

Bruce A and B 2018 Licence Renewal

Commission Hearing (Part 1)
March 14, 2018
CMD 18-H4.A



CNSC Staff Presentation



Commission Hearing, March 14, 2018
CMD 18-H4.A

Presentation Outline

- Purpose of hearing
- Background
- Regulatory oversight
- Periodic Safety Review
- Refurbishment
- Performance assessments
 - Regulatory focus areas
 - Other matters of regulatory interest
- Bruce Power requests
- Other CNSC activities
- Licence and Licence Conditions Handbook
- Conclusions and recommendations



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PURPOSE OF HEARING



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Purpose of Hearing (1/2)

Renewal of Bruce Power's Power Reactor Operating Licence for a period of 10 years (PROL 18.00/2020)

- the 10-year licence period encompasses operation and refurbishment (referred to as Major Component Replacement, or MCR)
- in support of 10-year licence period, Bruce Power has completed a Periodic Safety Review (PSR) in accordance with REGDOC-2.3.3 (Periodic Safety Review)



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Purpose of Hearing (2/2)

Bruce Power is requesting the Commission to:

- approve operations of Bruce A and B up to a maximum of 300,000 Equivalent Full Power Hour (EFPH)
- accept the scope of the refurbishment project, as identified in the Integrated Implementation Plan (IIP)
- consolidate other licences (Class II Nuclear Facilities and Nuclear Substances and Radiation Devices) into the Power Reactor Operating Licence (PROL)



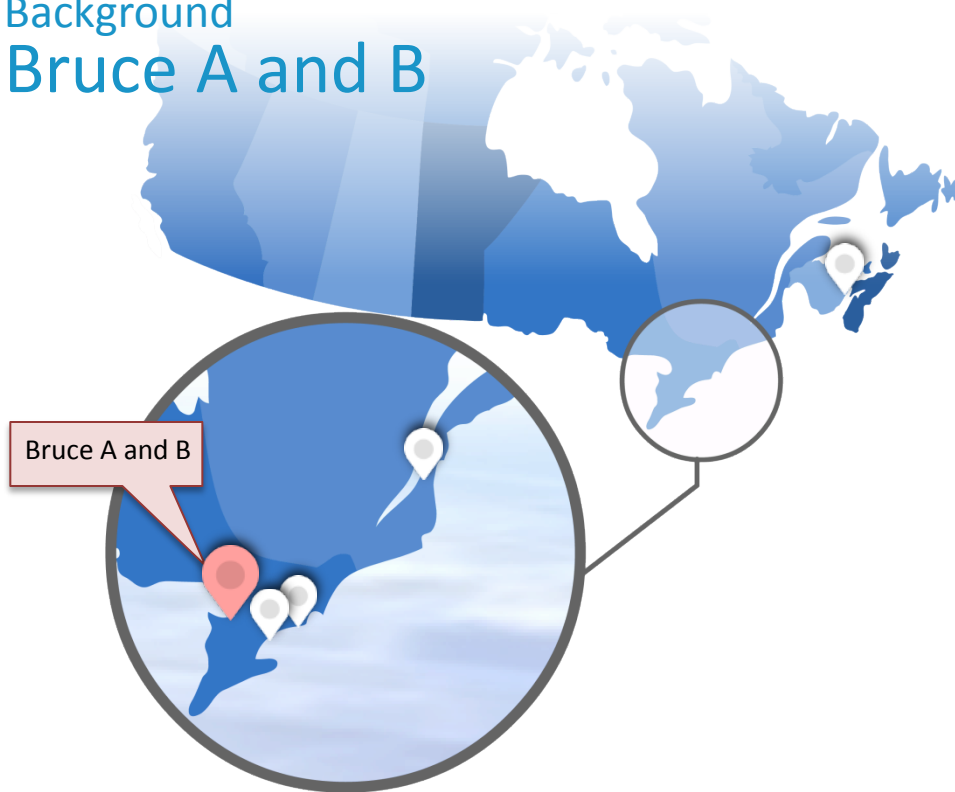
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BACKGROUND

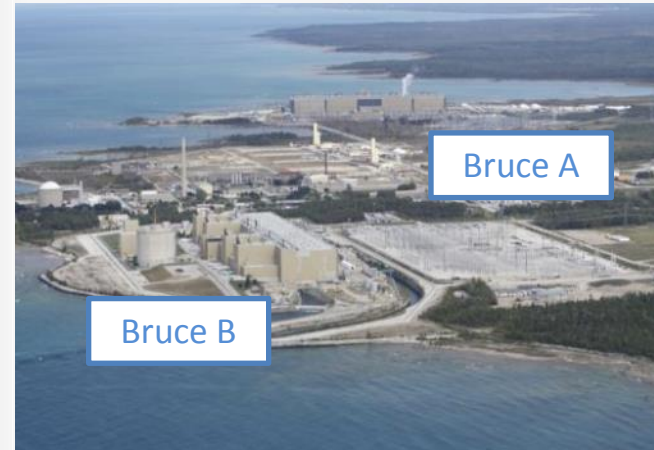


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Background Bruce A and B



Bruce Power has lease
agreement with Ontario
Power Generation.



Bruce A and B nuclear power plants are
located on the shores of Lake Huron. Each
station consists of 4 reactors.



