



# ***REGDOC-1.1.1, Site Evaluation and Site Preparation for New Reactor Facilities***





# PURPOSE



## **TO REQUEST APPROVAL OF** *REGDOC-1.1.1, Site Evaluation and Site Preparation for New Reactor Facilities*



# CNSC REGULATORY DOCUMENT FRAMEWORK

## 1.0 Regulated Facilities and Activities

### Series 1.1 Reactor Facilities

#### *REGDOC-1.1.1, Site Evaluation and Site Preparation for New Reactor Facilities*

- 1.2 Class IB Facilities
- 1.3 Uranium Mines and Mills
- 1.4 Class II Facilities
- 1.5 Certification of Prescribed Equipment
- 1.6 Nuclear Substances and Radiation Devices

## 2.0 Safety and Control Areas

- Series 2.1 Management System
- 2.2 Human Performance Management
- 2.3 Operating Performance
- 2.4 Safety Analysis
- 2.5 Physical Design

### 2.6 Fitness for Service

### 2.7 Radiation Protection

### 2.8 Conventional Health and Safety

### 2.9 Environmental Protection

### 2.10 Emergency Management and Fire Protection

### 2.11 Waste Management

### 2.12 Security

### 2.13 Safeguards and Non-Proliferation

### 2.14 Packaging and Transport

## 3.0 Other Regulatory Areas

- Series 3.1 Reporting Requirements
- 3.2 Public & Aboriginal Engagement
- 3.3 Financial Guarantees
- 3.4 Commission Proceedings
- 3.5 Information Dissemination
- 3.6 Glossary of CNSC Terminology



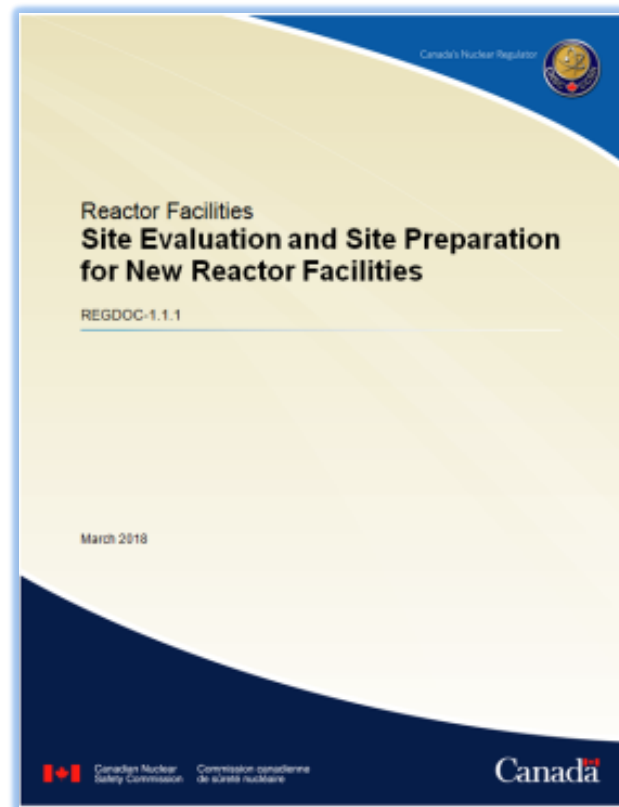
# CNSC REGULATORY DOCUMENT FRAMEWORK

- If approved, REGDOC-1.1.1 will replace the previously published RD-346, *Site Evaluation for Nuclear Power Plants*
- What is new?
  - Incorporates lessons learned from the Fukushima nuclear event
  - Includes small reactor facilities using a risk-informed approach
  - Includes site preparation requirements and guidance
  - Provides information on site characterization, including considerations of:
    - Events including multiple and simultaneous severe external events that could exceed the design basis
    - Multiple and simultaneous reactor accidents
    - Information about emergency planning and preparations for extreme events



