



# Record of Decision

DEC 20-H110

In the Matter of

Applicant Ontario Power Generation Inc.

Subject Request for Commission Approval to Amend  
Ontario Power Generation's Integrated  
Implementation Plan for the Pickering Nuclear  
Generating Station

Date of  
Decision April 13, 2021

**RECORD OF DECISION – DEC 20-H110**

Applicant: Ontario Power Generation Inc.

Address/Location: 700 University Avenue, Toronto, Ontario, M5G 1X6

Purpose: Request for Commission Approval to Amend Ontario Power Generation’s Integrated Implementation Plan for the Pickering Nuclear Generating Station

Application received: October 6, 2020

Hearing: Public Hearing in Writing – Notice of Hearing in Writing published on November 27, 2020

Date of decision: April 13, 2021

Panel of Commission: R. Velshi, President

**Change in licensing basis: Approved**

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## 1.0 INTRODUCTION

1. Ontario Power Generation Inc. (OPG) has submitted a request to the Canadian Nuclear Safety Commission<sup>1</sup> (CNSC) for the approval to revise the Pickering Nuclear Generating Station (Pickering NGS) Integrated Implementation Plan (IIP). Specifically, OPG applied to amend the Pickering NGS IIP by removing resolution action G25-RS1-04-20, extending the deadline for resolution action G04-RS2-06-08 and extending the deadline and modifying resolution action G01-RS1-06-01. A revision to the IIP represents a change in the licensing basis for the Pickering NGS and requires Commission approval under the terms of the current operating licence issued under the [Nuclear Safety and Control Act \(NSCA\)](#).
2. OPG's licence for the Pickering NGS, PROL 48.01/2028, expires on August 31, 2028. The Pickering NGS consists of eight CANDU pressurized heavy water reactors, the Pickering Waste Management Facility and associated equipment for the purpose of electricity generation. The Pickering NGS is located in the municipality of Pickering, Ontario.
3. The IIP includes actions arising from the Periodic Safety Review (PSR) OPG conducted in support of the 2018 licence renewal for the Pickering NGS. The IIP forms part of the licensing basis for the current operating licence, such that changes to it engage the requirement for Commission approval, as contemplated in licence condition G.1. The facility-specific licence condition 15.1 also requires OPG to implement the IIP. The IIP has target completion dates for planned activities, the last of which were to be completed by December 31, 2020,<sup>2</sup> as stated under Section 15.1 of the Pickering NGS Licence Conditions Handbook (LCH).

### Hearing

4. Pursuant to section 22 of the NSCA, the President established a Panel of the Commission to consider the application. A [notice of hearing in writing](#) was published on November 27, 2020 inviting written interventions from members of the public. The Commission, in conducting a public hearing based on written materials, considered written submissions from OPG ([CMD 20-H110.1 to CMD 20-H110.4](#)) and CNSC staff ([CMD 20-H110](#) and [CMD 20-H110.A](#)). The Commission also considered a single written intervention.

## 2.0 DECISION

5. Based on its consideration of the matter, as described in more detail in the following sections of this Record of Decision, the Commission concludes that the revised Pickering NGS IIP proposed by OPG will continue to meet the safety improvement objectives of

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<sup>1</sup> The *Canadian Nuclear Safety Commission* is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

<sup>2</sup> OPG submitted its application for approval in October 2020.

the PSR. The Commission is satisfied that the specific changes requested would not take away from those objectives and remain within the safety case that was approved by the Commission when it renewed the licence. Therefore,

the Commission approves the three specific modifications to the Integrated Implementation Plan as more fully described in this Record of Decision, thereby approving the change to the licensing basis.

6. With this decision, the Commission approves the revisions to the following Pickering NGS IIP items, as detailed in CMD 20-H110:
  - removal of resolution action G25-RS1-04-20 from the IIP, while retaining the requirement to re-categorize LBLOCA CSIs in the Pickering NGS licensing basis
  - extension of the deadline for resolution action G04-RS2-06-08 to June 30, 2021
  - extension of deadlines to June 30, 2021 and proposed changes to two IIP actions under resolution action G01-RS1-06-01
7. The Commission directs CNSC staff to update the Pickering NGS Licence Conditions Handbook (LCH) to reflect the Commission's decision in this matter.

