Comments received from public consultation / Commentaires reçus dans le cadre du processus de consultation
RD-360, *Life Management of Nuclear Power Plants / Gestion de la durée de vie des centrales nucléaires*

First consultation: July 18 – September 19, 2011; Second consultation October 14 - October 28, 2011
Premier consultation le 18 juillet – le 19 septembre 2011, deuxième consultation le 14 octobre – 28 octobre 2011

Note that comments are posted and answered in the language in which they were submitted / notez que les commentaires sont affichés dans leur langue d'origine à la réception.

	Organization	Section in RD-360 version 2	Section in Final RD/GD-360 version 2	Comment	CNSC Response
1	Hydro Québec	General		Hydro-Québec a pris part à plusieurs discussions avec les autres titulaires de permis de l'industrie nucléaire canadienne sur le contenu des documents RD-360 version 2 et le document guide GD-360. Nous vous informons par la présente que nous sommes en accord avec les commentaires formulés dans les soumissions do nos collègues de l'industrie et pourrons vous fournier une version française de ces commentaires au besoin.	Noté. Merci pour vos commentaires.
2	Bruce Power & Énergie NB Power	General		Industry Consultation: As is common practice for consultations of important Regulatory Documents, the industry submitted consolidated comments to the CNSC on last year's draft RD-360 version 1. Unfortunately, many of our comments were not addressed and version 2 has now added new regulatory requirements. For example, the revised RD now stipulates the need for completion of an ISR for operations beyond the assumed design life regardless of the duration of operation. This regulatory requirement did not exist in version 1.	The draft was revised prior to posting for public consultation and industry has had an opportunity to comment during the public consultation period. CNSC staff has taken all comments received into consideration in the subsequent revision of the document. The requirement of an ISR regardless of the duration of operation has been modified as a result of comments received during public consultation. See response to comments 6 and 7.
3	Ontario Power Generation (OPG) & Énergie NB Power	General		Assumed Design Life: Regarding the RD-360 definition for *assumed station design life,* the industry has consistently challenged the imposition of 210,000 EFPH for pressure tubes operating time as a default value for the overall design life of a station. The industry position is that the design life is influenced by a number of factors associated with how the plant is designed, operated, maintained and the implementation of upgrades over the years. The utilities are in the best position to technically define a current design life, and should be permitted to do so utilizing knowledge of component aging management, operating experience, inspections, research and analysis associated with life cycle management activities.	Response for Comments 3, 4, and 5: Agreed. The document has been revised using the term "**nominal design life**" to denote a regulatory trigger at which time the licensee must inform the CNSC of their plans/strategy for either long-term operation or end of life. The reference to the 210,000 EFPH has been deleted. The nominal design life is defined as: "*The period of operation that was originally anticipated at the design phase for the NPP. It is used as a reference or target for planning activities including the design of SSCs that can affect the safe operation of the NPP. For the purposes of this regulatory document and for the current operating CANDU power reactors, unless otherwise stated, the "nominal design life" of an NPP is 30 years, based on 0.8 capacity factor of nominal full power."*
4	Bruce Power	General		Assumed Design Life: The proposed version of RD-360 defines station design life based on fuel channel life. Bruce Power has consistently stated that while Effective Full Power Hot hours may be a suitable limit for pressure tubes operating life time there is no technical basis to link it to a default value for the overall design life of a station. Plant design life is influenced by a number of actors associated with how the plant is designed, operated, and maintained	

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				as well as upgrades implemented over the years. The utilities are in the best position to technically define a current design life, and should be permitted to do so utilizing knowledge of component aging management, operating experience, inspections, research and analysis associated with life cycle management activities.	
5	OPG & Énergie NB Power	General		<u>End of assumed design life</u> The document should reflect that it is for the licensee to define a design life limit and provide technical justification for the value for submission to the CNSC. It should be noted that the next generation of reactors will have a much longer design life. Refurbishment completed prior to the end of the assumed design life must support re-setting the assumed design life. Add a caveat in Section 2, General Requirements that refurbishment completed prior to end of design life may be used to establish a new design life. Application of Section 3.1, 3.2 and 3.7 are required to support this refurbishment.	Agreed. Appendix A process flow chart indicates that the nominal design life is extended after life extension / refurbishment.
6	Bruce Power	General		<u>Impact for Continued Operations:</u> The proposed new regulatory requirement for completing an ISR for continued operations places an undue burden on licensees and no cost/benefit justification has been provided. Imposing ISR requirements would have the effect of diffusing the focus of a life management program for continued operation by shifting focus to a gap compliance exercise against modern day codes and standards. This is not consistent with international standard and industry practice and as such, an ISR should not be required under such circumstance. Evan if an ISR requirement was to be mandated, the licensee should have the flexibility to propose an operating period other than the required 10 year minimum (based on commercial as well as safety reasons).	Response to comments 6 & 7: Agreed. Continued operation is now defined as the operation of the NPP for a limited period, less than 10 years beyond the nominal design. In the revised document the licensee must complete a continued operation plan (COP) to demonstrate that the plant is capable of maintaining safe operation under normal and accident conditions during the proposed period of operation. The main objective of the COP is to provide assurance that all SSCs important to the safe operation have been evaluated for effects of aging for the proposed period of continued operation, such that overall safety margins remain consistent with current safety requirements and that SSCs meet fitness for service criteria in accordance with the licensing basis. Continued operation must be followed by either end-of-operation or life extension. ISR is mandated for life extension only.
7	Énergie NB Power	General		<u>Impact for Continued Operations:</u> The proposed new regulatory requirement for completing an ISR for Continued Operation places an undue burden on licensees and no costl/benefit justification has been shown. If an ISR is going to be mandated, the licensee should have the flexibility to establish an operating period other than the required 10 year minimum (based on commercial as well as safety reasons). NB Powers position is that a Continued Operations Plan (COP) identifying the utility's strategic focus and commitments (building on existing infrastructure and programs) for maintaining a valid safety design and analysis basis, a strong fitness for service case coupled with high safety standards and practices in plant, people and process is sufficient without the addition of an ISR.	