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Background Bruce A and B

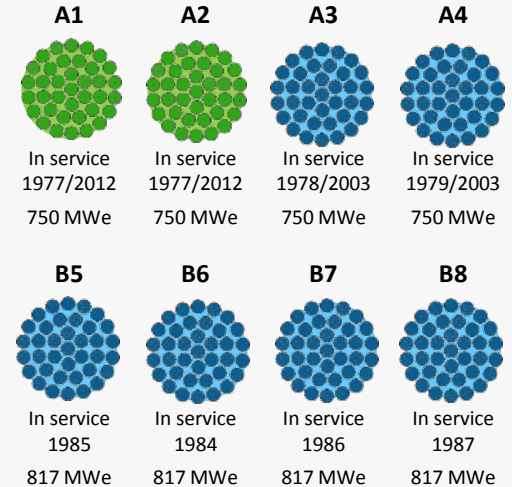
Station status

- Bruce A: Units 1 to 4 - operational
- Bruce B: Units 5 to 8 - operational

Operating licence

- Current licence expires on May 31, 2020
- Bruce Power has requested a 10-year licence period encompassing refurbishment (Sept 1, 2018 to Aug 31, 2028)

- In Service
- Refurbished and returned to service





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Background: Overview of Licensing Considerations

- CMD 18-H4 provides CNSC staff's conclusions and recommendations on licence renewal
- CNSC staff assessed:
 1. Bruce Power's submitted licence application and supporting information
 2. Bruce Power's past performance
 3. Other matters of regulatory interest



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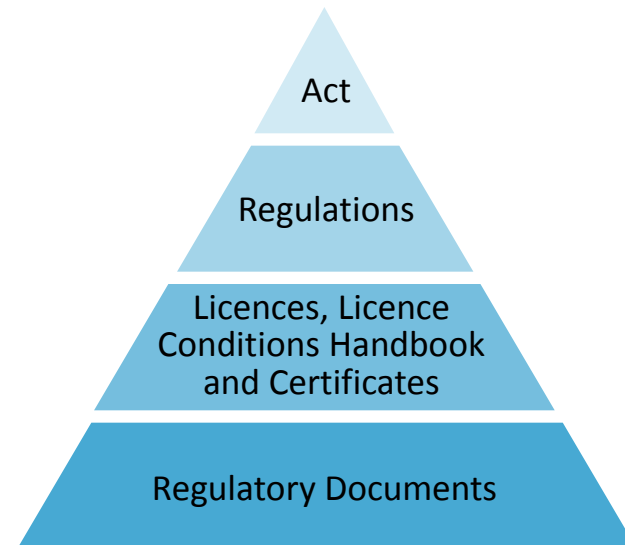
REGULATORY OVERSIGHT



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Regulatory Oversight

- *Nuclear Safety and Control Act (NSCA)* and Regulations
- Commission Licensing requirements:
 - Licence Conditions
 - Regulatory Documents (REGDOCs) and standards
- CNSC staff compliance activities:
 - verification, assessments, inspections, and enforcement



Clear and robust regulatory framework



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Regulatory Oversight Reporting Requirements

- Licensee reports all events required by the NSCA and its regulations, in accordance with REGDOC-3.1.1 (Reporting requirements)
- CNSC staff review all events, compliance and performance reports, and results of ongoing monitoring activities
- Results of reviews are reported to the Commission through the annual Regulatory Oversight Report (ROR) for Nuclear Power Plants (NPPs), and the regular status updates at Commission Meetings and Hearings

Bruce Power met all reporting requirements



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Regulatory Oversight Compliance Verification

- CNSC compliance activities include reviews, walkdowns and inspections
- Deficiencies or areas of improvement identified were addressed by Bruce Power through corrective action plans
- Corrective actions are tracked by CNSC staff

Inspections results indicate Bruce Power made adequate provisions for protection of environment and health of persons

Licensee's performance is assessed using reviews and inspection activities.



CNSC Site Inspector perform routine inspections at Bruce A and B.

Source: CNSC



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Regulatory Oversight Compliance Verification Activities

Compliance activities performed

Compliance activities effort	2014	2015	2016
# of REGDOC-3.1.1 Report Reviews	125	99	96
# of Walkdowns	203	200	195
# of Inspections	35	26	30
Person-days of effort at Bruce site	1872 days	1358 days	1805 days
Total Person-days of compliance effort	5367 days	5127 days	5050 days



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PERIODIC SAFETY REVIEW (PSR)



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Periodic Safety Review

- Purpose of a Periodic Safety Review (PSR):
 - comprehensive evaluation of the design, condition and operation of a NPP
 - determine reasonable and practical improvements to enhance safety until the next PSR
 - repeated on 10 year cycle
- PSR involves the assessment of current state and performance of NPP

PSR is a comprehensive assessment to determine plant improvements

Four phases of conducting a PSR





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Bruce Power's Periodic Safety Review

- Bruce Power began work on its PSR in 2014
- PSR addressed 64 modern standards
- Bruce Power identified strengths and gaps in safety factor reports
- CNSC staff concluded that:
 - the submitted PSR adequately identified gaps and strengths
 - results of safety factor review are incorporated into Global Assessment Report (GAR)
 - improvements are identified in IIP

Bruce Power's PSR basis document was accepted by CNSC staff



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Integrated Implementation Plan

- Bruce Power identified 191 improvements in the IIP
 - IIP was accepted by CNSC staff in September 2017
 - Some major activities identified in IIP include refurbishment, Fukushima-related upgrades and fire protection upgrades
- Each improvement has a target completion date and will be implemented either during operations, during normal maintenance outages, or during MCR outage
- CNSC staff conclude that proposed safety improvements are captured in the IIP

Bruce Power has identified actions to improve the level of safety



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Periodic Safety Review Conclusions