### 3.0 ISSUES AND COMMISSION FINDINGS

8. In coming to its decision, the Commission first examined the applicability of the [\*Impact Assessment Act\*](#) (IAA). In its application, OPG submitted a request to revise three Pickering NGS IIP items, representing a change in licensing basis for the facility. The Commission finds that the proposed change to the licensing basis to revise IIP items is not a project, and not a designated project under section 81 of the IAA. The proposed changes to the IIP would not result in any change to the existing authorized activities.
9. Licence condition 15.1 of PROL 48.00/2028 provides that "*The licensee shall implement the Integrated Implementation Plan*" and licence condition G.1 stipulates that the licensee shall conduct licensed activities in accordance with the licensing basis for the facility. Since the IIP forms part of the Pickering NGS licensing basis, the Commission must approve, in writing, any changes to the IIP. In making its decision in this matter, the Commission considered OPG's proposed amendments to three IIP resolution actions with respect to their impact on the safety of the Pickering NGS and meeting the previously-established safety improvement objectives for the facility.

Removal of resolution action G25-RS1-04-20

10. The Commission reviewed the proposed removal of resolution action G25-RS1-04-20 from the IIP to determine the impact to the safety case of the Pickering NGS. The Commission also considered the proposed changes to resolution action G25-RS1-04-20 and the associated IIP action G21-RS1-04-20.1, as well as the proposed timeline for the completion of these actions.
11. According to OPG, IIP Resolution Action G25-RS1-04-20 and associated IIP Action G25-RS1-04-20.1 “Recategorization of the Large Break Loss of Coolant Accident” were identified to track the update of Large Break Loss of Coolant Accident (LBLOCA) analysis for PNGS to facilitate re-categorization from a Category 3 CANDU Safety Issue (CSI) to Category 2. OPG explained that the CSIs were classified into the following three categories:
  - Category 1: The issue has been satisfactorily addressed in Canada
  - Category 2: The issue is a concern in Canada - appropriate measures are in place to maintain safety margins
  - Category 3: The issue is a concern in Canada - measures are in place to maintain safety margins, but the adequacy of these measures needs to be confirmed

OPG confirmed that the removal of the resolution action from the IIP would not affect its classification as a Category 3 CSI.

12. OPG explained that its request to remove resolution action G25-RS1-04-20 from the IIP is a result of a change in its approach to addressing the action. According to OPG, this change in approach requires a longer timeline, to 2024. OPG is of the view that the resolution action and the associated IIP action are not required to enable the continued safe operation of Pickering NGS beyond the end of 2020. OPG proposed to continue to track the resolution action separately, outside of the IIP process.
13. OPG’s request is predicated on its support of an industry initiative to use a different methodology, a Composite Analytical Approach (CAA), to address the LBLOCA CSIs. OPG originally intended to use a modified Limit of Operating Envelope (LOE) safety analysis methodology to update the LBLOCA analysis, however, OPG determined that the application of the CAA methodology offered a more certain basis for the re-categorization of LBLOCA CSIs. OPG’s proposed adoption of the CAA methodology requires modification to the original IIP action description.
14. OPG chose to use CAA because CNSC staff had determined that Bruce Power’s concept for the implementation of CAA was an acceptable approach for safety analysis of LBLOCA. CNSC staff’s submissions included information concerning its determination that Bruce Power’s concept for implementation of the alternative CAA constituted an acceptable approach for the safety analysis of LBLOCA. CNSC staff expect a comparable assessment for OPG to show similar results. The Commission accepts OPG’s justification for adopting the CAA methodology, and agrees that modification to the original IIP action description is required.