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8	Bruce Power & Énergie NB Power	General		Impact on Refurbishment: RD-360 version 2 stipulates a prescriptive oriented approach to seek alignment with the CNSC Safety and Control Areas (SCA). This is substantially different in focus, format and content from the ISR approach that has been successfully applied and accepted by the CNSC in previous refurbishment projects. To comply with this requirement would require a rework of the ISR work already completed or currently in progress in support of refurbishment initiatives by the utilities. On the basis NBP would not be revisiting the ISR work already completed. The Safety Factor Report (SFR) reviews embedded in the current ISR methodology is fundamentally sound and follows the IAEA guidelines. There is no clear benefit in converting to the proposed CNSC review approach, and a substantial effort will be required to revise or modify work already completed. The utilities are in a position to demonstrate how the CNSC SCAs are adequately addressed via the SFR review approach. In addition, the document refers to a "commissioning program" which would be more appropriately addressed by a "return to service program" of which commissioning is a subset. A return to service program contains the elements and description of activities required to prove SSC and the plant perform as expected. Commissioning should only be required for systems that have been modified.	No change. However, Safety factors may be mapped to SCAs – this is consistent with current practice. The SCA approach is aligned with the CNSC SCA framework. The licensee has the option to demonstrate that the requirements are met by performing a mapping exercise and/or covered by other existing plans/procedures/analyses. The following statement has been added to Section 2: *"The CNSC will consider alternative approaches to the requirements and guidance in this document where:* *1. alternative approach would result in an equivalent or superior level of safety* *2. application of the requirements in this document conflicts with other rules or requirements* *3. application of the requirements in this document would not serve the underlying purpose, or is not necessary to achieve the underlying purpose* *Any alternative approach should demonstrate equivalence to the outcomes associated with the requirements set out in this regulatory document."* Agreed**.** Text has been revised. The return to service program will encompass commissioning during life extension activities.
9	Bruce Power	General		Impact on End of operation: RD-360 requires a schedule for preparing end of life plans that may not be achievable and certainly not efficient in that it appears to require a significant duplication of effort. Bruce Power does not understand the purpose of such plans given that licensees are developing Life Cycle Management Plans (LCMPs) as part of aging management program that will be required under RD-334. These LCMPs are developed to manage systems, structures and components until their end of life. Since these are new requirements, we consider that more discussions on these plans are required to ensure an efficient process for end of operation and consistency with the Decommissioning requirements that are already established.	Response for comments 9 and 10: no change. The LCMP is used in managing the reactor unit life cycle through operation and to the end of life and will be utilized to develop plans required in the end of operation activities. However, the end of operation plan (EOP) is intended to incorporate elements other than aging such as: • retention of experienced, qualified staff and the management of knowledge of the facility and its equipment • training to be provided to workers who will be involved in the SSS as well as decommissioning activities of the NPP
10	Énergie NB	General		Impact on End of operation: RD-360 requires a schedule for preparing end	

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	Power			of life plans that may not be achievable. Moreover it prescribes the preparation of a number of plans to support end of operation that may not be optimal. Since these are new requirements, we consider that more discussions on these plans is required to ensure an efficient process for end of operation and consistency with the Decommissioning requirements that are already established.	The information requested in the EOP is now simplified to comprise two main deliverables: • A sustainable operation plan (SOP) to address the remaining period of operation, and • A preliminary decommissioning plan (PDP) that provided a strategy for entering the safe storage state
11	Bruce Power	General		<u>Integrated Safety Review for Continued Operation and Refurbishment</u> This revised document requires a licensee to conduct an Integrated Safety Review (ISR) and the preparation of an Integrated Improvement Plan (IIP) for continued (normal) operation beyond the assumed design life (ADL) followed by ISR and IIP updates for refurbishment. It merges normal operation and refurbishment plans. The document requires much more justification to support long term operation (LTO) than what would normally be required for the regular license renewal process. It places an extra burden on licensee to conduct a full ISR, which is not necessary or justified. Bruce Power believes that undergoing a full ISR/IIP process for continued operation is not appropriate. Rather it should reflect the international practice and regulatory expectations regarding life management of nuclear power plants. Bruce Power proposes that preparation of a Continued Operation Plan (COP) would suffice. In developing the COP, it would be sufficient for the licensee to identify the utility strategic focus and commitments for maintaining a valid safety design and analysis basis with high safety standards and practices in Plant, People and Process.	See responses to comments 6 and 7. In the revised document, a period of 10 years beyond the nominal design life is considered life extension, for which an ISR is required, and does not necessarily involve refurbishment. This is in line with international practice.
12	OPG & Énergie NB Power	General		<u>ISR for Continued Operation and Refurbishment</u> This revised document requires a licensee to conduct an ISR and an IIP for continued (normal) operation beyond ADL followed by ISR and IIP updates for refurbishment. It merges a normal operation plan with refurbishment plan. Preparation of an ISR for short term continued operation beyond ADL is not justified. Preparation of a continued operation should suffice. An ISR/IIP process for continued operation beyond ADL is not necessary and is not considered to be consistent with international approach. For longer term continued operation beyond ADL, submission of ISR/IIP as part of a COP should be distinct from the submission of the ISR/IIP stipulated as part of a refurbishment plan, and the two submissions should be made separately. This provides flexibility to limit the scope of the ISR/IIP for the COP. For	See responses to comments 6 and 7. ADL has been replaced in RD/GD-360 with the term nominal design life as defined in the Glossary".