- Bruce Power's PSR met the requirements of REGDOC-2.3.3 (Periodic Safety Review)
- Bruce Power has systematically reviewed modern standards and practices
- Bruce Power has identified improvements that will be made to Bruce A and B stations
- CNSC staff will report on status of all IIP commitments to the Commission through the annual ROR for NPPs

Bruce Power made a comprehensive assessment to determine the enhancements to the plant over the next 10 year period



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REFURBISHMENT



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Refurbishment (1/5)

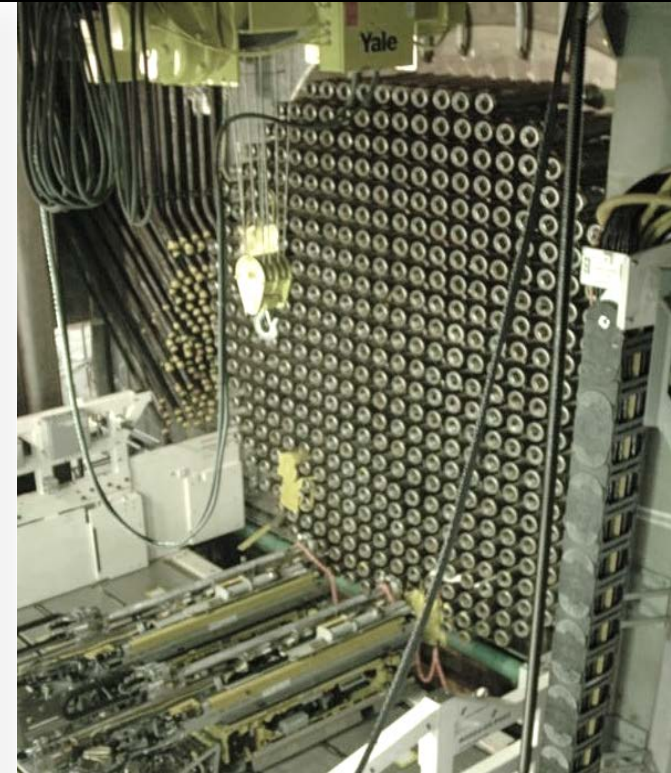
Bruce Power is managing refurbishment work in two categories:

Major Component Replacement (MCR)

- replacement of fuel channels, steam generators and preheaters, and feeders
- work performed during extended MCR outages

Asset Management Program

- replacement or inspection of all other components such as maintenance cooling heat exchangers or electrical components



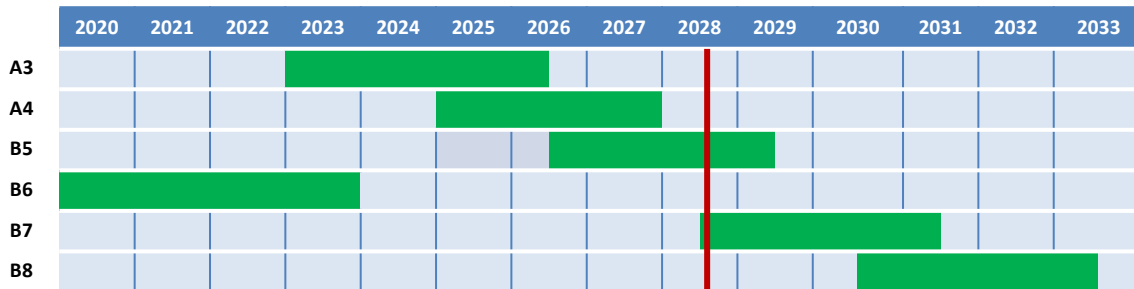
Major component replacement work during Bruce A Units 1 and 2 refurbishment (Photo courtesy of Bruce Power).



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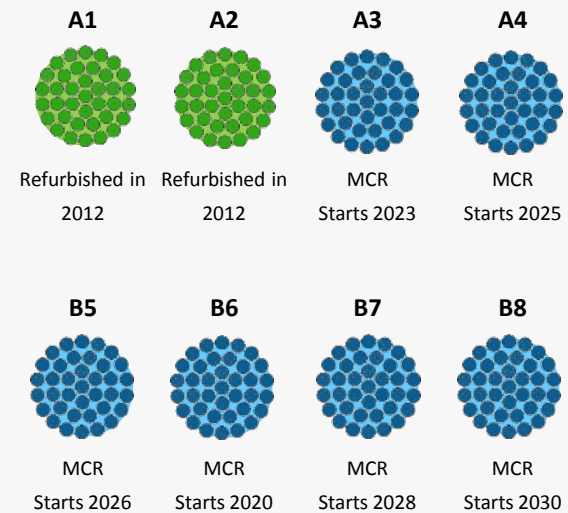
Refurbishment (2/5) High-level Timeline

- Bruce Power reached agreement with the Province of Ontario on refurbishment in 2015
- Refurbishment will commence with Unit 6 in 2020, pending licensing decision by the Commission
- Experience gained will shorten the duration of subsequent outages