15. OPG provided information regarding its proposed implementation of the CAA methodology. OPG's proposed adoption of the CAA methodology would require an extension of the original IIP deadline from December 31, 2020 to 2024. OPG proposed to continue to track the resolution action separately, outside of the IIP process. CNSC staff stated that it would initiate a station-specific Action Item to direct OPG to use a safety analysis methodology that is acceptable to CNSC staff to update and submit its LBLOCA analysis and request for re-categorization before April 2024. CNSC staff further reported that despite the extension of the deadline to 2024, the original intent of the IIP action would be satisfied and that it would remain as a licensing basis commitment. CNSC staff committed to maintaining annual updates to the Commission via the Regulatory Oversight Report - Nuclear Power Generating Sites, or through other means, as appropriate. The Commission is satisfied that the LBLOCA analysis would remain a licensing basis commitment, and that it would continue to be tracked if removed from the IIP.
16. With respect to the ongoing safety of the Pickering NGS, OPG posited that the removal of resolution action G25-RS1-04-20 and the associated action G21-RS1-04-20.1 from the IIP would have minimal impact on safety. OPG is of the view that the completion of the resolution actions by the end of 2020 was not required to support the continued safe operation of PNGS past 2020. OPG submitted that, as the development of the CAA was on-going, the licensing basis of existing CANDU reactors for the LBLOCA scenario would continue to be based on a conservative safety analysis for which acceptance criteria are established.
17. CNSC staff submitted its analysis of the safety significance of the proposed removal of the resolution items from the IIP. CNSC staff's assessment determined that the risk significance associated with the outstanding update of the LBLOCA analysis is low. CNSC staff noted that the adoption of the CAA would not impact the baseline risk documented in the Safety Report that was used to support the current licensing basis for the facility, and would not inhibit the capability for safe operations beyond the original IIP commitment deadline of December 31, 2020. CNSC staff confirmed that extending the analysis timeframe for a low safety significance event would not introduce unreasonable risk, and that the operation of the facility would remain within its licensing basis.
18. The Commission considered the rationale for the additional four-year period to complete the action. CNSC staff explained that the additional four-year period was not a result of a technical issue, but was required in order for OPG to complete the analysis associated with the new CAA approach. CNSC staff confirmed that OPG continues to meet applicable requirements for safety analysis, and that the additional four-year period for updating the analysis would not change the existing, and acceptable, risk associated with the operation of Pickering NGS. CNSC staff reiterated that the risk significance associated with the outstanding update of the LBLOCA analysis is unchanged from the time of licence renewal in 2018, and is low. The Commission is satisfied that, given the low safety significance, extending the timeframe for the LBLOCA analysis does not introduce unreasonable risk.

19. Based on its assessment of the information provided on the record by OPG and CNSC staff, the Commission is satisfied that the proposed removal of IIP action G25-RS1-04-20 and the completion deadline extension to April 2024 would not impact the safe operation of Pickering NGS. The Commission has relied on the detailed assessment of this issue that is outlined in CNSC staff's CMDs, and has taken into account CNSC staff's outline of how the CAA approach to safety analysis of LBLOCA at OPG facilities is to unfold. The Commission is satisfied with CNSC staff's characterization of the risk significance of the proposed changes to this part of the IIP, and is satisfied that the action will continue to be tracked separately by CNSC staff, as are all other tracked CSIs. To be clear, removing resolution action G25-RS1-04-20 from the IIP removes the LBLOCA CSI from the governance of licence condition 15.1, but will not alter the requirement to address recategorization of LBLOCA CSIs. This remains a Category 3 CSI, and the LBLOCA analysis remains a licensing basis commitment. The Commission expects to be updated on the station-specific action item that will reflect this, as part of the annual Regulatory Oversight Report - Nuclear Power Generating Sites, or through other means, as appropriate.

Deadline extension for resolution action G04-RS2-06-08

20. The Commission reviewed the requested extension to the deadline for resolution action G04-RS2-06-08 from December 31, 2020 to April 23, 2021. Resolution action G04-RS2-06-08 requires OPG to:  
*perform measurements, as required, of CT-LISS nozzle gaps on Units 5-8 to refine the gap closure rates. Using this new measurement data, update analyses are required, to demonstrate Fitness for Service. OPG is to implement mitigation strategies if CT-LISS nozzle contact is predicted within the extended operating period.*
21. OPG's request was specifically for IIP action G04-RS2-06-08.1, which is to ensure that there is no predicted contact between the calandria tube and the liquid injection safety system nozzle during the extended operating period for Pickering NGS Unit 6. OPG submitted that it had completed the Fitness for Service assessment for the measurement between the calandria tube and the liquid injection safety system nozzle for all Pickering NGS units, except Unit 6. OPG stated that it would complete the measurement portion of IIP action G04-RS2-06-08.1 for Pickering NGS Unit 6 as scheduled, before the end of 2020, but that the timing of the Unit 6 planned maintenance outage near the end of the year, and the normal 90-day reporting period, would cause a delay past the original completion date for the IIP.
22. CNSC staff's assessment of OPG's request determined that a delay in the closure of IIP action G04-RS2-06-08 and the associated IIP action would not have an impact on the assurance of the safe operation of Unit 6, as no calandria tube and liquid injection safety system nozzle contact was reasonably predicted to occur during the requested extension period. CNSC staff recommended that the deadline for closure be moved beyond OPG's request of April 23, 2021 to June 30, 2021, due to the ongoing COVID-19 pandemic.