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				short term continued operation, a COP identifying the utility strategic focus and commitments for maintaining a valid safety design and analysis basis with high safety standards and practices in Plant, People and Process would suffice. It is of concern, from life management point of view, that the document gives the impression that to support LTO it requires a lot more justification than what would normally require for regular license renewal process. It should just highlight the extra scrutiny, if required, with the context that programs and commitments (particularly life management) are already in place for safety and regulatory purposes. For longer term continued operation, a graded ISR should be performed.	
13	OPG & Énergie NB Power	General – safety and control areas		<u>Safety and Control Areas</u> The CNSC proposed SCA reports instead of SFR reports is a major concern. The SFR format and content are in line with the international PSR standard and practice. In cases of refurbishment, where extensive work has already be done following the format and approach of the previous RD360 version (i.e., SFRs and GAR), the work remains valid and major effort in converting the documentation to be in compliance with the SCA format and content is neither warranted or consistent with international practice. Furthermore, a lot of the current status information required by the SCA review approach will already be available from annual reviews, license renewals and other submissions so the requirement to impose an extensive SCA review is not necessary. The Licensee should have the option to how the CNSC SCAs are covered (producing SCA reports or providing a roadmap demonstrating how SCAs are covered in SFRs). A SCA approach should not be stipulated in the RD.	No change. See response to comment 8.
14	Bruce Power	General		<u>ISR for Continued Operation and Safety & Control Areas</u> From the licensee perspective, a lot of the current status information required by the Safety and Control Area (SCA) review approach will already be available from annual reviews, license renewals and other submissions so the requirement to impose an extensive SCA review is not necessary. Preparation of a continued operation plan would suffice and Bruce Power would agree to the requirement of submission of such a plan. The CNSC proposed SCA format and content would require a complete revamp of the ISR work previously produced into the new format and content. The Safety Factor Report (SFR) format and content are in line with international Periodic Safety Review (PSR) standard and practice. In cases of refurbishment where extensive work has	See responses to comments 6, 7 and 8.

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				already be done following the format and approach of the previous RD360 version, i.e., SFRs and Global Assessment Report (GAR), Bruce Power believes that the work remains valid and major effort in converting the documentation to be in compliance with the SCA format and content is neither warranted or consistent with international practice. The licensee should have the option to show how the CNSC SCAs are covered. For life extension where a full ISR is required, the licensee should have the option to decide how the CNSC SCAs are covered. A SCA approach should not be stipulated in the RD. Rather the current ISR approach of preparing SFRs and GAR should be retained.	
15	Bruce Power	General		<u>Periodic Safety Reviews</u> An internationally recognized methodology that incorporates all of the elements of safety case review and continued operation already exists in the IAEA's Periodic Safety Review (PSR) process. The current approach to refurbishment utilized by the Bruce Power is based on this approach. This proposed revision of RD-360 moves away from the PSR process Bruce Power Strongly believes we should move to fully embrace PSR process and recommends a joint task force to achieve this.	CNSC is considering the implementation of a PSR process. RD/GD-360 version 2 will serve as a bridge until the PSR process is implemented into the CNSC regulatory framework after which RD/GD-360 will be revised.
16	OPG & Énergie NB Power	General - Editorial		• Inconsistent use of terms, definitions, acronyms and abbreviations throughout the document. • Some abbreviations are spelled out multiple times (e.g., EA, EOL, etc.) • Some abbreviations are not spelled out at all (e.g. SSC, I&C, COP, OPEX, etc.). • Spell out each acronym once at the first occurrence and use it consistently in the entire document There is imprecise language in a document that prescribes regulatory requirement, i.e. use of etc. Do not use "etc." or other imprecise terms.	Noted. Corrections have been made where the first instance of the term was not spelled out in full. In some cases acronyms were not used to avoid several acronyms in the same sentence. No change. Imprecise terms were not used when setting out the requirements in RD-360. "etc.", for example, only appears (once) in the Glossary.
17	OPG & Énergie NB Power	General - Editorial		The terms "SCA Review" and "addressing all elements of the SCAs" need to be defined. • Add term "SCA Review" to the Glossary as it seems to have a special meaning with respect to the ISR process or use terminology used in NS-G-2.10 and call them safety factor reviews. • "Addressing all elements of the SCAs" means each applicable SCA as it pertains to the life cycle phase is reviewed and changes from the previous phase are identified.	Agreed. "…addressing all elements of the SCAs" is meant to refer to the performance objectives as listed in Appendix B of the revised version of the document. Text has been added to the guidance in section 4.2.1.3, to clarify that an "SCA review " is to demonstrate that the safety performance evaluation for the respective SCA is met as per Appendix B.
18	OPG & Énergie NB Power	General – safe storage		RD & GD-360 do not address permanent placement of individual units in Safe Storage that exist within an operating station. Wording should be integrated into both documents to explain that the requirements of	Agreed. **Note**: The CNSC generally issues a licence that encompasses all units/facilities on the site, rather than. Text has been revised in section

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				the COP/ SOP/SAP/SSP/DDP should be provided based on the applicable position in the life cycle on a unit per unit basis only if the difference in the applicable life cycle phase is significant. In general, if an entire multi-unit station is moving towards decommissioning, the COP/SOP/ SAP submission should be aligned with the first unit reaching end of life and the SSP/DDP submittals should be aligned with the last unit down.	5.1: "…. *The licensee shall describe the strategy, arrangements and activities the licensee will take to provide assurance of the safe of operation of the NPP until the final shutdown <u>of each reactor unit(s) and for the transition period until the NPP begins decommissioning</u>*…."
19	Bruce Power	Purpose		As written, this assumes all types of LTO are managed via a project. This may not always be the case such as very short duration of continued operation beyond the assumed design life. Delete 'a project for'. Same comment applies in 1.2 Scope (first sentence)	Agreed. The phrase 'a project for' is deleted.
20	OPG & Énergie NB Power	1.2 1st para.	1.2 Scope	We understand this to mean the NPP is subject to its PROL until it enters the Safe Storage state, as once a reactor(s) is fully defuelled & rendered incapable of being refuelled, it will be licensed as a Class IB facility consistent with paragraph 19 of The General Nuclear Safety and Control Regulations. This is consistent with past CNSC practice applied to Douglas Point, Gentilly 1 and NPD. None of these facilities has a PROL; rather, they are all subject to a Waste Facility Operating Licence (WFOL). • State that the PROL ends once an acceptable Safe Storage state is confirmed and a licence appropriate for the accepted condition is granted. The CNSC has indicated a new class of licence (Safe Storage Licence) is being considered which better describes the NPP's physical status than a WFOL. • Clarification for multi-unit stations should be provided. For example, "Until all units in a multi-unit NPP are placed into an acceptable Safe Storage state, the NPP shall be subject to its PROL"	Agreed. Text: " *As these activities will be conducted under the PROL…"* is deleted
21	OPG & Énergie NB Power	1.3	1.3	Editorial comment (also applies to GD-360) "…persons and to maintain security ~~to maintain~~ the security of nuclear facilities and of nuclear substances; …"	Agreed, the duplicate phrase has been deleted
22	Bruce Power	1.4	1.4	This version of RD-360 appears to superimpose the requirements of the IAEA documents on LTO and PSR. The IAEA documents were not written in a manner that suggests that they would need to be applied simultaneously. Thus it may not be accurate to state that RD-360 is consistent with the cited IAEA documents. Replace 'is consistent with' with 'is aligned with key principles contained in'. Furthermore, the SCA approach stipulated here is not consistent with the PSR approach, i.e., SFRs. Bruce Power supports the current refurbishment review process that has been	No change. See response to comment 8.

