

# Evaluating Emergency Preparedness and Environmental Protection

CELA's Submission to the CNSC for  
Bruce Power's Proposed Life Extension and  
Refurbishment

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Canadian  
Environmental Law  
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# I. Introduction

- 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



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# I. Introduction

- CELA received participant funding from the CNSC to review the sufficiency of emergency preparedness and environmental safeguards for the proposed refurbishment and life extension of the Bruce Nuclear Generating Station (NGS)
- Summary of Recommendations provided on Slide 19

## II. Summary of Findings

**CELA does not support Bruce Power's application for a ten-year licence. We request the Commission not grant a licence exceeding five years to Bruce Power, for the following reasons:**

1. Whether Bruce Power is compliant with Ontario's revised *Provincial Nuclear Emergency Response Plan* remains unknown

## II. Summary of Findings (cont'd)

2. The depth of environmental review is not proportionate to the risk and complexity of the undertaking
3. The application does not promote the conditions for democratic transparency and effective public engagement with the nuclear sector

# III. Emergency Preparedness

## Findings

**The relicensing hearing is premature. Insufficient and incomplete information currently serves as the basis for Bruce Power's requested licence to 2028.**

- Bruce Power and municipality yet to align with updates to provincial emergency response plans:
  - Updated *Provincial Nuclear Emergency Response Plan* (PNERP) released December 21, 2017.
  - Implementing Plan specific to Bruce Power released approx. April 30, 2018



# III. Emergency Preparedness

## Findings (cont'd)

- Bruce Power is not yet in conformity with:
  - CNSC's *RegDoc 2.10.1 Nuclear Emergency Preparedness and Response*
  - International Atomic Energy Agency (IAEA) *Specific Safety Requirements Series No. SSR-2/2, Revision 1*
  - Planning basis equivalent to a Level 7 INES Accident

# III. Emergency Preparedness

## Summary of Recommendations

- Detailed planning, which is currently limited to the 10 km “Detailed Planning Zone,” must be extended into the 20 km “Contingency Planning Zone”
- Detailed planning in the CPZ should be required for:
  - Default protective actions (ie. evacuation, iodine thyroid blocking, self-decontamination, sheltering in-place)
  - Public alerting
  - Public awareness





# III. Emergency Preparedness

## Summary of Recommendations (cont'd)

- Protections within the “Ingestion Planning Zone” must extend to 100 km not 50 km:
  - KI availability
  - Medical treatment and evacuation
  - Control of agricultural products
- Contingency planning must be required for drinking water

# IV. Environmental Assessment

## Findings

**Bruce Power seeks to extend the operating life of reactors to 2064. If approved, this would be the first time a nuclear facility in Canada would be refurbished without undergoing a federal environmental assessment (EA).**

- EA conducted under the *Nuclear Safety and Control Act* (NSCA) is not an adequate nor equal substitute for a federally directed EA



# IV. Environmental Assessment

## Findings (cont'd)

- Side-by-side comparison of the federal EA completed for Bruce A (2006) versus the *NSCA* environmental assessment review for Bruce B (2018) reveals the latter has:
  - narrower scope
  - fewer public participation opportunities
  - less scientific and expert input/review
  - no detailed follow-up monitoring program



# IV. Environmental Assessment

## Findings (cont'd)

Bruce A – CEAA Environmental Assessment (2006)	Bruce B – NSCA Environmental Assessment (2018)
<b>Scope of Environmental Assessment</b>	
<ul style="list-style-type: none"><li>EA limited to review of activities and operations necessary for refurbishment and life extension only; explicitly excludes other on-site licenced activities</li></ul>	<ul style="list-style-type: none"><li>EA spans refurbishment and life extension, operations at Class II nuclear facility, radiography throughout the site, and import and export nuclear substance licences</li></ul>

