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Supplementary Information

Oral Presentation

Presentation from the Canadian Environmental Law Association

Renseignements supplémentaires

Exposé oral

Présentation de l'Association canadienne du droit de l'environnement

In the Matter of

Ontario Power Generation Inc., Pickering Nuclear Generating Station

Request for a ten-year renewal of its Nuclear Power Reactor Operating Licence for the Pickering Nuclear Generating Station

Commission Public Hearing – Part 2

June 2018

À l'égard de

Ontario Power Generation Inc., centrale nucléaire de Pickering

Demande de renouvellement, pour une période de dix ans, de son permis d'exploitation d'un réacteur nucléaire de puissance à la centrale nucléaire de Pickering

Audience publique de la Commission – Partie 2

Juin 2018

Canada

Evaluating Environmental Protection and Emergency Preparedness at the Pickering Nuclear Station

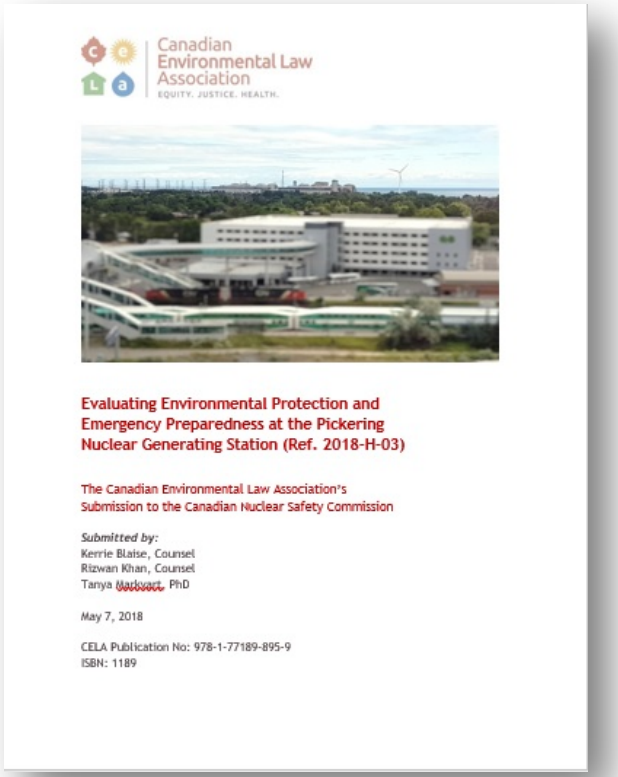
Canadian Environmental Law Association

Hearing Ref. 2018-H-03
June 25 - 28, 2018

Theresa McClenaghan, Executive Director and Counsel
Kerrie Blaise, Counsel
Monica Poremba, Counsel

I. About Us

- CELA is a non-profit, public interest organization funded by Legal Aid Ontario
- CELA uses existing laws to protect the environment and to advocate for environmental law reform


Canadian Environmental Law Association
EQUITY. JUSTICE. HEALTH.

Evaluating Environmental Protection and Emergency Preparedness at the Pickering Nuclear Generating Station (Ref. 2018-H-03)

The Canadian Environmental Law Association's Submission to the Canadian Nuclear Safety Commission

Submitted by:
Kerrie Blaise, Counsel
Rizwan Khan, Counsel
Tanya Hardyact, PhD

May 7, 2018

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www.cela.ca

II. Scope of Research

- CELA received participant funding from the CNSC to review the adequacy of:
  - Emergency planning at the Pickering NGS
  - Sustainability considerations
  - Environmental reviews pursuant to the *Nuclear Safety and Control Act*
  - Regulatory framework for decommissioning

III. Emergency Preparedness

Findings

Existing emergency plans are not sufficient to prevent unreasonable risk to the health and safety of the 4.5 million people living within 50 km of the Pickering NGS.

per s.9 Nuclear Safety and Control Act

- Technical studies, revised regional and onsite emergency response plans pending
- PNERP 2017 only requires detailed planning out to 10 km

III. Emergency Preparedness

Findings (con't)

The size of emergency planning zones are not consistent with international guidance.

per s.3 Nuclear Safety and Control Act

IAEA Recommended Guidance		
Zone	**Size**	**Response Measures**
Urgent Protective Action	15 – 30 km	• Evacuation, sheltering • Decontamination of individuals • Prophylaxis with stable iodine • Protection of food supply and water

III. Emergency Preparedness

Findings (con't)

Adequate contingency plans are not in place to protect Lake Ontario in the event of radioactive containment venting "over the lake"

per s.24(4) Nuclear Safety and Control Act

- Contingency planning required to provide alternate source of drinking water to millions of people
- Need for modelling of alongshore and cross-shore currents