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				proven successful and is aligned with the PSR approach as defined in IAEA Safety Guide NS-G-2.10	
23	Bruce Power	2	2	General Requirements: "…five years before NPP…" Whatever the "ADL" is, the new version requires the licensee to initiate an ISR, IIP (and EA if required) 5 years prior to end of design life date. Then as the date approaches, either a "Continued Operation Plan" must be submitted to operate up to 10 years beyond end of design life or the plant must undergo refurbishment (or it could proceed into End of Life shutdown). For continued operation or refurbishment, the ISR and IIP must be updated (and, although not stated explicitly, an updated EA (if required) to justify the path taken. CNSC requires the licensee to initiate the ISR/IIP process at least five years before the end of ADL. It is not clear if it means completion of the ISR/IIP preparation or the start of the preparation. It would be extremely difficult (in fact, it is already too late for some of the operating units) to complete the ISR/IIP process five years in advance of the ADL based on CNSC's definition of the ADL. Bruce Power opposes the requirement for an ISR/IIP for continued operation. In any case, a more reasonable time line for initiation (e.g. allow for something other than five years) of the review process should be permitted to reflect the multiple scenarios of the scope for continued operation period.	Agreed. The text in Section 2 is revised to read: "*... The licensee shall initiate this process proactively, in a reasonable time before the NPP reaches the end of its nominal design life, in order to complete the required safety reviews, plans and activities as specified in this regulatory document…."* The CNSC will consider alternative approaches to the requirements and guidance in this document where equivalence to the requirements set out in this regulatory document is demonstrated. See the last two paragraphs of guidance information in section 2: *"The CNSC will consider alternative approaches to the requirements and guidance in this document where:* *1. alternative approach would result in an equivalent or superior level of safety* *2. application of the requirements in this document conflicts with other rules or requirements* *3. application of the requirements in this document would not serve the underlying purpose, or is not necessary to achieve the underlying purpose* *Any alternative approach should demonstrate equivalence to the outcomes associated with the use of the requirements set out in this regulatory document."*
24	OPG & Énergie NB Power	General Requirement "…five years before NPP…"	2	Whatever the "ADL" is, the new version requires the licensee to submit an ISR, IIP (and EA if required) 5 years prior to end of design life date. Then as the date approaches, either a "Continued Operation Plan" must be submitted to operate up to 10 years beyond end of design life or the plant must undergo refurbishment (or it could proceed into End of Life shutdown). For continued operation or refurbishment, the ISR and IIP must be updated (and, although not stated explicitly, an updated EA if required) to justify the path taken. CNSC requires the licensee to initiate the ISR/IIP process at least five years before the end of ADL. It is not clear if it means completion of the ISR/IIP preparation or the start of the preparation. It would be extremely difficult (in fact, it is already too late for some of the operating	See also the response to Comment 23. The text in section 2 is revised: "*The process for LTO management of an NPP as it approaches its nominal design life and beyond is depicted in Appendix A. The licensee may consider the following three options:* *1. continued operation: operation of the NPP for a limited period, less than 10 years beyond the nominal design life, followed by either end-of-operation or life extension. In this case, the licensee must complete a continued operation plan (COP) to demonstrate that the plant is capable of maintaining safe operation under normal and*

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				units to complete the ISR/IIP process five years in advance of the ADL based on CNSC's definition of the ADL. For example, the ADL as defined by the CNSC would range from 2014 to 2017 for the non-refurbished Bruce units. The five year requirements before ADL must be clarified. As previously noted (RD-5) [comment #5 of the submission] an ISR/IIP process is not required except for extended operation beyond ADL. If ISR/IIP preparation is deemed necessary, the timing of submission should allow for a reasonable time period for CNSC to review the licenses' ISR/IIP submissions, to prepare a CMD and to accommodate Commission hearings and meetings. A more reasonable time line should be established based on plant conditions and on business factors without specifically specifying how many years before the end of design life. Rewrite Section 2 to the following: "2 General Requirements As the NPP approaches the end of its assumed design life, the licensee shall implement the steps and measures for either operation beyond the end of design life or end of operation, as depicted in Appendix A. The licensee shall initiate this process a reasonable time period before the NPP reaches the end of its assumed design life. The licensee shall notify the CNSC regarding its intent to continue operation beyond the end of assumed design life. The strategy for operation beyond the end of design life involves three options: 1. Continued operation beyond end of design life followed by transition to end of operation. 2. Continued operation beyond end of design life followed by refurbishment. 3. Commence refurbishment prior to end of design life. In support of operation beyond the end of design life, the licensee shall: • specify the proposed period of operation beyond the end of design life • provide assurance that operational fitness is maintained up to facility refurbishment or permanent shutdown of its operation • describe the strategy to support the proposed period of operation beyond the end of design life • conduct an ISR, as described in section 3.1 where the period of operation beyond end of design life is anticipated to be greater than 10 years • develop and execute an integrated implementation plan (IIP), as described in section 3.5 where the period of operation beyond end of design life is anticipated to be greater than 10 years	*accident conditions during the proposed period of operation as described in section 3.* 2. *life extension: extending an NPP's nominal design life for a period comparable to the original design life, for example, by undertaking a refurbishment project. In this case the licensee shall complete an integrated safety review (ISR), an environmental assessment (as necessary), an integrated implementation plan (IIP) and when applicable, a detailed refurbishment project execution plan, as described in section 4.* 3. *end-of-operation (end of commercial operation): ceasing commercial operation of the NPP, including planning for its decommissioning, when fitness for service cannot be assured for the upcoming re-licensing period or the licensee has determined that a life extension project is not economically viable. The licensee shall then complete an end of operation plan (EOP) as described in section 5.* *Options 1 and 2 constitute LTO (see Appendix A). A period of 10 years or more beyond the nominal design life is considered life extension even if it does not involve component repair or replacement (refurbishment) or extended outage(s)*."