# IV. Environmental Assessment

## Findings (cont'd)

Bruce A – CEAA EA (2006)	Bruce B – NSCA EA (2018)
<b>Public Participation Opportunities</b>	
<ul style="list-style-type: none"><li>• 121 days for public comment</li><li>• 81 days exclusive to EA</li></ul>	<ul style="list-style-type: none"><li>• 61 days for public comment</li><li>• 0 days exclusive to NSCA-led EA</li></ul>
<b>Technical and Expert Review</b>	
<ul style="list-style-type: none"><li>• Experts Consulted: CNSC Staff, Health Canada, NRCan, Department of Fisheries and Oceans, then Department of Indian Affairs and Northern Development</li></ul>	<ul style="list-style-type: none"><li>• Experts Consulted: Bruce Power primary source for information used in environmental effects analysis</li></ul>



# IV. Environmental Assessment

## Summary of Recommendations

- The *NSCA*-directed EA lacks the hallmarks of a federal environmental assessment:
  - Federal EA facilitates people to think about the potential implications of a project from the outset
  - Federal EA process offers better decision making, through the involvement and participation of the public
- The CNSC should require a follow-up monitoring program (FUMP) equivalent in scope to the federal EA for Bruce A (2006). In the interim, the existing FUMP should not be discontinued.

# V. Public Trust and Decision-Making

## Findings

**Licence review process does not promote the conditions for democratic transparency and effective public engagement with the nuclear sector.**

- In face of greater complexity and scope, the CNSC's process should be proportionately *more* supportive of public involvement, information sharing and independent expert review

# V. Public Trust and Decision-Making

## Findings (cont'd)

- Commission members have a duty to act in the public interest and promote the conditions for democratic transparency and effective public participation.
- Ten-year licences limit the frequency of licencing hearings and opportunities for the public to engage in detailed reviews of licensee activity



# V. Public Trust and Decision-Making

## Summary of Recommendations

- CNSC's Record of Decision should include:
  - clearly justified reasons, demonstrating why the rationale of an intervenor's submission was either accepted or rejected
  - expressly consider the public interest and how it factored into the review and analysis
- Embrace next-generation environmental law which includes providing accessible information and allowing a sufficient time for its review

## VI. Conclusion

CELA respectfully requests the Canadian Nuclear Safety Commission reconsider its 10-year approach to nuclear power plant licensing, in light of Bruce Power's request for a licence to refurbish and consolidate its operations at Bruce A and Bruce B.

CELA requests the Commission not grant a licence exceeding five years to Bruce Power.

*Thank you.*

# Summary of Recommendations

**RECOMMENDATION 1:** The CNSC should adopt the findings of the Environmental Assessment Expert Panel and the National Energy Board Modernization Panel, as a starting point for its actions to address public trust and facilitate public confidence in its process.

**RECOMMENDATION 2:** CNSC Records of Decisions should include clearly justified reasons, demonstrating why the rationale of a intervenor's submission was either accepted or rejected, and expressly consider the public interest and how it factored into the review and analysis.

**RECOMMENDATION 3:** The CNSC must inquire into the sufficiency of Bruce Power's emergency response planning absent processes which are aligned with PNERP 2017. Given Bruce Power's proposal to increase its operating power and scope of onsite activities, Bruce Power must demonstrate enhanced emergency preparedness. The Commission should require the public release of documents from Bruce Power, which include reports related to offsite drills, after-action reports related to the Huron Resolve exercise, the Severe Accident Management Guidelines, the Waste Management Plan and the Winter Storm Transportation Plan.

# Summary of Recommendations (cont.)

**RECOMMENDATION 4:** Compliance with REGDOC-2.10.1 must be made a condition of licensing to ensure Bruce Power fulfills its transition plan by August 31, 2018.

**RECOMMENDATION 5:** References on pages 108 and 140 of the CNSC Staff's CMD should be updated to refer to SSR-2/2 (Rev. 1.), thereby making SSR-2/2 (Rev. 1.) part of the licence requirements. In light of this update, the CNSC must review whether the licensee is in compliance and if additional revisions are required to the proposed Licence and Licence Conditions Handbook.

**RECOMMENDATION 6:** The IAEA's SSR-2/2 was intended as a licensing requirement and thus the Commission should amend the proposed Bruce Power operating licence to reflect the original purpose of SS-2/2, and classify it as a compliance verification document, not guidance.

**RECOMMENDATION 7:** The CNSC should ensure the basis for emergency response plans is sufficient to mitigate the offsite impacts of an INES Level 7 accident at Bruce Power.