III. Emergency Preparedness

Summary of Recommendations

Premature to licence Pickering NGS for continued operation until:

- ✓ Emergency planning zones and response measures are expanded
  - Detailed Planning from 10 km to 20 km
  - Contingency Planning from 20 km to 50 km
  - Ingestion Planning from 50km to 100 km
- ✓ Public awareness is thoroughly demonstrated
- ✓ Technical studies and updates to regional emergency and evacuation plans are complete → tested → publicly known

IV. Sustainability Considerations

Findings

Sustainability has not been explicitly considered by OPG nor the CNSC with respect to key concerns:

1. Costs to future generations
   - Continued operation locks Ontario out of safer, cheaper options
   - No accounting of comprehensive cost of nuclear life cycle
2. GHG emissions
   - Emissions of life cycle approx. 840,000 tonnes of CO2/year

IV. Sustainability Considerations

Findings (cont'd)

3. Consideration of needs and alternatives
   - Not a requirement under the NSCA
4. Public participation process
   - Fewer public review opportunities than federal environmental assessment process
5. Transition planning
   - Consideration of local, regional and socio-economic impacts lacking during transition from operation to stabilization

IV. Sustainability Considerations

Summary of Recommendations

Demonstration of sustainability considerations should be a prerequisite to licensing. OPG's licence application should be evaluated against:

- ✓ Purpose and need for the undertaking with reference to the public interest
- ✓ Comparative evaluation of reasonable alternatives
- ✓ Case-specific sustainability criteria applied to all stages of life cycle (ie. operations, stabilization, decommissioning and continued management)

V. Environmental Assessment

Findings

The "environmental assessment" purportedly undertaken by the CNSC is akin to a technical analysis of a proposed environmental monitoring program. It is not equivalent to an EA under CEAA 2012.

- NSCA-directed environmental report lacks hallmarks of federal environmental assessments
- RegDoc 2.9.1. insufficient basis for 'environmental assessment'

V. Environmental Assessment

Findings

The "EA" does not provide sufficient evidence to meet the conditions required by s. 24(4) of the NSCA for the Commission to grant OPG's application.

- NSCA review does not account for factors required by s. 19 of CEAA 2012 for federally regulated activities with impacts similar to the proposed activity
- NSCA review primarily relies on licensee information, not studies from independent experts of site, local and regional impacts

VI. Decommissioning

Findings

Canada lacks an adequate framework for decommissioning. A detailed decommissioning plan, with a sound evidentiary basis should have already been completed.

- Detailed decommissioning plan lacking – could be required as early as 2021
- At a minimum, IAEA guidance should be met

VI. Decommissioning

Summary of Recommendations

The decommissioning strategies put forth by OPG should be well documented and include:

- ✓ Description of options and justification
- ✓ An 'alternative means' analysis demonstrating a preferred strategy
- ✓ Scientific review
- ✓ Meaningful participation cognizant of the public, future generations and Indigenous communities

VII. Conclusion

CELA respectfully requests the Canadian Nuclear Safety Commission deny the 10-year licence for the Pickering NGS.

- CNSC must be satisfied that even the most serious of accidents can be mitigated and the resulting harm is reasonable to both people and the environment.
- Currently, the CNSC lacks the evidentiary basis to fulfill its statutory mandate per s. 9 of the *NSCA*.

Thank you.

Summary of Recommendations

RECOMMENDATION NO. 1: To facilitate restoring the public's trust in the Commission, CELA recommends: (1) the CNSC publicly review the findings of federal expert panel tasked with restoring the public's trust in Canada's environmental assessment authorities, (2) ensure all documents and information considered by the CNSC are publicly available online and 'searchable', and (3) the CNSC provide justification, transparency and intelligibility of reasons in their Record of Decisions.

RECOMMENDATION NO. 2: OPG and CNSC must clearly demonstrate to Ontarians – through adequate documentation in the licence application submissions – that financial plans are in place to (1) safeguard the affordability of electricity for Ontarians throughout the lifetime of the plant, and (2) provide financial assurances for the actual costs of continued operation, maintenance, decommissioning, waste management and long term care.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 3: The CNSC and responsible authorities must require OPG to undertake greenhouse gas (GHG) emissions accounting, GHG monitoring, and GHG emissions reduction planning in order to consider the entire nuclear process chain, from cradle to grave.

RECOMMENDATION NO. 4: OPG's Pickering NGS PROL renewal application and all future licence applications for nuclear power generation and nuclear waste management projects should be evaluated under a reformed CEAA that provides the basis for an appropriately rigorous approach to the consideration of need and alternatives, among other critical considerations. As Gibson et al. (2016, pp. 5-10) have asserted, crucial components of an appropriately rigorous approach to EA would embrace sustainability in all aspects and require attention to:

Summary of Recommendations (cont.)

