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## Supplementary Information

## Renseignements supplémentaires

# Presentation from Durham Nuclear Awareness and the Canadian Environmental Law Association

# Présentation de Durham Nuclear Awareness et l'Association canadienne du droit de l'environnement

In the Matter of the

À l'égard de

**Darlington New Nuclear Project**

**Projet de nouvelle centrale nucléaire de Darlington**

Application to renew the nuclear power reactor site preparation licence for the Darlington New Nuclear Project

Demande de renouvellement du permis de préparation de l'emplacement d'une centrale nucléaire pour le projet de nouvelle centrale nucléaire de Darlington

**Commission Public Hearing**

**Audience publique de la Commission**

**June 10-11, 2021**

**10-11 juin 2021**

Canada

# Renewal of Site Preparation Licence for OPG's Darlington Nuclear Site

## CNSC Licence Renewal (Ref. 2021-H-04)


**Canadian Environmental Law Association**
**Durham Nuclear Awareness**


June 9 -11, 2021


Kerrie Blaise, Legal Counsel
Theresa McClenaghan, Legal Counsel
M. V. Ramana, Expert Review

# An Introduction to CELA and DNA

## Interest and Expertise

**Canadian Environmental Law Association (CELA)** is a non-profit, public interest law organization. CELA is funded by Legal Aid Ontario as a specialty legal clinic to provide equitable access to justice to those otherwise unable to afford representation for environmental injustices.

**Durham Nuclear Awareness (DNA)** is a citizens' group with a longstanding interest in the Darlington Nuclear Generating Station. DNA was first organized in 1986 in the wake of the Chernobyl disaster. As a volunteer group of concerned citizens, DNA dedicates themselves to raising public awareness about nuclear issues facing Durham Region, and fostering greater public involvement in the nuclear decision-making process.

**Dr. M.V. Ramana** is a Professor and Simons Chair in Disarmament, Global and Human Security at the School of Public Policy and Global Affairs (SPPGA), University of British Columbia. M. V. Ramana has extensive knowledge and expertise in the nuclear non-proliferation safety risks of reactor designs and accompanying adverse environmental effects.

# I. Findings

# Summary of Findings

## Legal and Expert Review

1. It is premature to review OPG's licence application given OPG will reportedly be selecting a small modular reactor (SMR) design for the Darlington site in 2021 and their existing licence remains valid to until August 17, 2022;

2. The proposed undertaking is 'fundamentally different' from the existing licence and the approved federal environmental assessment (EA);

3. OPG's licence application and CMD fail to adequately address the significant changes which have occurred since their 2009 licence application, Environmental Impact Statement (EIS) and EA and thus, these earlier documents are no longer current nor validly reflect present circumstances.

# 1. Bait-and-switch

## OPG seeks a licence to site SMRs in Durham Region

- Licensing documents only provide a partial picture of OPG's plans for Darlington site

- Licensing documents fail to consider:
  - Within 2021, OPG will be selecting the SMR reactor to be "deployed" at the Darlington site
  - By 2028, OPG intends to construct a 300MW SMR at the Darlington site
  - Early 2030s, the SMR will be contributing to the electricity grid

- Moving ahead with licensing without recognizing OPG's plans for SMRs removes the ability of citizens to comment on site suitability and implications for their communities

**Is this this site located 60km from Canada's most populous city and in a rapidly urbanizing part of the province, suitable for what may be Canada's first small modular reactor?**

# 1. Bait-and-switch

## Recommendations

**Recommendation No. 5:** The CNSC should direct CNSC Staff and OPG to revise all licensing documents to avoid implying 'no change' will occur at the Darlington site and instead, require Small Modular Reactors to be the basis for deliberations and analyses of the NSCA, its regulations and any regulatory guidance.

**Recommendation No. 6:** The scope of the licensing hearing should consider OPG's proposed use of the Darlington site and whether SMRs are suitable. To exclude this from review would unreasonably narrow the scope of the hearing and compromise the CNSC's ability to make an informed determination in the public interest.

**Recommendation No. 7:** It is premature to consider a 10-year licence when OPG has committed to selecting a reactor technology in 2021 and their existing licence remains valid until August 2022.

# 2. Licence Requested is Fundamentally Different

## Prior Environmental Assessment and PPE not applicable

The licence requested and the proposed undertaking is fundamentally different from the existing licence and is not encompassed by the existing plant parameter envelope (PPE) nor federal environmental assessment

1. **Reactor Design:** SMR reactor designs are considerably different from designs considered in OPG's original licence application from 2009 and federal environmental assessment (which only considered three water cooled designs, two pressurized (light) water reactor designs, and one pressurized heavy water reactor design)

2. **Wastes:** The proposed SMR designs all foresee operating on some form of enriched fuel and such fuels typically create wastes that are different in nature and characteristics from used-CANDU fuel. Site preparation studies must be much more thorough to assess the possibility that high-level waste remains at the site in the long-term

# 2. Licence Requested is Fundamentally Different

## Prior Environmental Assessment and PPE not applicable

3. **Multi-unit reactor accidents:** multi-unit reactor accidents must be updated in light of SMRs proposed for the Darlington site.

   As demonstrated by the accidents at the Fukushima Daiichi nuclear plant, there are occasions when multiple safety systems do fail at the same time - and these occur far more frequently than technical analysts seem to assume. E.g. one of the reactors that underwent an explosion at Fukushima was a 460MW reactor – a size not dissimilar to the SMRs proposed at Darlington.

4. **Site suitability:** Specific design information required if the CNSC is to make an informed decision as to the suitability of the site for new nuclear reactors and opine on the appropriate conditions necessary to ensure the continued site suitability of the reactor.