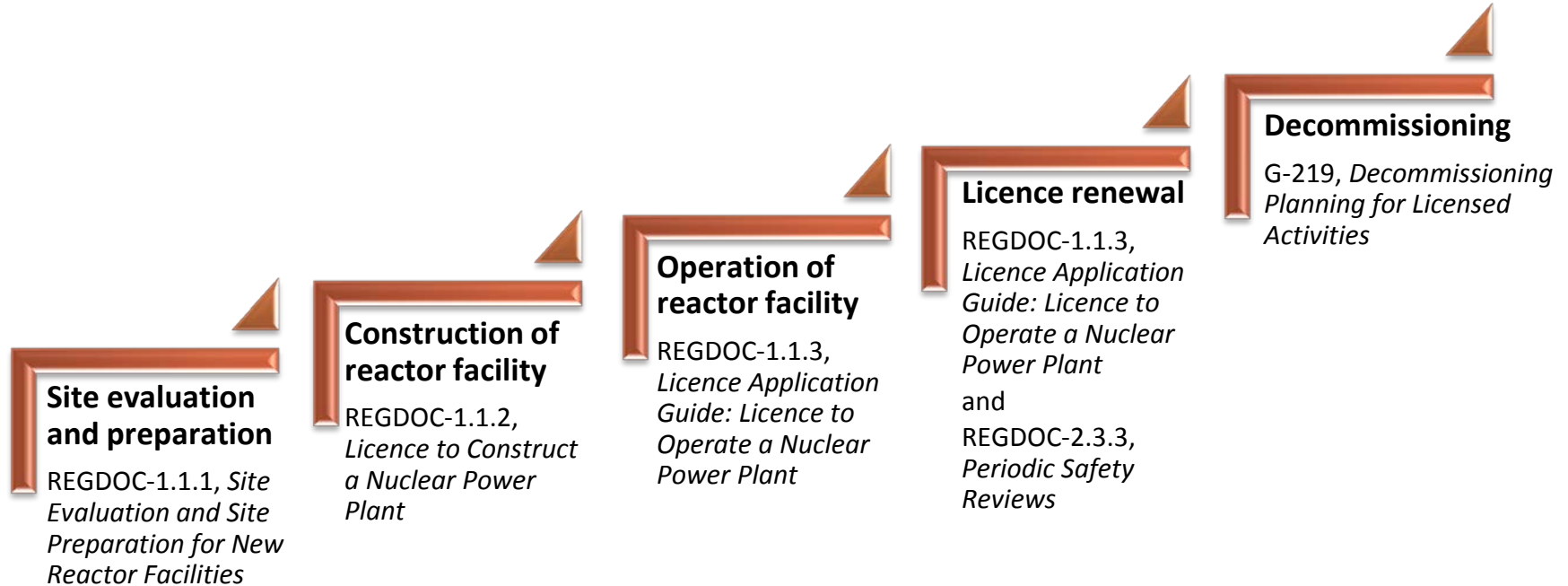
# OUTLINE

- ✓ Objectives
- ✓ Public consultation
- ✓ Key comments
- ✓ Implementation
- ✓ Conclusion
- ✓ Recommendation