RECOMMENDATION NO. 4 (cont.):

- the purposes of and need for the undertaking (with both purposes and need related to the lasting public interest)
- development and application of broad but comprehensive sustainability-based criteria for evaluations and decisions (see next section);
- emphasis on comprehensive and integrated attention to all factors affecting the long term as well as immediate desirability and durability of effects;
- comparative evaluation of potentially reasonable alternatives to identify best options for each undertaking, to move cumulatively to more sustainable practice; and
- application of case-specified sustainability-based purposes and criteria as the main structure for deliberations and decisions at all process stages for subject undertakings from initial identification of appropriate purposes and options (alternatives) to final deliberations on renewal, closure, decommissioning and continued management

Summary of Recommendations (cont.)

RECOMMENDATION NO. 5: In the interests of public access to information, all licence documents, including all supplementary studies/reports, must be conveniently accessible through a public registry, with sufficient time allowed for participant review between posting and deadlines for public submissions.

RECOMMENDATION NO. 6: OPG must develop a transition plan to mitigate the adverse socioeconomic impacts of shutting down Pickering's reactor units on workers, families, and surrounding communities. This transition plan must be informed by best practices for just transition planning that maintains and enhances livelihood sufficiency and community economic wellbeing, and it must consider the larger transition of the electric power system to renewable technologies.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 7: The CNSC commissioners should require CNSC staff to exercise its authority under paragraph 3(1.1)(b) of the *General Nuclear Safety and Control Regulations* to require CNSC staff to undertake a comprehensive "need for", "alternative to", and "alternative means" analysis utilizing the best available scientific information and methods, Indigenous knowledge, and public consultation as part of the EA of the Pickering NGS PROL renewal application and all subsequent EA's under the NSCA. In the absence of this analysis, the Commissioner's should find that need for the Pickering renewal and life extension is not demonstrated.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 8: The CNSC should deny OPG's application to renew the Pickering NGS beyond the expiration of its PROL on August 31, 2018. The lack for an adequate "need for" the continued operation of the Pickering NGS; the history of poor performance and the increased risks to the public; the cost of its continued operation and decommissioning; and the existence of adequate "alternatives to" the nuclear facilities generation of electricity; coupled with the lack of any compelling evidence provided by OPG to extend the PROL beyond its current end date, demonstrates that the proposal to renew the PROL does not make adequate provision for the protection of the environment and the health and safety of persons – a condition for licencing under the NSCA.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 9: The CNSC should require, at a minimum, that decommissioning strategies are well documented and include a description of the options, the overall timescales for the decommissioning of a facility and the end state after completion of all decommissioning actions. The reasons for choosing the preferred option should be explained and justified in comparison to other feasible strategies based on the best available scientific information and methods, after public consultation, and require that no undue burdens be imposed on future generations.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 10: In anticipation of decommissioning the Pickering NGS, the CNSC should require OPG to develop a DDP as soon as possible. The development of the DDP must include meaningful participation of the public at the earliest possible opportunity, to ensure the DDP has a sound evidentiary basis and is publicly acceptable. The DDP should be sufficiently detailed to allow the evaluation of the licensee's justification and plans for, amongst others, adaptive management and environmental monitoring, site remediation and end-use, costs and feasibility, cumulative effects, long-term waste management, security, and public safety.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 11: The CNSC should exercise its authority under paragraph 3(1.1)(b) of the *General Nuclear Safety and Control Regulations*, to compel OPG to undertake an "alternative means" analysis that utilizes the best available up-to-date science and methods, and input from the public and Indigenous communities. The analysis must demonstrate that the preferred strategy will ensure the Pickering NGS will be maintained in a safe configuration at all times, will reach the specified decommissioning end state, that no undue burdens will be imposed on future generations, and is acceptable to the public and Indigenous communities.

RECOMMENDATION NO. 12: Pickering NGS's emergency management licensing basis, RegDoc 2.10.1 Version 1 (2014) predates the IAEA's most recent standard on radiological emergencies, GSR-7. CELA recommends Pickering NGS's licensing basis be updated to reference RegDoc 2.10.1, Version 2 (2016), which is current with IAEA GSR-7. All Licence Condition Handbooks proposed by the CNSC should, at a minimum, be current with international guidance and standards at the time of licensing.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 13: CELA recommends the CNSC require the expansion of Ontario's nuclear emergency planning zones. First, the Contingency Planning Zone (20 km) must require the same level detailed arrangements and pre-planned protective measures as the Automatic Action Zone (3 km) or Detailed Planning Zone (10 km). Secondly, the current CPZ boundary should be re-evaluated based on better modelling and at a minimum, require a 20 km evacuation zone.