# 2. Licence Requested is Fundamentally Different

## Recommendations

**Recommendation No. 8:** As the proposed undertaking is fundamentally different from the existing licence and is not encompassed by the existing plant parameter envelope nor environmental assessment, the CNSC should not proceed absent revision and resubmission of required licensing documents.

**Recommendation No. 9:** In light of OPG's intended use of the Darlington site, the plant parameter envelope should be revised to reflect the reactor designs in question. The existing PPE is not applicable given SMRs' fundamental reactor design differences.

**Recommendation No. 10:** Before granting a licence, the CNSC must ensure the risk to human health and the environment is reasonable. If the CNSC cannot make this conclusion based on the current licence documents, the CNSC is unable to conclude the licensee will, in carrying out the activity, make adequate provision for the protection of the environment, human health and the safety of persons as required by section 24(4) of the Nuclear Safety and Control Act.

# 2. Licence Requested is Fundamentally Different

## Recommendations

**Recommendation No. 11:** The CNSC should require stringent siting requirements for SMRs. Site preparation studies must be much more thorough to assess the possibility that high-level waste will remain at the Darlington site in the long-term. In making a site suitability decision, the CNSC should require OPG to outline a non-theoretical waste management and decommissioning plan at the outset.

**Recommendation No. 12:** The potential for and effects of a multi-unit accident is among the detailed licence application updates that should be provided to the CNSC in light of SMRs proposed for the Darlington site.

# 2. Licence Requested is Fundamentally Different

## Recommendations

**Recommendation No. 13:** The CNSC must exercise its jurisdiction and fulfill the federal constitutional jurisdiction over nuclear site approval. Any siting decision must ensure the protection of the public and environment for the intended lifespan of the new nuclear development. This decision must also account for changes in land use, population density, climate and environmental factors. No amount of subsequent regulatory action short of license termination can adequately protect the public if an unsuitable site is selected.

**Recommendation No. 14:** The site licence should be conditional upon the continued suitability of the site for an SMR throughout all facility lifecycle phases. The Licence Conditions Handbook should clearly state that should site suitability be compromised, it will result in modification or revocation of the subsequent license to operate.

# 3. Omissions in licence application

## Significant changes since 2009 not addressed

OPG's 2009 licence application and EIS, and 2012 EA do not validly reflect present circumstances:

1. **Public awareness:** most citizens in the Greater Toronto Area are not aware that they live within the Ingestion Planning Zone – extending 50km from nuclear facilities - of not one but two very large nuclear generating stations. Even fewer are aware that Durham Region could be the host for SMRs.
2. **Land use planning**: the continued urbanization and population growth surrounding the Darlington site makes it increasingly unsuitable for the continued operation of a nuclear station. The CNSC must consider population growth projections in line with the projected lifespan of the SMRs proposed by OPG
3. **Climate change:** As climate impacts become more frequent and pronounced, CNSC must specifically consider climate change in the context site suitability and impacts on safety and the environment and require detailed climate effects analysis

# 3. Omissions in licence application

## Recommendations

**Recommendation No. 16:** The January 12, 2020 false alert from Pickering underscores the need for emergency response capacity to be carefully reviewed in detail, especially in light of proposals for new nuclear development. Licensing documents should be revised to consider what additional resourcing and capacity are necessary to support new and additional nuclear given the lessons learned from the Pickering false alert.

**Recommendation No. 17:** DNA recommends Licence Conditions Handbook section 10.1 be updated to read the "licensee must provide emergency communications" and not "should", as currently drafted.

**Recommendation No. 18:** As a condition of siting new nuclear, the CNSC should require ongoing public education for emergency preparedness and protective actions.

# 3. Omissions in licence application

## Recommendations

**Recommendation No. 19:** The CNSC should consider population growth projections and evacuation time estimates in line with the projected lifespan of the SMRs proposed by OPG, which can operate for 60 years.

**Recommendation No. 20:** The CNSC should include a new requirement related to land-use planning. A new section of the Licence Conditions Handbook, section 15.3, should be added which states "The licensee shall monitor and demonstrate that safety margins for the fifth level of defence in depth are achieved."

**Recommendation No. 21:** The CNSC should direct CNSC staff to review the revised Provincial Policy Statement to ensure land use compatibility in the vicinity of major facilities, which includes energy generation facilities. Specific regard should be given to population density and growth around nuclear generating stations and impacts of new and additional nuclear on the implementation of emergency measures.

# 3. Omissions in licence application

## Recommendations

**Recommendation No. 22:** The CNSC must consider multi-unit accidents and large radiation releases in the context of new nuclear facilities, specifically SMRs in tandem with CANDU reactors on the Darlington site.

**Recommendation No 23:** The criteria by which climate change impacts and natural external events are evaluated and applied in a site licencing decision must be specified. Documents from 2009 cannot be used as a stand-in for detailed climate analysis.

**Recommendation No. 24:** Detailed climate analysis must be presented in a public forum and not provided as an update to the CNSC at later date when reactor technology is selected. If agreed to by the CNSC, this would erode the legitimacy of the hearing process and shield critical information from the public's view.

# III. Order Requested

# Order Requested

1. Deny OPG's request for a 10-year licence as:

    a) It is premature when OPG will be selecting a reactor design in 2021
    b) The proposed undertaking is fundamentally different from the present licence and approved federal environmental assessment
    c) OPG has failed to adequately address the significant changes which have occurred since the 2009 licence application, EIS and EA

2. In the alternative, make it a condition of licensing that another full and public site licensing hearing be held following OPG's selection of reactor design.

**Thank you.**