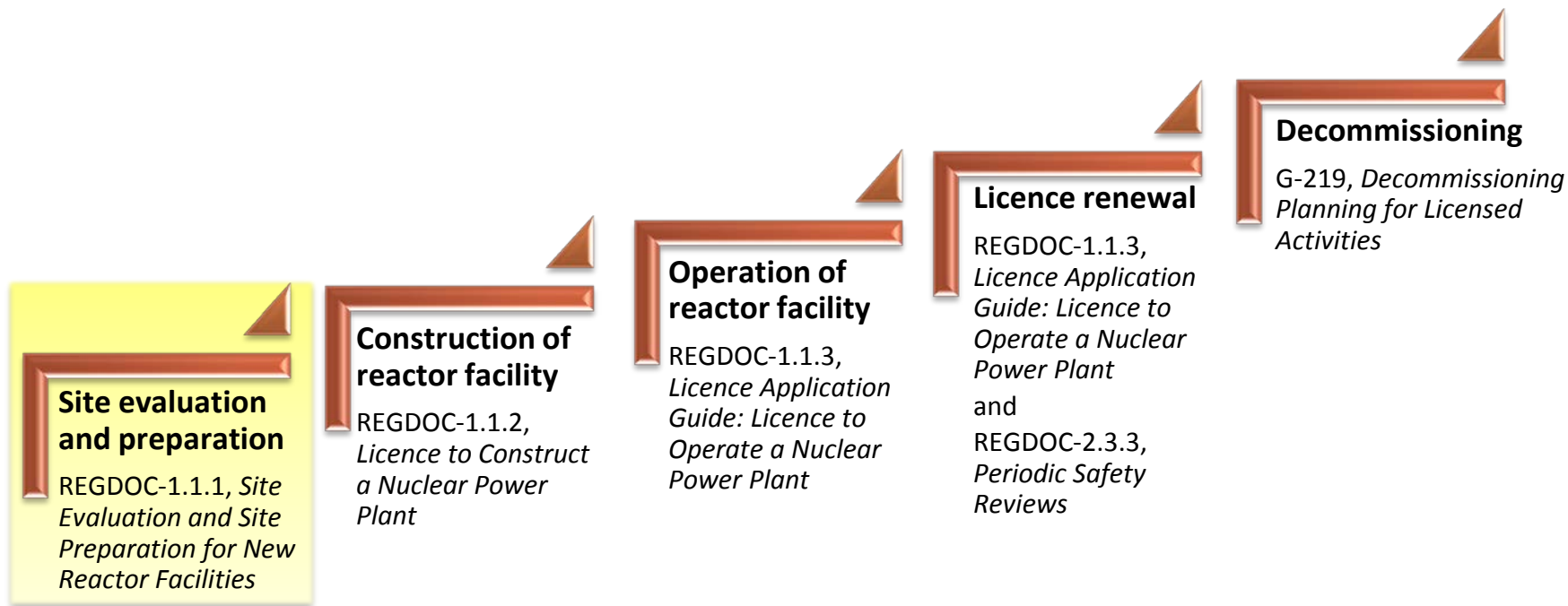


# LIFECYCLE APPROACH TO LICENSING REACTOR FACILITIES