Requested licence period

Planned Refurbishment (MCR)
 Refurbished and returned to service



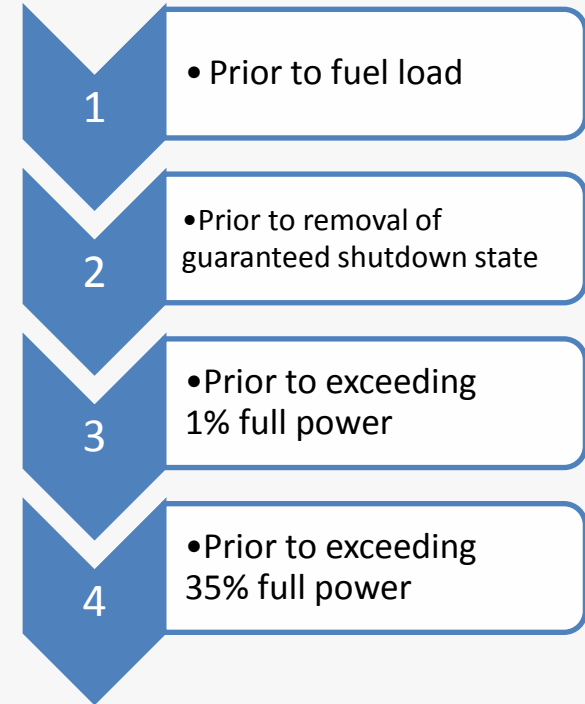


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Refurbishment (3/5) Return to Service

- Return to service is achieved through milestones which include four (4) regulatory hold points
- Pre-requisite commitments must be met prior to release of hold points
- Recommend the authority to remove hold points be delegated to Executive Vice-President (CNCS)

Regulatory Hold Points





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Refurbishment (4/5) Asset Management Program

- A comprehensive method to manage condition of plant Structures, Systems and Components (SSCs)
- Determines condition and expected life of equipment
- Allows the scheduling of plant component replacement before end of life
- Program informed by results from periodic inspections, SSC health monitoring, life cycle management plans, technical basis assessments and asset life projections

Bruce Power's asset management program adequately assessed the conditions of SSCs



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Refurbishment (5/5) Conclusions

- CNSC staff did not identify factors which would limit safe operation
- Bruce Power has programs and processes in place to safely manage refurbishment
- CNSC staff will maintain oversight of refurbishment through desktop reviews and inspections
- Regulatory hold points will ensure operational readiness of SSCs for return to full power operation
- CNSC staff will update the Commission on status of refurbishment through annual ROR for NPPs





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PERFORMANCE ASSESSMENT



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Performance Assessments Overall Plant Ratings

FS = Fully Satisfactory
SA = Satisfactory

SAFETY AND CONTROL AREA	2014		2015		2016	
	Bruce		Bruce		Bruce	
	A	B	A	B	A	B
Management System	SA	SA	SA	SA	SA	SA
Human Performance Management	SA	SA	SA	SA	SA	SA
Operating Performance	SA	FS	FS	FS	FS	FS
Safety Analysis	SA	SA	SA	SA	FS	FS
Physical Design	SA	SA	SA	SA	SA	SA
Fitness for Service	SA	SA	SA	SA	SA	SA
Radiation Protection	SA	SA	SA	SA	FS	FS
Conventional Health and Safety	FS	FS	FS	FS	FS	SA
Environmental Protection	SA	SA	SA	SA	SA	SA
Emergency Management and Fire Protection	SA	SA	SA	SA	SA	SA
Waste Management	FS	FS	FS	FS	FS	FS
Security	FS	FS	FS	FS	SA	SA
Safeguards and Non-Proliferation	SA	SA	SA	SA	SA	SA
Packaging and Transport	SA	SA	SA	SA	SA	SA
Integrated Plant Rating	SA	FS	FS	FS	FS	SA



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Performance Assessments Summary for current licensing period

- Bruce Power meets regulatory requirements in all SCAs
- Radiation doses are well below regulatory limits
- Releases of nuclear and hazardous substances are assessed, controlled and monitored
- Licensee programs are implemented and maintained
- Safety enhancements and improvements continued to be made

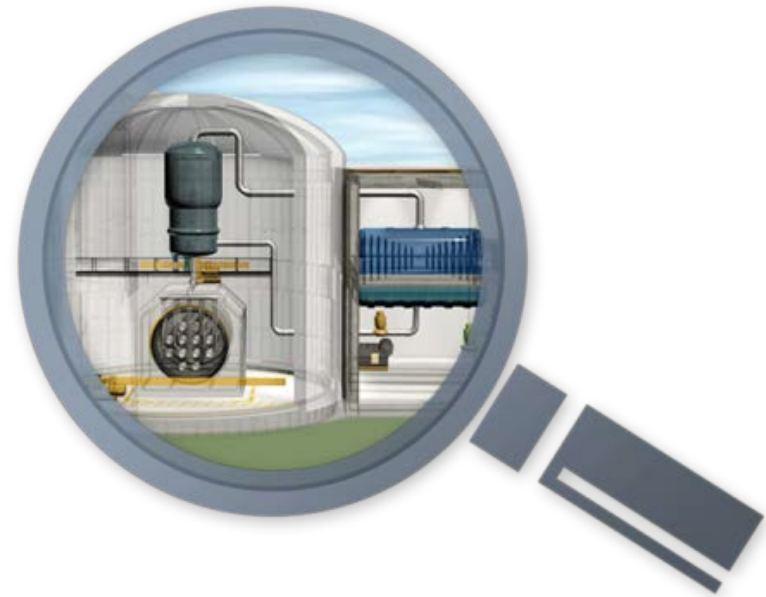
*Environment, health and safety of workers and
the public are protected*



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Regulatory Focus Areas

- All 14 Safety and Control Areas were assessed including other matters of regulatory interest
- Focused highlights on:
 - Human Performance management
 - Safety Analysis
 - Fitness for Service
 - Conventional Health and Safety
 - Environmental Protection
 - Emergency Management and Fire Protection
 - Security





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Regulatory Focus Areas - SCA Human Performance Management

