



## Questions from Commission Panel Members

## Questions des membres de la formation de la Commission

In the Matter of the

À l'égard d'

### Ontario Power Generation Inc.

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Application for a licence to construct one BWRX-300 reactor at the Darlington New Nuclear Project Site (DNNP)

### Ontario Power Generation Inc.

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Demande visant à construire 1 réacteur BWRX-300 sur le site du projet de nouvelle centrale nucléaire de Darlington (PNCND)

### Commission Public Hearing Part-1

### Audience publique de la Commission Partie-1

October 2, 2024

2 octobre 2024



## INTRODUCTION

Questions from Commission	Questions de la Commission
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On October 2, 2024, the Commission held Part 1 of the public hearing to consider Ontario Power Generation’s (OPG) application to construct one BWRX-300 reactor at the Darlington New Nuclear Project (DNNP) Site. In conducting the Part 1 hearing, the Commission considered written submissions provided by CNSC staff in [CMD 24-H3](#), [CMD 24-H3.A](#), [CMD 24-H3.B](#), [CMD 24-H3.C](#), and [CMD 24-H3.D](#)<sup>1</sup> and OPG in its application and supporting submissions, [CMD 24-H3.1](#), [CMD 24-H3.1A](#), and [CMD 24-H3.1B](#). The Commission also considered oral submissions from CNSC staff and OPG at the Part 1 hearing.<sup>2</sup> The Commission requires additional information with respect to the questions and direction set out below.

## QUESTIONS

The Commission’s questions are set out in Table 1. OPG shall provide technical responses to each question and CNSC staff shall provide its regulatory position in relation to each question, as applicable.

**Table 1: CMD 24-H3-Q Questions from the Commission**

#	Commission Questions
1.	How has the Transient Reactor Analysis Code “GE Hitachi” (TRACG) computer code been validated for use on the BWRX-300 reactor design? The Commission notes that the BWRX-300 design has a smaller reactor core than traditional boiling water reactors.
2.	What instabilities may occur in the reactor core and chimney during start-up and how does the BWRX-300 design mitigate these potential instabilities?
3.	How was the TRACG code used to model instability within the BWRX-300 reactor core during start-up? The Commission is seeking specific information on what assumptions were used in that modelling and how the void distribution within the “Global Nuclear Fuel Mk. 2” (GNF2) fuel assembly was considered.
4.	Has the GNF2 fuel assembly been optimized for use in a reactor core with natural circulation, and if so, how? The Commission notes that the GNF2 fuel assembly was designed for reactors with forced circulation of coolant through the reactor core and that the proposed BWRX-300 design would employ natural circulation.
5.	How was the onset of the boiling transition modelled for the GNF2 fuel assembly? What ability would OPG have to detect boiling conditions along the fuel assembly during reactor operation and what risk exists for fuel dry-out?
6.	The Commission is seeking additional information on the power coefficient of reactivity during different reactor power levels. How would reactor power control be

<sup>1</sup> CMD 24-H3.C and CMD 24-H3.D contain prescribed information and are not available to the public.

<sup>2</sup> Submissions from intervenors will be considered at Part 2 of the public hearing.



	maintained for conditions where the power coefficient of reactivity may be positive?
7.	<p>The Commission is seeking specific information on the design and validation of the Distributed Control and Information System (DCIS), including detailed information on:</p> <ul style="list-style-type: none"> <li>• software certification and verification</li> <li>• fail-over from System A to back-up System B</li> <li>• transfer of control from the main control room to the secondary control room</li> </ul>

**DIRECTION**

The Commission’s direction is set out in Table 2. OPG shall provide the Commission with the requested document as described below.

**Table 2: CMD 24-H3-Q Direction from the Commission**

#	Commission Direction
1.	OPG indicated that it would be submitting a predictive environmental risk assessment (ERA) to CNSC staff by December 15, 2024. The Commission directs that OPG submit its predictive ERA to the Commission Registry to be included on the record for this hearing. OPG shall file its predictive ERA with the Commission Registry at the same time as it submits the assessment to CNSC staff.

**REQUEST**

OPG and CNSC staff shall submit a response to the Commission’s questions by way of supplementary CMD no later than December 12, 2024. OPG shall submit its predictive ERA to the Commission Registry by December 15, 2024. OPG and CNSC staff are expected to inform the Registry of any concerns respecting these deadlines within five working days of receiving this CMD-Q.

Name:	Candace Salmon, Commission Registrar <i>On behalf of the Commission</i>	Date: 2024-10-11
Signature:		