the environment.

Based on the findings, OPG maintains that a DGR is the right answer for its low- and intermediate-level waste, and that the current proposed Bruce nuclear site is the right location.

An independent federal [Joint Review Panel](#) recommended in 2015 that OPG's project move ahead "now rather than later," based on a strong safety case and to reduce risks to the environment.

For more on the DGR and the information submitted, please visit the [DGR website](#).

OPG generates safe, clean, reliable, low-cost power for Ontario. More than 99 per cent of this power is free of smog and greenhouse gas emissions. OPG's power is priced 40 per cent lower than power from other generators, which helps moderate customer bills.

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Backgrounder

OPG's DGR Project

Ontario Power Generation (OPG) has submitted to the federal government the findings of additional studies related to its proposal for a Deep Geologic Repository (DGR). The DGR would provide permanent storage for low- and intermediate-level waste only, produced by nuclear stations at Darlington, Pickering and Bruce nuclear generating stations. This waste has been stored for the past 40 years on the surface, at the Western Waste Management Facility in Kincardine, Ontario.

The current proposed location for a DGR at the Bruce nuclear site underwent an [environmental assessment](#) by a federal Joint Review Panel (JRP). It found the DGR would be safe, protect Lake Huron and reduce risks to the environment. The JRP recommended in May 2015 that the project proceed “now rather than later.”

Years of scientific research have shown that the geology 680 metres below under the Bruce nuclear site is ideal for a DGR; it is some of the tightest rock in the world, impermeable limestone that has remained intact through 450 million years, multiple ice ages and glaciers.

The Municipality of Kincardine is a willing host community for the DGR. OPG is engaged in consultations with stakeholders and Indigenous communities, including the Saugeen Ojibway Nation, whose informed consent is required for the project to proceed to construction.

In February 2016, the federal Minister of Environment and Climate Change asked OPG for additional information including:

- The environmental effects of alternate locations for the project, including incremental off-site transportation costs and risks;
- An updated cumulative environmental effects analysis of the project, assuming that OPG's DGR would be in close proximity to a used-fuel repository, for which a site has yet to be determined by the Nuclear Waste Management Organization (NWMO);
- An updated list of mitigation commitments for each identified adverse effect of OPG's DGR under the Canadian Environment Assessment Act 2012

OPG committed to complete and submit the additional information by the end of 2016, and has now done so.

The federal government has indicated that the Canadian Environmental Assessment Agency will review OPG's submission, including a period of public comment. Ultimately, the Minister of Environment and Climate Change will make a decision on the Environmental Assessment. If the Environmental Assessment is approved, the next step would be a decision on whether to approve the application for a site preparation and construction licence.

Alternate Locations Study

Overview

As requested by the Minister of Environment and Climate Change, OPG has completed an evidence-based study that:

- Identifies alternate locations for a low- and intermediate-level waste DGR which meet OPG's criteria and thresholds for technical and economic feasibility.
- Determines the environmental effects of the DGR at those alternate locations.
- Identifies incremental costs and risks for the off-site transportation of the nuclear waste to the alternate locations.

OPG examined two alternate locations: a crystalline granite location in Central to Northern Ontario and a sedimentary location in Southwestern Ontario. These alternate locations met OPG's criteria for technical and economic feasibility.

Environmental Effects

OPG's study shows that the primary objectives of public health and safety, worker health and safety, and protection of the environment can be achieved, whether the DGR project is sited at the current location or alternate locations.

However, environmental effects of a DGR project are likely to be greater at alternate locations than at the Bruce nuclear site due to:

- Increased effects on air quality, including greenhouse gases, during additional waste transportation to the alternate location;
- Effects on land use due to the establishment of a new site, and traffic from waste transport and workers;
- Adverse effects on vegetation from increased clearing during site preparation and construction of facilities and access roads; and
- Adverse effects on wildlife due to establishment of a new site with associated effects from vegetation loss.

Transportation

OPG's study shows that relocating the DGR to an alternate location would:

- Require 22,000 additional shipments and over a million kilometres of travel on public roadways to move the waste currently stored at the Western Waste Management Facility (WWMF) at the Bruce nuclear site.
- Cause a small but incremental increase in risk of radiation exposure to the public and workers from transporting the waste to an alternate location.
- Create an incremental conventional transportation risk, estimated at 3 to 62 road collisions, over the decades required to make the additional shipments.

Cost and Uncertainty

OPG's study shows an increase in the incremental costs of an alternate location:

- The incremental costs for the DGR at an alternate location range from approximately \$1.2 billion to \$3.5 billion.
- These additional costs include a range of activities required for the relocation of the DGR, including: the design and implementation of a site selection process; acquisition of land for the facility; development and implementation of services to support facility operation; repackaging and transportation; and restarting of the licensing process.
- The study also shows that considerable uncertainties arise from a DGR at an alternate location, including the time required to achieve a willing and supportive host community, as well as consent of Indigenous communities.

Alternate Locations Study – Conclusion

Relocating the DGR to an alternate location would result in increased environmental effects and significant incremental costs, with no assurance of increased safety to workers and the public, or protection of the environment.

The DGR project at the Bruce nuclear site remains the preferred location based on a consideration of environmental effects at alternate locations, transportation costs and risks, and project uncertainties. Alternate locations provide no guarantee of improved safety or environmental quality, and possibly a worse environmental outcome than the DGR project at the Bruce nuclear site.

Updated Analysis of Cumulative Environmental Effects

A cumulative effects assessment was completed for the EA for the DGR project at the Bruce nuclear site. It was updated to determine whether combined environmental effects could occur if one region hosts two different DGRs in close proximity – that is, NWMO's Adaptive Phased Management (APM) DGR, as well as OPG's low- and intermediate-level waste DGR.

It was recognized that no site has been identified for the NWMO APM DGR and no community has volunteered to accept the project. Nine 9 of 21 communities that originally expressed interest in learning more about the APM DGR are still engaged in the NWMO process.

Potential interactions with several environmental components were identified for the cumulative environmental effects analysis.

The conclusions regarding cumulative effect that were presented in the Environmental Impact Statement for OPG's DGR project at the Bruce nuclear site remain valid. The updated analysis shows that there is no potential for likely adverse cumulative effects. This report also shows that cumulative effects are unlikely as a result of malfunctions, accidents, and malevolent acts related to both DGR projects.

Mitigation Measures Report

OPG made a number of commitments with respect to the DGR project through its original submissions, and during the public review and panel hearings. These total approximately 1,000 commitments, including monitoring and mitigation of environmental effects as well as activities to address applicable laws and regulations.

The approximately 800 environmental monitoring and mitigation commitments were consolidated into approximately high-level 200 commitments (considering any completed, updated or redundant commitments). The commitments are documented in one report, in a way that is traceable to the original commitments, for transparency and accountability.

Additional Background Resources

- [May 2015 Report of the Joint Review Panel](#)
- [OPG website about the DGR](#)