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				Depending upon the option chosen, the licensee shall either submit a continued operation plan or a detailed refurbishment plan, as described in sections 3.6 and 3.7 respectively. Measures to implement operation beyond the end of design life may constitute a project under the CEAA and may be subject to an EA. If this is the case, an EA will be conducted in accordance with the requirements established in the CEAA. The conduct of the EA is a separate process from the ISR and it is outside the scope of this regulatory document. The licensee shall notify the CNSC regarding its intent to cease operation. The licensee shall submit a sustainable operations plan and a safe state of storage plan, or a detailed decommissioning plan, as described in section 4."	
25	Bruce Power	3	3	"If the decision is made to continue operation …beyond the assumed design life, the licensee shall complete the ISR and shall proceed in all cases with the execution of the IIP." The requirement to conduct an ISR and execute an IIP places an undue burden on the licensee in cases where the planned period of continued operation past the ADL is limited, e.g. for up to 5 years. In such cases the focus should be on ensuring implementation and execution of key component life management processes to ensure ageing related degradation is being properly managed and on ensuring that the plant safety analysis basis is updated to reflect the projected plant conditions during the planned operating period. Such an approach would appear to be better aligned with IAEA SRS 57. Changes should be made to recognize the potential for only limited operation past the ADL and offer a graded review approach in support of the preparation of a COP (in lieu of a full ISR/IIP process), for shorter operating periods.	Agreed. See response to comments 6 and 7. ADL has been replaced in RD/GD-360 version 2 with the term "nominal design life" and it is defined as follows: *"The period of operation that was originally anticipated at the design phase for the NPP. It is used as a reference or target for planning activities including the design of SSCs that can affect the safe operation of the NPP. For the purposes of this regulatory document and for the current operating CANDU power reactors, unless otherwise stated, the "nominal design life" of an NPP is 30 years, based on 0.8 capacity factor of nominal full power."*
26	OPG & Énergie NB Power	Section 3. Long Term Operation	3.2	The requirement to conduct an ISR and execute an IIP places an undue burden on licensees in cases where the planned period of continued operation past the ADL is limited. In such cases the focus should be on ensuring implementation and execution of key component life management processes to ensure ageing related degradation is being properly managed and on ensuring that the plant safety analysis basis is updated to reflect the projected plant conditions during the planned operating period. Such an approach would appear to be better aligned with IAEA SRS 57. Change first sentence of Section 3 to "If the decision is made to continue operation of the NPP more than 10 years beyond the assumed design life..."	Agreed. See response to comments 6 and 7.

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				Introduce changes that recognize the potential for only limited operation past the ADL and offer a graded approach in lieu of a full ISR/IIP process, for shorter operating periods. See also previous comment suggested changes.	
27	Bruce Power	3.1	3.2	"The licensee shall conduct the ISR assuming a minimum operating period of 10 years" This places an undue burden on the licensee if the planned period of continued operation past ADL is considerably shorter than 10 years. Under these circumstances, a full ISR should not be required. In undertaking a reduced scope of review, the licensee should have the opportunity to establish a period other than the 10 year minimum. The scope of work for continued operation will be significantly different for 2 vs. 10 years. The licensee should be permitted to establish an operating period (based on commercial as well as safety reasons) other than the 10 year minimum.	Agreed. See response to comments 6 and 7.
28	OPG & Énergie NB Power	3.1 paragraph 1, 2nd bullet	4.1	"The objectives of the ISR are to determine… that the licensing basis will remain valid over the period of LTO" Based on the first bullet in the 2nd paragraph, it would seem the licensing basis here refers to the current licensing basis. However, Section 3.2.2, 1st paragraph, 2nd bullet states "Therefore, the licensee shall ensure that the current or modified licensing basis will remain valid over the proposed period of LTO", meaning the licensing basis could be other than the current one. It should be made clear that the licensing basis defined in the ISR Basis document is the one used to perform conformity reviews and this is the licensing basis which will be the basis for the LTO. Change to Section 3.1, para 1, 2nd bullet to read "that the licensing basis as defined in the ISR Basis document will remain valid over the period of LTO"	Noted. Text has been clarified: The objectives of the ISR are to determine: *"… that the licensing basis will remain valid over the operating period as defined in the ISR basis document (see section 4.2.1)."*
29	OPG & Énergie NB Power	3.1 para. 2, 1st bullet	4.2.1.5	See above comment on Section 3.1, paragraph 1, 2nd bullet Change to read "reviews that confirm the NPP meets and will continue to meet the licensing and design basis as defined in the ISR basis document"	Text deleted. Text in section 4.2.1.5 revised to read: *"The licensee shall confirm that any non-compliance with the current licensing basis or design basis will be addressed as quickly as practicable"*