- Minimum shift complement maintained at Bruce A and B
- Limits of hours-of-work exceeded
 - could lead to impairment of the performance of workers
- Bruce Power made enhancements to process to manage worker fatigue

*Human Performance Management SCA met
regulatory requirements*



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Regulatory Focus Areas - SCA Safety Analysis (1/3)

- Bruce Power effectively managed deterministic and probabilistic safety analysis programs
- Bruce Power submitted 2014 Probabilistic Safety Assessment (PSA) for Severe Core Damage (SCD) frequencies and Large Release Frequencies (LRF)
 - 2014 PSA was reviewed and accepted by CNSC staff
 - forms basis of CNSC staff's licence renewal recommendation related this SCA
- In 2017 licence application, Bruce Power provided data that include planned station improvements
 - estimated data showed improved LRF results and no change to SCD results
 - estimated data was not submitted to CNSC staff for review and acceptance

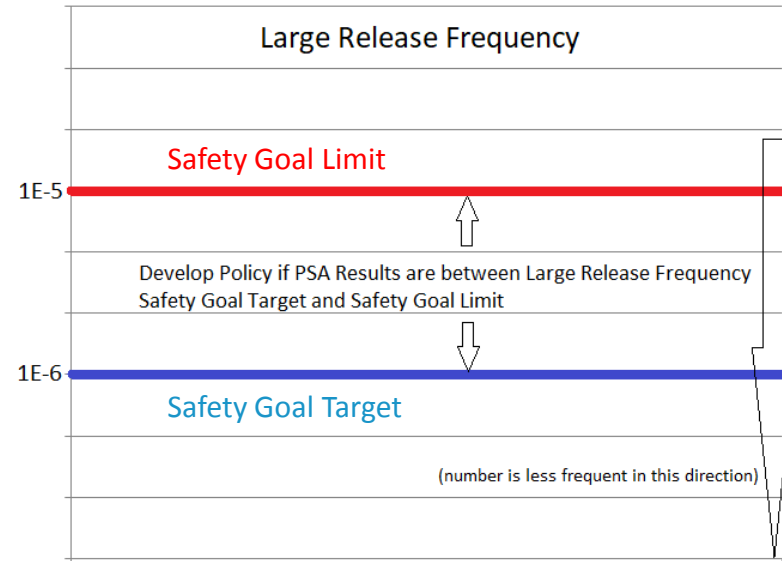


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Regulatory Focus Areas - SCA Safety Analysis (2/3)

- Bruce Power will submit an updated PSA as part of REGDOC-2.4.2 (Probabilistic Safety Assessment) implementation, expected in June 2019
 - PSA is updated on a five (5) year periodic cycle
 - will supersede the 2014 PSA upon acceptance by CNSC staff
- Bruce Power is developing a process to assess if enhancements should be made if PSA results are between safety goal limit and safety goal target
 - for example, IIP includes enhancements to fire protection systems to improve internal fire event PSA result

Safety Goal Limit vs Safety Goal Target





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Regulatory Focus Areas - SCA Safety Analysis

Event	LRF (2014 PSA)		LRF (estimated data with planned improvements)	
	Bruce A	Bruce B	Bruce A	Bruce B
<i>Internal</i>				
At Power	3.0×10^{-7} (1.5×10^{-6})	3.0×10^{-7} (6.9×10^{-7})	1.4×10^{-7}	4.3×10^{-7}
During shutdown	-	-	-	-
Internal flood	-	-	-	-
Internal Fire	7.3×10^{-6}	8.7×10^{-7}	3.7×10^{-6}	8.7×10^{-7}
<i>External</i>				
Seismic	1.7×10^{-6}	7.2×10^{-7}	3.2×10^{-7}	1.4×10^{-7}
High winds	4.8×10^{-6}	6.2×10^{-6}	4.8×10^{-7}	6.2×10^{-7}

Notes:

- 2014 PSA has been formally submitted and was accepted by CNSC staff
 - internal At Power results (3.0×10^{-7}) include taking credit for Emergency Mitigating Equipment. Data was reviewed and accepted by CNSC Staff.
- Estimated data with planned improvements showed improved LRF results. These results have **NOT** been submitted for CNSC acceptance
 - data was presented at 2015 re-licensing hearing under CMD 15-H2.1C and whitepaper published by Bruce Power in 2014
 - data was also presented in 2017 licence application



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Regulatory Focus Areas - SCA Fitness for Service

- Bruce Power has program in place to manage aging SSCs in accordance with REGDOC-2.6.3 (Aging management)
- Bruce Power has Life Cycle Management Plans (LCMPs) to manage aging for major components:
 - feeders, steam generators and preheaters, fuel channels, civil structures
- Aging management of fuel channels discussed under request to operate reactors up to 300,000 EFPH

CNSC will continue to monitor effectiveness of LCMPs for major components



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Regulatory Focus Areas - SCA Conventional Health and Safety

- Two injuries occurred at Bruce B resulted in 2016 rating downgrade:
 - Hydrogen flash in 2016
 - Electrical burn in 2017
- Bruce Power has implemented corrective actions to improve safety performance
- Accident frequency remains low at Bruce A and B