# Summary of Recommendations (cont.)

**RECOMMENDATIONS 8:** At a minimum, if emergency preparedness for the Bruce Nuclear Generating Station were to reflect the global experience of severe offsite accidents that have occurred in other jurisdictions, the detailed planning zone (formerly called the primary zone) must be extended from the existing 10 km zone to a distance of 20 km and the contingency planning zone must require the same level of detailed planning as currently required in the DPZ.

**RECOMMENDATION 9:** CELA recommends that in view of the experience at Chernobyl and Fukushima, the CNSC should extend the requirements of the Ingestion Planning Zone to a distance of 100 km. This should be done as part of detailed planning for severe accidents so that appropriate monitoring of food, agricultural products, milk, and water is established and in place in the event of such an accident.

**RECOMMENDATION 10:** CELA recommends that the Commission publicly review findings from the PNERP Technical Study, and the implications for the Bruce Power on-site and off-site emergency planning arrangements. CELA recommends that these arrangements be reviewed at a public meeting of the Commission at least annually. In the interim, CELA recommends that the Commission not grant a licence exceeding five-years.

# Summary of Recommendations (cont.)

**RECOMMENDATION 11:** The CNSC should require Bruce Power provide a public awareness strategic plan, per PNERP 2017, to be reviewed publicly on annual annually as a condition of licensing.

**RECOMMENDATION 12:** CELA recommends public notification and response systems be tested and operable within DPZ and CPZ, and not limited to immediate 3 km AAZ.

**RECOMMENDATION 13:** The need to test and review the efficacy of recent public alerting measures weighs in favour of granting a five, not ten-year licence to Bruce Power. With the new warning system efforts undertaken by Bruce Power, we recommend the Commission require an update at a public meeting within one year of the licence renewal date.

**RECOMMENDATION 14:** The CNSC should require Bruce Power provide an online KI-pill request mechanism which is equivalent to the current “Prepare to Be Safe” website used by OPG for the Pickering and Darlington nuclear power plants for all individuals in the 50 km zone.

# Summary of Recommendations (cont.)

**RECOMMENDATION 15:** 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 16:** We recommend the CNSC review the adequacy of medical care that would be required during an evacuation. The CNSC should inquire if medical facilities within 100 km of the Bruce NGS have a long-distance nuclear disaster-specific evacuation plan, and whether these plans have been practiced at full-scale. Granting a shorter licence of five-years to Bruce Power is more fitting because of the need for the CNSC to review the applicable medical evacuation plans that could result from an accident at Bruce Power.

**RECOMMENDATION 17:** Prior to approving the license for continued operation, the CNSC must require assurance and demonstration that the offsite emergency response capability includes detailed medical planning which ensures healthcare facilities have multiple communication measures available and supervision by disaster specialists who are qualified in radiation protection.

# Summary of Recommendations (cont.)

**RECOMMENDATION 18:** It is incumbent that the CNSC inquire into Bruce Power's plan for implementing the revised Radiation Health Response Plan and, whether it has completed a deficiency review of its existing processes to propose actions for alignment with PNERP 2017 current to the time of relicensing. In order to facilitate the Commission's public review and examination of this Plan and its confluence with licensee activity, a five, not ten-year licence should be considered for renewal.

**RECOMMENDATION 19:** Offsite emergency planning must integrate extreme weather events into its response measures. The efficacy of all response actions must be considered in light of winter storms, varying wind speeds and visibility, which could inhibit the ability of the public safely evacuate and access essential services.

**RECOMMENDATION 20:** If the Commission is not satisfied that the ability to fully evacuate in all weather conditions has been demonstrated, the CNSC should require this issue to be considered as a condition of licensing and should require a report to the commission at a public meeting within one year of the date of license renewal.



# Summary of Recommendations (cont.)

**RECOMMENDATION 21:** CELA recommends that a supplementary ETE Report be completed for large-scale evacuations, including consideration of any schools, retirement homes, daycares, hospitals and correctional facilities in the area, and identification of alternate reception centres outside of the IPZ or 50 km limit.