RECOMMENDATION NO. 14: CELA recommends that the Commission publicly review the PNERP's Technical Study on emergency planning zone sizes and its implications for all nuclear power plant licensees' on-site and off-site emergency planning arrangements. CELA recommends any further PNERP technical studies and findings be publicly reviewed by the Commission on an annual basis.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 15: CELA recommends the CNSC require the expansion of Ingestion Planning Zone to 100 km and include the additional requirement that all municipalities within this zone maintain nuclear emergency response plans.

RECOMMENDATION NO. 16: CELA recommends that the CNSC require robust evidence demonstrating that residents in the DPZ and CPZ zone have awareness of emergency planning procedures. Absent this level of knowledge, the Pickering NGS should not be operated beyond its current licencing period.

RECOMMENDATION NO. 17: Public notification and response systems must be tested and operable within the DPZ and CPZ and not limited to the immediate 10 km zone. Public alerting utilizing multiple communication methods must also be in place to a distance of 100 km.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 18: The CNSC must have evidence demonstrating that in the event of a radiological emergency, the provincial Alert Ready system can be promptly activated. The CNSC should request OPG to provide an update on its Alert Ready pilot project.

RECOMMENDATION NO. 19: We continue to encourage the CNSC to require licencees to provide KI by way of pre-distribution within a 50 km radius, and pre-stock to 100 km. In accordance with international best practice, the CNSC should extend KI stockpiles to 100 km and ensure stockpiles at places frequented by vulnerable groups, such as children and pregnant women, are maintained.

RECOMMENDATION NO. 20: Given the dense population within 50 kilometres of the Pickering NGS and children's particular vulnerability to radiation, we recommend the pre-stocking of KI in all schools within the 50 km zone be made a condition of licensing.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 21: CELA recommends that the CNSC require OPG to disseminate information on a more frequent basis, about the online KI-pill ordering website PrepareToBeSafe.ca in its outreach material to the public.

RECOMMENDATION NO. 22: We recommend the CNSC review the adequacy of medical care that could be provided during an evacuation. The CNSC should inquire if medical facilities within the DPZ and CPZ have long-distance, nuclear disaster-specific evacuation plans, and whether these plans have been practiced on a full-scale.

RECOMMENDATION NO. 23: CELA recommends the CNSC refuse the further extension of the Pickering's operating licence on the basis that medical response and evacuation are not detailed and operational beyond the 10 km DPZ. Detailed planning which is fully functional, and has been fully tested for efficacy, must be required within the CPZ.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 24: CELA recommends the CNSC extend detailed planning for large-scale evacuations into the IPZ. The CNSC should require OPG to demonstrate the adequacy of detailed planning within an expanded DPZ and IPZ, including planning for any schools, retirement homes, daycares, hospitals and correctional facilities in these areas. These plans should be communicated publicly.

RECOMMENDATION NO. 25: The CNSC should require OPG to update its Evacuation Time Estimate Report to reflect recent population objectives and growth trends in line with Ontario's Growth Plan (2017). The updated ETE should also review the impact of increased evacuation zones at a radial distance of 50 km on locations of Emergency Workers Centres, numbers of emergency workers required for evacuation management, traffic routes, size of evacuation centres, and locations and capacity of Decontamination and Monitoring Units. These findings should be reported to the CNSC and publicly reviewed.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 26: The CNSC should require OPG's public awareness program to contain more detailed information about evacuation routes, the location of emergency shelters and decontamination centres and how vulnerable people, including seniors and children, will be protected.

RECOMMENDATION NO. 27: The CNSC should inquire as to the availability of decontamination centres and whether the public is aware of their use and location.

RECOMMENDATION NO. 28: The CNSC should require OPG's public awareness program to contain information on how to self-decontaminate in order to foster great awarnesss of this default protective measure.

Summary of Recommendations (cont.)

RECOMMENDATION NO. 29: Methods to review risks and obtain consent from workers to exceed maximum radiation exposure limits should be explicitly clarified in plans by the operator as a condition of licensing.

RECOMMENDATION NO. 30: The IPZ should be extended to 100 km to account for weather contingencies and the aerial dispersion of radionuclides beyond 50 km.

RECOMMENDATION NO. 31: The CNSC should require proof of adequate contingency planning for the protection of drinking water in the event of an emergency as a requirement for licensing. The CNSC ensure that provisions are in place for an alternative source of drinking water for residents whose current drinking water source is Lake Ontario.