*Conventional Health and Safety SCA met
regulatory requirements*



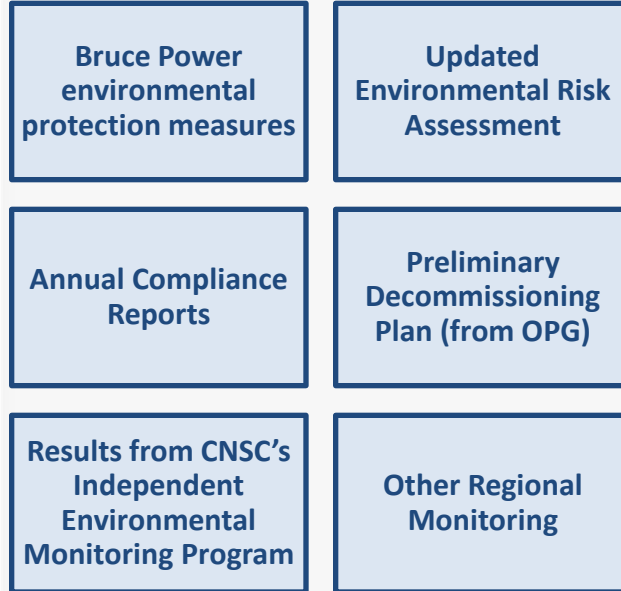
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Regulatory Focus Areas - SCA Environmental Protection

- Bruce Power implemented effective environmental protection program
- CNSC conducted an Environmental Assessment under NSCA
 - considers current operations and future activities
- CNSC staff concluded:
 - physical stressors and radiological and non-radiological releases to environment are low to negligible
 - Bruce Power’s Environmental Risk Assessment (ERA) is consistent with Canadian Standards Association (CSA) methodology

Risks to the environment or human health for the continued operation and life extension of Bruce A and B are low to negligible

Environmental Assessment Report considered the following sources of information.





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Regulatory Focus Areas - SCA Emergency Management and Fire Protection

- Bruce Power's plan covers nuclear, and conventional emergencies
- *Huron Resolve* exercise demonstrated capability to respond to a nuclear emergency
- Bruce Power undertaking feasibility study for automatic data collection for the emergency data transfer system to CNSC Emergency Operations Centre (EOC)

Emergency Management and Fire Protection SCA met regulatory requirements

Emergency exercises and drills are performed to demonstrate response capability.



Source: Bruce Power



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Regulatory Focus Areas - SCA Security

- In 2016, Bruce A and B Security ratings were downgraded to “satisfactory” based on challenges faced within areas of security practices, and drill and exercise
- No significant security equipment failures
- Force-on-Force exercise demonstrated Bruce Power’s ability to respond to security threats
- Bruce Power has measures in place to protect against cyber attacks

Security SCA met regulatory requirements





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OTHER MATTERS OF REGULATORY INTEREST



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Regulatory Focus Areas Other Matters of Regulatory Interest

1. Bruce Power continues to progress in addressing Fukushima Action Items (FAI)
 - 10 of 13 station specific action items are closed
 - Remaining actions to be completed include:
 - shield tank over pressure protection, containment filtered venting system, and additional coolant makeup connections
2. Operation Safety Review Team (OSART) follow-up mission in 2017
 - 18 of 19 improvements from last OSART completed
 - 1 remaining improvement related to drug and alcohol testing of personnel
3. Follow-up Monitoring Program to the Bruce A Refurbishment Environmental Assessment (*Canadian Environmental Assessment Act, 2006*)
 - all items closed
4. Bruce Power has a well-managed public information program



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Regulatory Focus Areas

Other Matters of Regulatory Interest (continued)

5. Application for *Fisheries Act* Authorization to Department of Fisheries and Ocean (DFO)

- *Fisheries Act* Authorization is separate from the CNSC licence renewal process
- *Fisheries Act* uses a different test for environmental protection
- CNSC works with DFO for cooperation and administration of the *Fisheries Act*
- *Fisheries Act* Authorization results in offset projects
- Application of *Fisheries Act* Authorization is in progress by Bruce Power (to be submitted to DFO in latter part of 2018)



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BRUCE POWER REQUESTS



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Request 1: Licence Consolidation

- Bruce Power has requested to consolidate three (3) licences:
 - consolidated use of nuclear substances, for laboratories and radiation devices
 - industrial radiography, for non-destructive testing
 - irradiator facility, for instrument calibration
- Requirements have been incorporated into proposed PROL and Licence Conditions Handbook (LCH)

*No reduction to requirements or oversight as a result
of licence consolidation*



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Request 2: Operate up to 300,000 Equivalent Full Power Hour (EFPH)

- Bruce Power has requested Commission's approval to operate up to 300,000 EFPH
- Current licensed limit is 247,000 EFPH and Hydrogen Equivalent [Heq] levels of 120 ppm
- To demonstrate fitness for service of fuel channels, Bruce Power provided information on:
 - Life Cycle Management Plans (LCMPs)
 - Periodic Inspection Programs
 - Control Room procedures and protocols
 - Operating experience and research
 - disposition of results from each inspection against CSA N285.8 (requirements for evaluation of pressure tubes)
 - in-service performance
- Bruce Power is required to provide ongoing confirmation of fuel channel fitness for service



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Request 2: Operate up to 300,000 EFPH Pressure Tubes

- CNSC staff provided technical update on fuel channel fitness-for-service in Canadian NPPs (CMD 18-M4). Key points are:
 - During operation, pressure tubes experience high temperature, high pressure, neutron irradiation, corrosion and deuterium ingress
 - The dominant contributor to the reduction in pressure tube fracture toughness is increasing deuterium concentration, measured in Hydrogen Equivalent Concentration [Heq], as a result of deuterium ingress
 - Adequate fracture toughness is required to prevent a pressure tube rupture in unlikely event of a crack developing