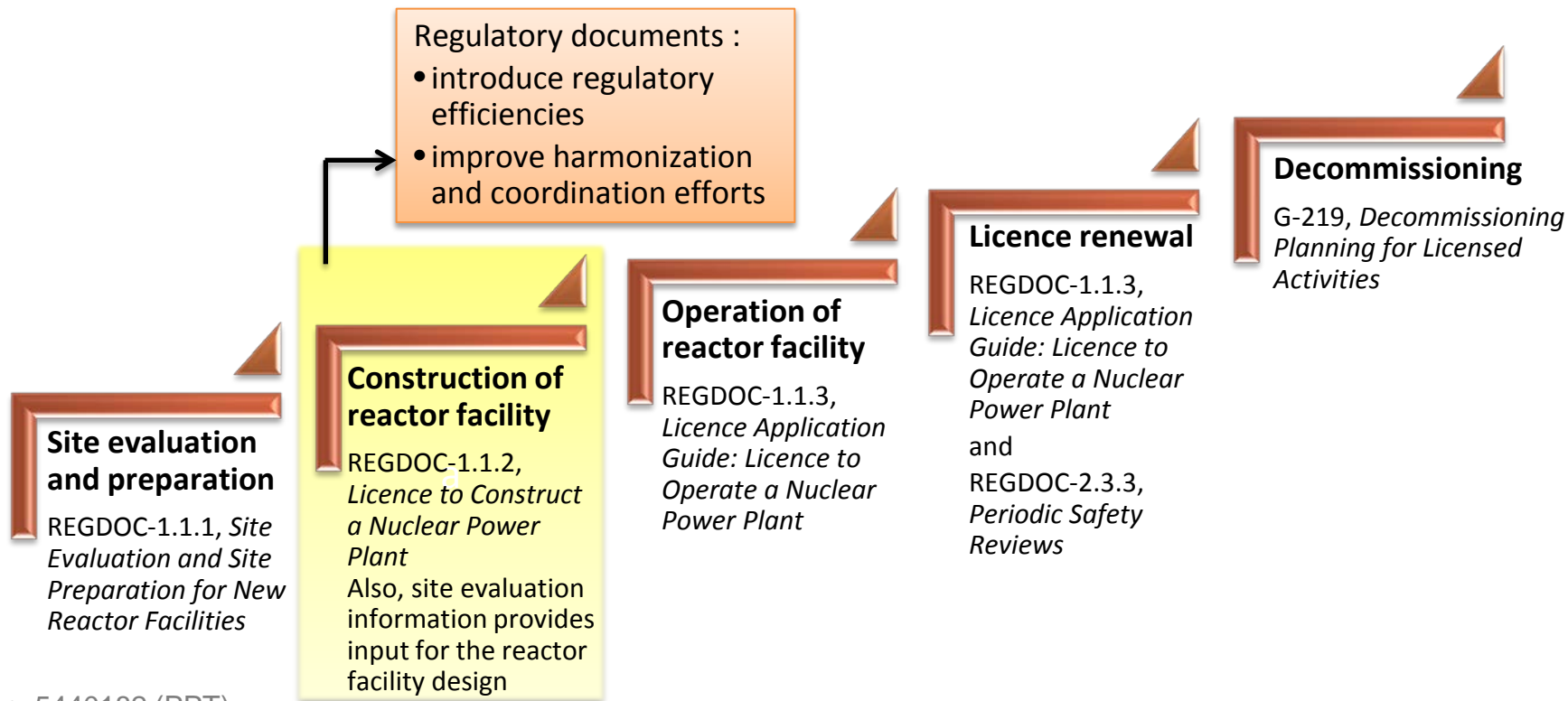


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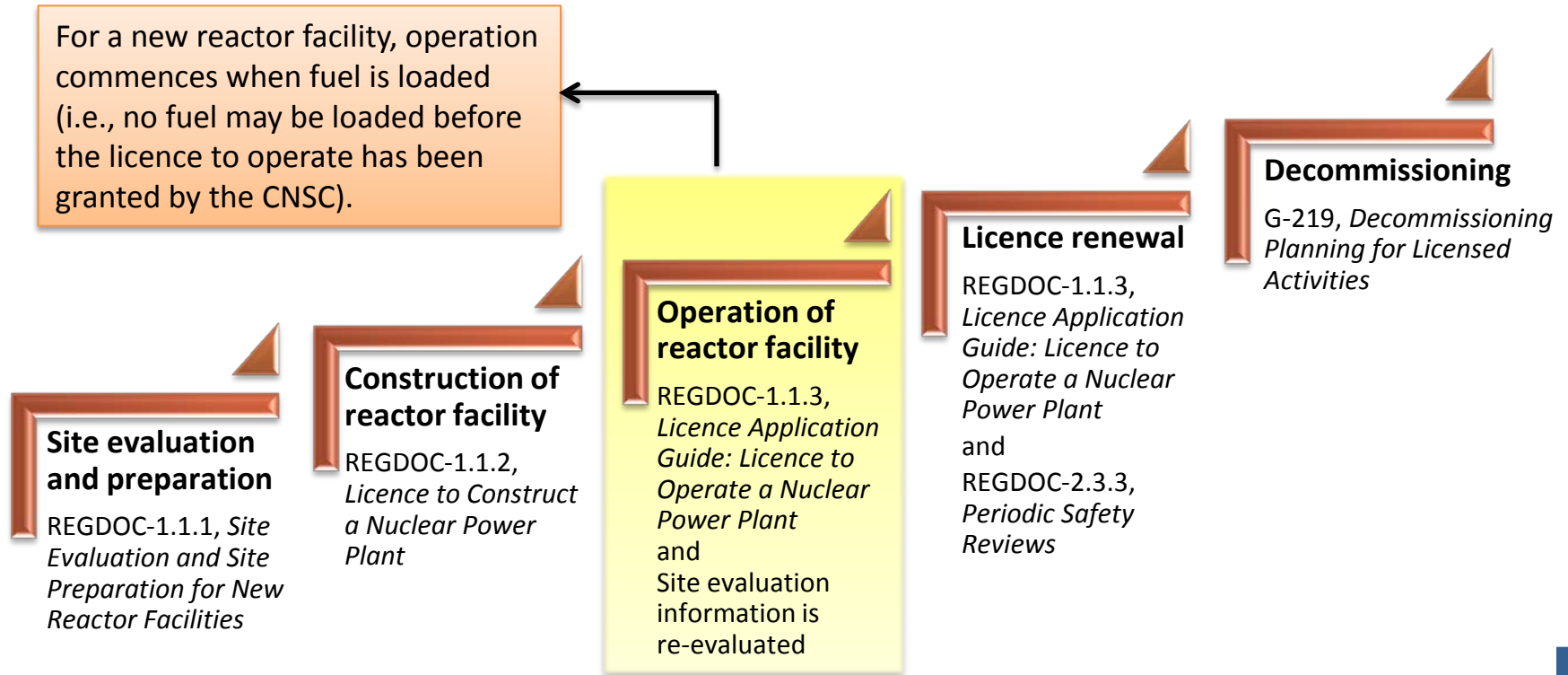