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30	OPG & Énergie NB Power	3.1 para. 2, 2nd bullet	4.2.1.6	While the ISR identifies the requirement to assess the plant against modern codes and standards which may be significantly different than the standards to which the plant was designed, there is little guidance/expectation presented in terms regarding gaps which will be identified between the existing plant and the equivalent modern code or standard. Assessment of gaps should be risk based. Where the risk to the public associated with the existing licensing basis has been shown to be acceptable, there should be no expectation that the plant be required to meet the different requirements in the modern codes and standards.	Text has been revised. *"The licensee shall submit the proposed risk-informed decision-making process to evaluate and decide on the various alternatives to address findings identified in the ISR process.* ***Guidance*** *Typically, the licensee will be able to make a selection between several different methods of dispositioning findings. During the development of the corrective actions, the licensee should decide how to address and resolve the findings of the ISR.* *This process may include risk informed decision-making process, cost-benefit analysis, deterministic analysis and professional judgment. This decision-making process is applied throughout the ISR."*
31	OPG & Énergie NB Power	3.1 para. 2, 3rd bullet	n/a	This should align with NS G 2.10 Change to "identification of any modifications that are necessary to ensure an acceptable level of safety over the proposed operating period of LTO"	Agreed. Text (bullet) deleted.
32	OPG & Énergie NB Power	3.2 3rd sentence	4.2	The new RD360 does not provide for CNSC acceptance of ISR Basis. This is the only way to ensure that CNSC and the licensees are aligned with respect to expectations. This would be consistent with the approach taken on S-294 and with the philosophy that the licensee is responsible for the safety of the NPP, while the CNSC is responsible for oversight. For S-294, the CNSC had to approve the methodology then reviewed the deliverables to ensure they followed the approved methodology. Change Section 3.2 to read "The ISR basis document describes the scope and methodology of the ISR and shall be submitted to the CNSC for their acceptance."	Agreed, but with changes. Text has been revised: *"The first deliverable for the ISR is the ISR basis document, which sets out the scope and methodology for the conduct of the ISR. The basis document describes the general terms of the ISR. The required elements of the ISR basis are described in sections 4.2.1.1 to 4.2.1.9.* In Section 2 the following text has been added: *"The plans that are specified in this regulatory document require the approval of the Commission Tribunal before they are implemented. Updates or changes to the plans must be submitted to CNSC for review."*
33	OPG & Énergie NB Power	3.2.1	2	The detailed information in this section would be better described in GD 360. Section 3.2.1 should be rewritten to state "In the ISR basis document the licensee shall describe the scope and methodology of the ISR. It shall also address a communication protocol for timelines and deliverables"	No change. An appropriate protocol to facilitate communication, to ensure expectations are clear and to manage project risks, should be optional (guidance) and not a requirement for each ISR/refurbishment project.
34	OPG & Énergie NB Power	3.2.3 Safety and Control Area	4.2.2.3	Concerns about the need for an ISR for limited continued operation beyond ADL are discussed in RD-5 and a recommendation	Agreed. Licensees are to demonstrate that adequate measures will be maintained until the end of commercial operation for

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		Reviews		made to instead require a COP. Concerns about using the SCA approach described are discussed in RD-6 and a recommendation made to leave the decision to the licensee regarding which approach to use. The SFR approach of NS-G-2.10 is consistent with international experience. NS-G-2.10 identifies safety factors to review which are well defined. By changing the topics of review and proposing new objectives the CNSC is adding a burden on utilities. If the licensee did choose to follow an SCA approach, this document does not provide sufficient distinction between the scope of SCA reviews for continued operation for a few years beyond ADL and the scope of SCA reviews for life extension after refurbishment. Allow licensees the flexibility to use the internationally recognized SFR approach and provide a roadmap from the SCAs to the SFRs. For the SCA approach, more specific guidance is required to limit the scope of work required for continued operation vs. the refurbishment review scope.	each SCA covered by the PROL. Nonetheless, it is understood that the scope of each SCA review is commensurate with its importance to the safe operation for the proposed period of continued operation, length of the LTO period. These activities may also be conducted under the PROL renewal activities depending on the licence period. The licensee has the option to refer to completed SCA reviews covered by licensing activities and provide information on the duration, schedule and milestones of activities to be executed for the respective SCA, if applicable
35	OPG & Énergie NB Power	3.2.5	4.2.1.5	"*The licensee shall resolve non-conformances to modern codes, standards and practices to the extent practicable*". As many of the modern codes, standards and practices are not required by licence, they should be characterized as gaps rather than non-conformances. "*The licensee shall resolve gaps with respect to modern codes, standards and practices to the extent practicable*".	Agreed. Text has been revised to read: *"The licensee shall resolve identified gaps with respect to modern codes, standards and practices to the extent practicable based on the licensee's risk management decision-making process."*
36	Bruce Power	3.2.5	4.2.1.5	Identification and disposition of findings: "*The licensee shall resolve non-conformance to modern codes, standards and practices to the extent practicable*" The term 'practicable' and what constitutes an adequate demonstration of practicability should be better characterized. In the UK, the HSE adopts the term 'reasonably practicable', which allows for a cost benefit analysis to be used when determining actions in response to an identified risk, or allows for a comparison to be carried out with good practice in similar circumstances. The underlying principle is that the measures taken should be commensurate with the magnitude of the risk. On its own, 'practicable' may suggest that, if a measure can be implemented, it must be implemented irrespective of cost, complexity or difficulty. The RD should permit the consideration of cost-benefit and ensures the measures to be adopted are commensurate to the risk being mitigated.	See response to comment 35.
37	Bruce Power	3.27	4.2.1.7	In formulating an overall risk judgment on the acceptability of continued operation, there is a	Agreed. See guidance on global assessment. The methodology is

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				need to balance deterministic and probabilistic considerations. The RD should permit the use deterministic and probabilistic considerations when formulating the overall risk judgment of the acceptability of continued operation.	left up to the licensee to formulate an overall risk assessment on the acceptability of continued operation and reviewed by the CNSC staff.
38	Bruce Power	3.6	4.3	The distinction between the IIP (which contains scope and schedule for corrective actions and safety improvements) and the Continued Operation Plan (which 'specifies a schedule for implementation of corrective actions...') is unclear. They appear redundant in some respects. Bruce Power recommends the removal of the requirement for IIP and elimination of the duplication/overlap. Implementation of a COP is sufficient. Bruce Power further recommends that industry and CNSC should initiate a dialogue to explore and exchange perspectives in determining what the COP should consist of and what review process is required in order to maintain safe nuclear operation.	Approach has been revised to differentiate between requirement for Continued Operation (less than 10 year) vs. Life extension See responses to comments 6 and 7.
39	OPG & Énergie NB Power	3.6	4.3	As written Section 3.6 assumes that the licensee will be preparing an ISR for continued operation beyond the design life even if the extension is less than 10 years. As discussed in RD-5, this is not appropriate. If the licensee is planning to extend the life for a period that is addressed by the normal licensing process, the normal licensing process should be sufficient. If the extension is less than 10 years but beyond the licensing process, a full scope ISR should not be required. That said, some work will need to be done to demonstrate continued safe operation beyond the original design life. More discussion is required between the licensees and the CNSC to define what is needed in the COP.	Approach revised to differentiate between requirement for Continued Operation (less than 10 year) vs. Life extension See also responses to comments 6 and 7.
40	OPG & Énergie NB Power	3.6, 1st para., 1st sentence	4.3	Superfluous word in " ... to specify the schedule for implementation of implement corrective actions and safety improvements ..." Change to read "... to specify the schedule for implementation of corrective actions and safety improvements ..."	Text has been revised as suggested.
41	OPG & Énergie NB Power	3.7	4.4	The title and text refer to a "project execution plan". OPG projects have existing governance that identifies the requirement and content of a PEP – which does not align with the requirements of this section of RD-360. A Project Execution Plan is a project management tool covering project direction, scope and management, which is outside the CNSC domain. Revise all references to a "project execution plan" in RD-360 to "refurbishment plan" – to distinguish the requirements of RD-360 from an OPG PEP. A Refurbishment Plan should only address technical and operational planning around refurbishment	No change to name of the plan "project execution plan" term was used in the RD-360 version 1 (2008). No change, the elements identified in the document are in fact technical and operational in nature.