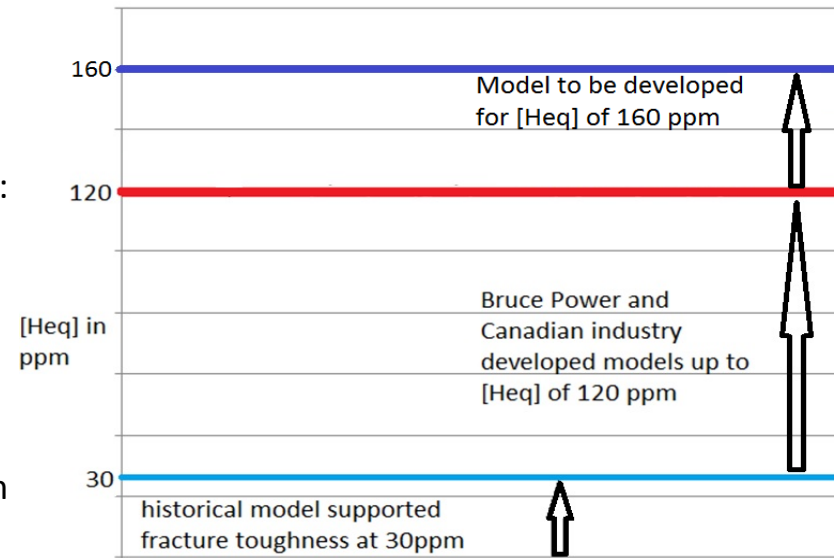


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Request 2: Operate up to 300,000 EFPH Fracture Toughness

- Fracture toughness models in place for pressure tubes with [Heq] levels up to 120 ppm, per CSA Standard
- [Heq] is estimated to reach ~150 ppm prior to MCR
- Bruce Power submitted a detailed plan which includes:
 - development of fracture toughness model for [Heq] up to 160 ppm
 - ongoing monitoring of hydrogen content of pressure tubes
 - continued research and development work
- New fracture toughness model for [Heq] up to 160 ppm must demonstrate sufficient safety margins

Fracture toughness work performed by Bruce Power





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Request 2: Operate up to 300,000 EFPH Predicted [Heq] and EFPH

Unit	Estimated Year to reach 120 [Heq] ppm	MCR Outage Year	Estimated EFPH at MCR	Estimated [Heq] ppm at MCR
6	Dec 2019	2020	245,000	~121
3	n/a (will not reach 120)	2023	245,000	~102
4	n/a (will not reach 120)	2025	255,000	~104
5	2020	2026	300,000	~151
7	2022	2028	300,000	~147
8	2027	2030	300,000	~139



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Request 2: Operate up to 300,000 EFPH CNSC staff recommendation

- CNSC staff recommend the Commission approve operation up to a maximum of 300,000 EFPH, based on:
 1. Adequate safety margins will always be maintained
 2. Strong knowledge of degradation mechanisms of pressure tubes
 3. Effective inspection and monitoring program
- A regulatory oversight process is in place to ensure Bruce Power will meet its commitment to develop a revised fracture toughness model
- CNSC staff's recommendation is contingent on Bruce Power developing a fracture toughness model for [Heq] in excess of 120 ppm



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Request 2: Operate up to 300,000 EFPH CNSC Regulatory Oversight

- CNSC staff recommend a licence condition be placed on Bruce Power related to the development of a fracture toughness model for [Heq] in excess of 120 ppm
 - acceptance criteria defined in the Compliance Verification Criteria (CVC) of the LCH
 - Units **will not be authorized to operate** unless fracture toughness is demonstrated
- Bruce Power is required to provide semi-annual progress updates to CNSC staff
- CNSC staff will report to the Commission on status of the pressure tube through the annual ROR for NPPs

CNSC staff will closely monitor Bruce Power's progress in the development toughness model for pressure tubes in excess of 120 ppm



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OTHER CNSC ACTIVITIES



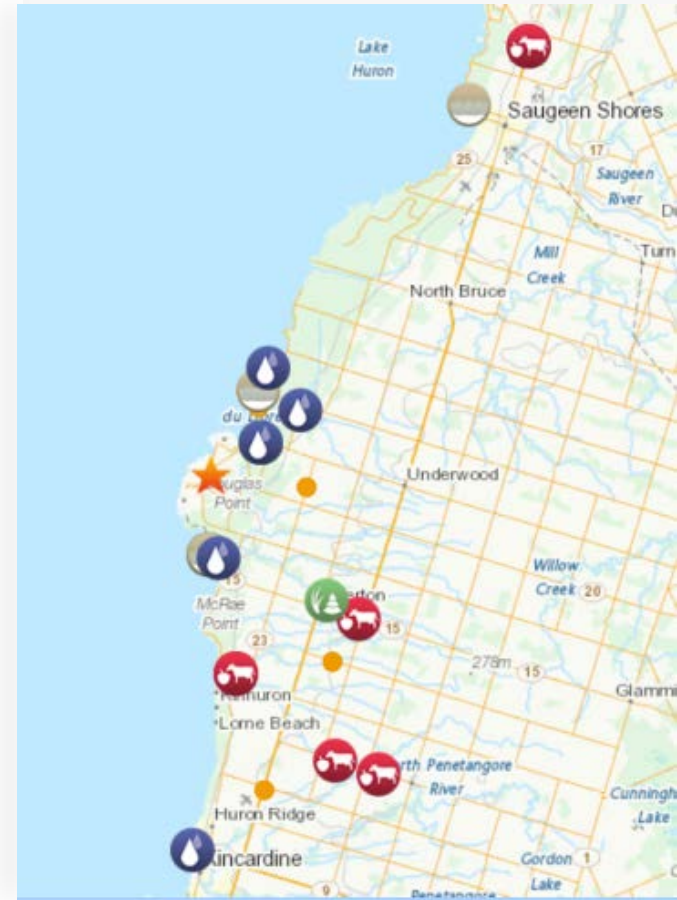
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Independent Environmental Monitoring Program (IEMP)