**RECOMMENDATION 22:** Prior to approval of the license application, the CNSC should require Bruce Power to demonstrate the adequacy of detailed planning within an expanded Detailed Planning Zone as well as within an expanded Ingestion Planning Zone, including planning for any schools, retirement homes, daycares, hospitals and correctional facilities in these areas. While adaptation may be required, CNSC should not accept the province's continued reliance on improvisation and adaptation as its main strategy for responding to large off-site accidents that require evacuation and other measures beyond the Detailed Planning Zone. These plans should be communicated publicly.

# Summary of Recommendations (cont.)

**RECOMMENDATION 23:** The CNSC should require Bruce Power to evaluate 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, and to report its findings to the CNSC.

**RECOMMENDATION 24:** The CNSC should require as a condition of licensing that Bruce Power provide municipalities within the Detailed Planning Zone and Ingestion Planning Zone with financial resources to create and implement detailed evacuation plans up to 50 km away.

**RECOMMENDATION 25:** The CNSC should require demonstration that all evacuation plans, including all traffic control plans, have been updated and are adequate to fully protect the public from large scale nuclear accidents as a requirement for relicensing.

# Summary of Recommendations (cont.)

**RECOMMENDATION 26:** Bruce Power and the Municipality of Kincardine should work together to ensure that contingency plans are in place for individuals who have no access to transit in the event of an evacuation. These plans should be communicated to the public.

**RECOMMENDATION 27:** As a condition of licensing, a supplemental to the ETE Report should be provided to the Commission at a public meeting which reviews the impact of shadow evacuations on evacuation time estimates in the DPZ.

**RECOMMENDATION 28:** Bruce Power should be required to model the impact of car accidents and planned road improvements, both inside and outside of the evacuation zones, to assess how evacuation times will be impacted.

# Summary of Recommendations (cont.)

**RECOMMENDATION 29:** The CNSC must require the Environmental Monitoring Program to extend to a distance of 100 km as a condition of licensing, to account for revised IPZ zone and ensure the reduction and prevention of ingesting contaminated agricultural products in the event of an emergency.

**RECOMMENDATION 30:** 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. Drinking water monitoring is insufficient in scope to ensure that there are actually sufficient drinking water supplies available in the event of a major radioactive release.

**RECOMMENDATION 31:** 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.

# Summary of Recommendations (cont.)

**RECOMMENDATION 32:** CELA recommends that CNSC staff be required to provide an update on Bruce Power's progress as it relates to the congestion and community expansion in the area surrounding the Emergency Worker Centre. The report should be made publicly available and open for public comment.

**RECOMMENDATION 33:** The CNSC should require Bruce Power to provide a public update on its corrective actions resulting from the Huron Resolve exercise at the Commission's annual meeting on the Regulatory Oversight of Nuclear Generating Stations.

**RECOMMENDATION 34:** CELA recommends the CNSC set a deadline for the completion of Bruce Power's transition to a fully automated system. This plan should be made a requirement of licensing and until implemented, reviewed annually at the Commission's regulatory oversight meeting.

# Summary of Recommendations (cont.)

**RECOMMENDATION 35:** CELA recommends a ten-year licence not be granted to Bruce Power because the environmental assessment under the *NSCA* is profoundly lacking and not proportionate to the public participation and expert review provided for the nearly analogous Bruce A refurbishment and life extension project. Instead, CELA suggests the CNSC should refer the matter to the Minister for review under *CEAA 2012*.

**RECOMMENDATION 36:** Until the CNSC has developed a follow-up monitoring program (FUMP) which is equivalent in scope to the FUMP required based on the Bruce A federal EA, the current FUMP should remain in place and not discontinued.

**RECOMMENDATION 37:** To ensure Bruce Power's compliance with the FUMP, the CNSC should incorporate the existing FUMP by reference as a required licence condition.

# Summary of Recommendations (cont.)

**RECOMMENDATION 38:** Due to the number of plans and standards which are not yet implemented, the CNSC lacks a sufficient basis for compliance and enforcement. Bruce Power should not be granted a licence beyond five years until all outstanding items are remedied and fully in force.

**RECOMMENDATION 39:** Consolidated licences, because of their broader scope and complexity, are not conducive to ten-year-licences. Absent Bruce Power providing the required information to support a consolidated licence application in advance of the hearing, and for public review, the CNSC should dismiss the request because of a lack of evidentiary basis.