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42	OPG & Énergie NB Power	3.7 bullet 4	4.4	A distinction must be made between commissioning (associated with modifications) and restarting systems that were in lay-up and not modified (i.e. do not require commissioning) "commissioning and return to service program describing the systematic approach to SSC testing and facility integrated testing"	Agreed. Text revised to read: "…*Return- to- service program describing the systematic approach to SSCs testing and facility integrated testing* …"
43	OPG & Énergie NB Power	4 End of Operation	5	The title of Section 4, "End of Operation" is misleading in that it is not a plan. Re-title this section as "End of Operation Activities".	Agreed. "Plan" has been deleted:
44	OPG & Énergie NB Power	4	5	There are too many nested plans in this section, i.e. EOP made up of SOP, SSSP (which is comprised of a SAP, SSP) and a DDP. The EOP seems more like a high level explanation of the intention to permanently shutdown and decommission. The industry's position is that SCAs addressed to support EOP should be less rigorous, and should not be subject to the Sufficiency Checks as presented in Appendix B of GD-360. Change section title to "End of Operation", and then just describe the plans required to support end of operation. Change text to say, "If a decision is made to cease operation of the NPP, the licensee shall establish and implement end of operation strategy a reasonable period prior to the end of design life. The licensee shall describe the strategy, arrangements and activities the licensee will take to provide assurance of the safe of operation of the NPP until the final shutdown of each reactor unit(s) and for the transition period until the NPP begins decommissioning."	No change other than comment 44 where the title of the section is now "End of Operation". No change, CNSC's position is that the SCA reviews to support EOP are essential - See responses to comments 34.
45	Bruce Power	4	2	"*If a decision is made to cease operation of the NPP, the licensee shall establish and implement an end of operation plan at least five years prior to its final, permanent shutdown*". This appears to be inconsistent with the requirement in Section 2 (General Requirements), which states, "The licensee shall initiate this process [i.e. implement the steps and measures for either LTO or end of life] at least five years before the NPP reaches the end of its assumed design life". Also, as written, this clause makes no provision for the possibility that a licensee may make a commercial decision to cease operation in less than 5 years. Reword to eliminate inconsistency and allow for permanent shutdown less than 5 years from the decision to do so. Bruce Power opposes the requirement for a full ISR/IIP process for continued operation. In any case, a more reasonable time line for initiation (e.g. allow for something other than five years) of the review process should be	Agreed, text has been revised in Section 2 to read: *"…The licensee shall initiate this process proactively, in a reasonable time, in order to complete the required safety reviews, plans and activities as specified in this regulatory document before the NPP reaches the end of its nominal design life …"*

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				permitted to reflect the multiple scenarios of the scope for continued operation period.	
46	OPG & Énergie NB Power	4 1st Paragraph	5.1	It may well be that a plant considers refurbishment and at the end of the process to determine feasibility decides not to proceed. In such a case the 5 year delay to establish and implement of an end of operation plan may not be achievable or even desirable. As with the concern raised in RD-11, an arbitrary 5 year limit is not appropriate. Change the requirement from 5 years to a reasonable period based on plant conditions, and on business factors without specifically specifying how many years before the end of design life.	See response to comment 45.
47	OPG & Énergie NB Power	4, 1st sentence of 1st paragraph	5.2	The timing requirements are unclear for multi-unit stations. State that "… prior to the permanent shut down of an NPP or shut down of the first unit in a multi-unit NPP."	Agreed. See responses to comments 18 and 45.
48	OPG & Énergie NB Power	4, paragraph 3	5.3	Whether deconstruction is deferred or not, a stabilization plan should be required, unless it is actually considered part of the detailed decommissioning plan. To support end of operation, licensee shall submit a stabilization activity plan (SAP), and either a storage and surveillance plan (SSP). It would be appropriate to refer to CNSC G-219 which establishes requirements for decommissioning.	Plans streamlined as activities under one Preliminary Decommissioning Plan. Note: G-219 is referenced in the guidance material (Section 5.4).
49	OPG & Énergie NB Power	4.2	5.3	The title of Section 4.2 "Safe State of Storage" is misleading in that it is not a plan. Re-title this section as "Safe State of Operation Activities".	Agreed. Safe state of storage activities are part of the preliminary decommissioning plan.
50	OPG & Énergie NB Power	4.2.2	5.3	All elements of the SCAs should be addressed in both the SAP and the SSP. Replace section 4.2.2 with the following paragraph. "The licensee shall describe the arrangements and activities that will be conducted to ensure the safe transition of the NPP reactor unit(s) from a final shutdown state to the safe storage state. The licensee shall address, as appropriate, all elements of SCAs authorized by the licence and include information on the NPP configuration during safe storage phase and the tasks and processes to implement this configuration."	Agreed, the following paragraph has been moved to section 5.3 under Preliminary decommissioning plan: *"…the licensee shall address, as appropriate, all elements of SCAs authorized by the licence, and provide information on the duration, schedule and milestones for their execution.*
51	Bruce Power	Glossary		Assumed Design Life: ""For the purposes of this regulatory document ….the "assumed design life" of an NPP is 30 years, based on 0.8 capacity factor of nominal full power, i.e. 210,000 EFPH from the date of its first criticality."" "ADL" is defined as 30 years, which at an assumed capacity factor of 80% translates into 210,000 EFPH. There is some flexibility indicated in the definition of "ADL" in the glossary of GD 360 in that it says "unless otherwise stated" the ADL is 210,000 EFPH. However it doesn't say "where" or "by whom" this would be stated.	*Assumed Design Life* has been renamed *Nominal Design Life* and definition is revised to read: **nominal design life** The period of operation that was originally anticipated at the design phase for the NPP. It is used as a reference or target for planning activities including the design of SSCs that can affect the safe operation of the NPP. For the purposes of this regulatory document and for the current operating CANDU power reactors,