- CNSC's Independent Environmental Monitoring Program:
 - independent of Bruce Power's environmental monitoring program
 - verifies that no adverse effects around regulated facilities
 - complements ongoing CNSC compliance activities
- Verification is achieved through independent sampling and analysis by the CNSC
- Results confirm that Bruce Power has adequately protected the public and environment around Bruce site



[Independent Environmental Monitoring Program \(IEMP\)](#)





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Aboriginal Consultation and Engagement

- CNSC committed to building long-term relationships with Indigenous groups
- Bruce site lies within traditional Indigenous territory of the following groups:
 - Saugeen Ojibway Nation (SON)
 - Métis Nation of Ontario (MNO)
 - Historic Saugeen Métis (HSM)
- No novel adverse impacts
- Extensive consultation and engagement with all Indigenous groups
- Participant funding awarded during current licensing period:
 - SON was awarded \$78,750
 - MNO was awarded \$24,470





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Participant Funding for license renewal

CNSC made up to \$100,000 available for intervenors through Participant Funding Program for Bruce Power's licence renewal hearing:

- funding approval was based on recommendation from Independent Funding Review Committee
- eight applicants approved for up to \$76,500 in funding to support their intervention



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CNSC Public Outreach

- CNSC staff conducted outreach activities in local Bruce communities, including:
 - Licensing process presentations
 - Bruce Power's refurbishment project
- Bruce Licence renewal public hearing communicated to the public
- Participation in licensee's outreach events
- Presentation to local town councils

CNSC staff conduct its own public outreach program to keep the public informed



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LICENCE & LICENCE CONDITIONS HANDBOOK



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Proposed Licence Period

CNSC staff are recommending a 10 year licence period based on:

- The implementation of PSRs that use a 10 year frequency
- Safety Performance of Bruce Power

Annual reporting to the Commission at public proceedings allows interested parties to participate



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Standardized Wording of Licence Conditions

- Standardized wording to allow consistent use of licence conditions across all Class I Nuclear Facilities
- Requires licensees to implement and maintain programs as approved by the Commission and referenced in the LCH
- Requires licensees to operate within the licensing basis set by the Commission
- Requires licensees to notify CNSC of any changes which may impact operation within the licensing basis

Standardized licence conditions cover all 14 SCAs



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Licence Conditions Handbook CNSC Regulatory Documents as CVC

26 Regulatory Documents total as CVC

- 20 unchanged
- 3 new
- 3 updated

*No reduction in regulatory requirements
since last licence renewal*

New/Updated Regulatory Documents	
New:	REGDOC-2.2.4 Managing Worker Fatigue
New:	REGDOC-2.2.2 Personnel training
New:	REGDOC-2.9.1 v2017 Environmental Protection
Updated:	REGDOC-2.6.1 Reliability Program
Updated:	REGDOC-2.6.2 Maintenance programs
Updated:	REGDOC-2.12.3 Security: Sealed Sources



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Licence Conditions Handbook CSA Standards as CVC

25 CSA standards total as CVC

- 14 unchanged
- 10 new
- 1 updated

*No reduction in regulatory requirements
since last licence renewal*

New/Updated CSA Standards

New:	N290.12-14 Human factors
New:	N290.14-07 Qualification of Pre-Developed Software
New:	N291-15 Safety-Related Structures
New:	N289 series Seismic Qualification
New:	N285.7-15 Periodic Inspection
New:	N288.7-15 Goundwater Protection
Updated	N288.1-14 update 2 Derived release limits



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CONCLUSIONS AND RECOMMENDATIONS



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Conclusions and Recommendations

Overall Conclusions

CNSC staff conclude that as per section 24(4) of the NSCA:

- Bruce Power is qualified to carry on the activities authorized by the licence; and
- In carrying on the licensed activities, Bruce Power has made, and will continue to make adequate provision for the protection of the environment, the health and safety of persons and the maintenance of national security and measures required to implement international obligations to which Canada has agreed



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Conclusions and Recommendations Recommendations (1/3)

CNSC staff recommend that the Commission:

1. Renew the PROL to authorize Bruce Power to continue to operate Bruce A and B for a period of 10 years
2. Consolidate the specified licences into the PROL
3. Authorize Bruce Power to operate Bruce A and B up to 300,000 EFPH



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Conclusions and Recommendations Recommendations (2/3)

CNSC staff recommend that the Commission:

4. Accept the following conditions requiring Bruce Power to:
 - implement the IIP resulting from the current PSR
 - maintain pressure tube fracture toughness sufficient for safe operation
 - implement a return to service plan for refurbishment activities
 - obtain the approval of the Commission, or consent of a person authorized by the Commission, prior to the removal of established regulatory hold points during return to service
 - conduct and implement a PSR prior to next licence renewal application



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Conclusions and Recommendations

Recommendations (3/3)

CNSC staff recommend that the Commission:

5. Authorize the delegation of authority for a “person authorized by the Commission” for return to service following refurbishment
 - Licence Condition 3.2, Restart after a serious process failure
 - Licence Condition 15.5, Removal of regulatory hold points (related to return to service)
6. Issue a licence pursuant to section 24 of the NSCA

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