23. Based on its assessment of the information provided on the record by OPG and CNSC staff's analysis of OPG's submissions, the Commission is satisfied that the proposed deadline extension to June 30, 2021 for IIP action G04-RS2-06-08 would not have an impact on the safe operation of Pickering NGS.

Deadline extension for resolution action G01-RS1-06-01 and two related actions

24. The Commission reviewed the requested extension to the deadline for resolution action G01-RS1-06-01 and two related actions (G01-RS1-06-01.2 and G01-RS1-06-01.3) from December 31, 2020 to April 23, 2021. Resolution action G01-RS1-06-01 and the two related actions require OPG to track the nominal cool down transient for use in probabilistic leak-before-break (PLBB) analyses and to validate that the PLBB code is complete.
25. OPG submitted that it had requested closure of IIP resolution action G01-RS1-06-01 on December 20, 2019, and that CNSC staff had requested further actions and supplemental information before the IIP resolution action could be closed. OPG confirmed that it would submit this information to CNSC staff on or before April 23, 2021.
26. CNSC staff provided information concerning its assessment of OPG's request to close IIP resolution action G01-RS1-06-01 and the two related actions. CNSC staff recommended that the deadline for the resolution action be extended to allow time for OPG to respond to CNSC staff's request for supplemental information. CNSC staff further recommended that the deadline for closure be moved beyond OPG's request of April 23, 2021 to June 30, 2021, due to the ongoing COVID-19 pandemic.
27. CNSC staff submitted that the requested extension would have a negligible impact on the safety of the Pickering NGS for the proposed extended time period. CNSC staff assessed that the interim safety provisions currently in place to preserve the safety margins for the requested extensions remain satisfactory.
28. Based on its assessment of the information provided on the record by OPG and CNSC staff, the Commission is satisfied that the proposed deadline extension to June 30, 2021 for IIP action G01-RS1-06-01, and the related actions G01-R 1-06-01.2 and G01-RS1-06-01.3, would not have any impact on the safe operation of Pickering NGS.

Intervention

29. The Commission considered the intervention from North American Young Generation in Nuclear – Durham Chapter, which was supportive of OPG's request.

#### 4.0 CONCLUSION

30. The Commission is satisfied that OPG's request to revise three Pickering NGS IIP items does not propose any new activities that require an impact assessment under the IAA. Further, the Commission notes that the NSCA and its regulations provide for the protection of the environment and the health and safety of persons, and is satisfied that the licensee will continue to adequately provide these protections.
31. The Commission is satisfied that approving the proposed revisions to the three specific Pickering IIP resolution actions at issue here will not adversely affect OPG's ability to meet the safety objectives of its IIP, and that the safety case will remain robust. Therefore, the Commission approves the changes to the Integrated Implementation Plan for the Nuclear Power Reactor Operating Licence, PROL 48.00/2028, issued to Ontario Power Generation Inc. for its Pickering NGS located in the municipality of Pickering, Ontario.
32. With this decision, the Commission approves the revisions to the following Pickering NGS IIP items, as detailed in CMD 20-H110: resolution actions G25-RS1-04-20, G04-RS2-06-08 and G01-RS1-06-01.
33. The Commission directs CNSC staff to update the Pickering NGS Licence Conditions Handbook (LCH) to reflect the Commission's decision in this matter.

**Velshi,  
Rumina**

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April 13, 2021

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Rumina Velshi  
President,  
Canadian Nuclear Safety Commission

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Date