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				This definition of ADL is arguably arbitrary since in practice, the design life is influenced by a number of factors associated with how a plant is designed (i.e. what are the life limiting components, what are the maintenance strategies) and operated (e.g. capacity and capability factors, etc.). Original "design life" may not reflect current knowledge from OPEX and R&D. The licensee should be permitted to utilize a different design life upon presentation of suitable technical justification can be provided. The RD should not assign a default value for the design life. The RD should permit the licensee to define the design life that is supported by technical justification.	unless otherwise stated, the "nominal design life" of an NPP is 30 years, based on 0.8 capacity factor of nominal full power.
52	Bruce Power	Glossary		Assumed Design life – 2: "For multi-unit NPP facilities, the assumed design life for the facility is based on the date at which the first unit reached first criticality." Given that there can be many years between first criticality dates of units in a multi-unit station; tying design life of the whole station to first criticality of the first unit is unnecessarily restrictive. Design life for a multi-unit station should be considered on a unit by unit basis, taking into account the life of components that are shared between units (which can generally be justified to be longer than the individual units).	Assumed design life has been renamed nominal design life and definition is revised (see comment 51 for definition). **Note:** As indicated above, the CNSC issues a site licence not a unit specific licence. The end of nominal design life constitutes a regulatory trigger at which the licensee provide a staggered approach strategy for each unit to undergo either LTO and/or EOL
53	OPG & Énergie NB Power	Glossary		Nuclear facility - "For the purposes of this document, a nuclear power plant; it includes ...any system for the management, storage, or disposal of a nuclear substance." Waste facilities are covered under a separate operating licence, and disposal facilities are locate off-site (i.e., DGR) The definition must be consistent with the definition provided in the *Nuclear Safety and Control Act* (NSCA)	Agreed. The term nuclear facility has been replaced by nuclear power plant, where applicable.
54	OPG & Énergie NB Power	Glossary		It defines, ISR, IIP, etc., but not Project Execution Plan. Change to Refurbishment Plan.	No change.
55	OPG & Énergie NB Power	Glossary		EFPH – the definition does not clearly mention the link to power in the determination of full power hours Suggest the insertion of the word "power" in between full and service	Agreed. EFPH is no longer referenced in the document See definition of nominal design life.
56	OPG & Énergie NB Power	Glossary		Continued Operation & LTO are used interchangeably but they are NOT the same. Insert definition of continued operation, which is : operation for up to 10 years past the design life without refurbishment. Revise the LTO definition to state: the operation for more than 10 years beyond the design life ...	Continued operation is now defined as:– "*operation for a limited period beyond the nominal design life of the NPP, not exceeding 10 years, that has been justified and supported by a Continued Operation Plan (COP).*" LTO includes continued operation (less than 10 years) and life extension
57	OPG & Énergie NB	Glossary		"For the purposes of this regulatory document ….the "assumed design life" of an NPP is 30 years, based on 0.8 capacity factor of nominal	The term *assumed design life* has been replaced by *nominal design life* and is defined as:

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	Power			full power, i.e. 210,000 EFPH from the date of its first criticality." This definition of ADL is arguably arbitrary since in practice, the design life is influenced by a number of factors associated with how a plant is designed (i.e. what are the life limiting components, what are the maintenance strategies) and operated (e.g. capacity and capability factors, etc.). Original "design life" may not reflect current knowledge from OPEX and R&D. The licensee should be permitted to utilize a different design life upon presentation of suitable technical justification can be provided. "The licensee shall provide the regulator with the end of design life for each facility. The licensee must provide the regulator with justification for the specified design life."	"*The period of operation that was originally anticipated at the design phase for the NPP. It is used as a reference or target for planning activities including the design of SSCs that can affect the safe operation of the NPP.* *For the purposes of this regulatory document and for the current operating CANDU power reactors, unless otherwise stated, the "nominal design life" of an NPP is 30 years, based on 0.8 capacity factor of nominal full power*".
58	OPG & Énergie NB Power	Glossary		"Assumed Design Life", last sentence "For multi-unit NPP facilities, the assumed design life for the facility is based on the date at which the first unit reached first criticality." Given that there can be many years between first criticality dates of units in a multi-unit station; tying design life of the whole station to first criticality of the first unit is unnecessarily restrictive. Design life for a multi-unit station should be considered on a unit by unit basis, taking into account life of components that are shared between units (which can generally be justified to be longer than the individual units). Change last sentence to read "For multi-unit NPP facilities, the assumed design life for the facility is determined on a unit by unit basis, taking into account life of components that are shared between units."	See comment 57.
59	OPG & Énergie NB Power	Appendix A		"End of Operation Plan" This box should be above the 'end of commercial operation' box.	Process map has been revised to reflect the revised text of the final draft of RD/GD-360.
60	OPG & Énergie NB Power	Appendix A		"Refurbishment Project Execution Plan" Change to "Refurbishment Plan"	Process map has been revised to reflect the revised text of the final draft of RD/GD-360.
61	OPG & Énergie NB Power	Appendix B		Content of table is inconsistent with Performance Objectives defined in CMD11-M46. CMD11-M46, appears from OPG's perspective to be more comprehensive. Confirm consistency with the CNSC requirement for the Performance Annual Report.	The SCA table in the revised draft (Appendix B) lists the SCA's performance objectives and Specific Areas consistent with CNSC commission member document CMD 11-M46:" *2010 Annual CNSC Staff Report on the Safety Performance of Canadian Nuclear Power Plants* "