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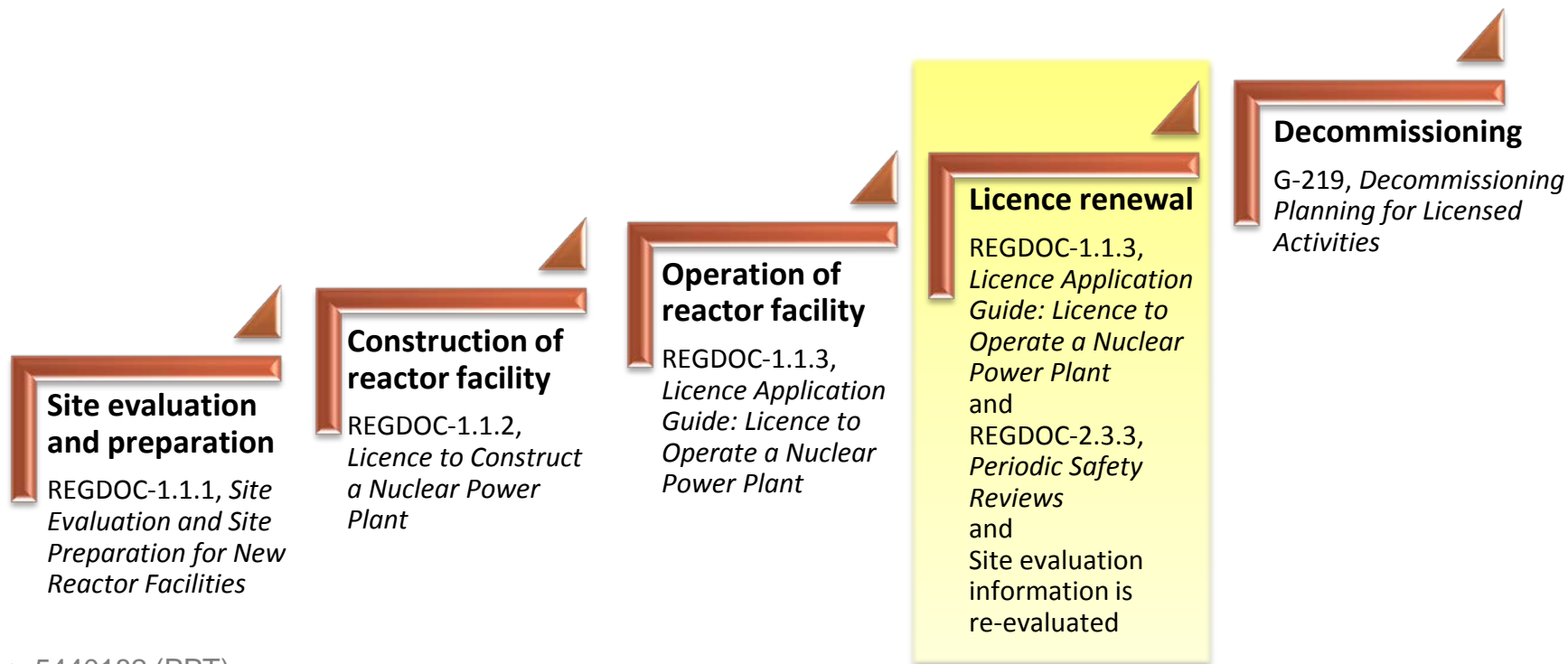


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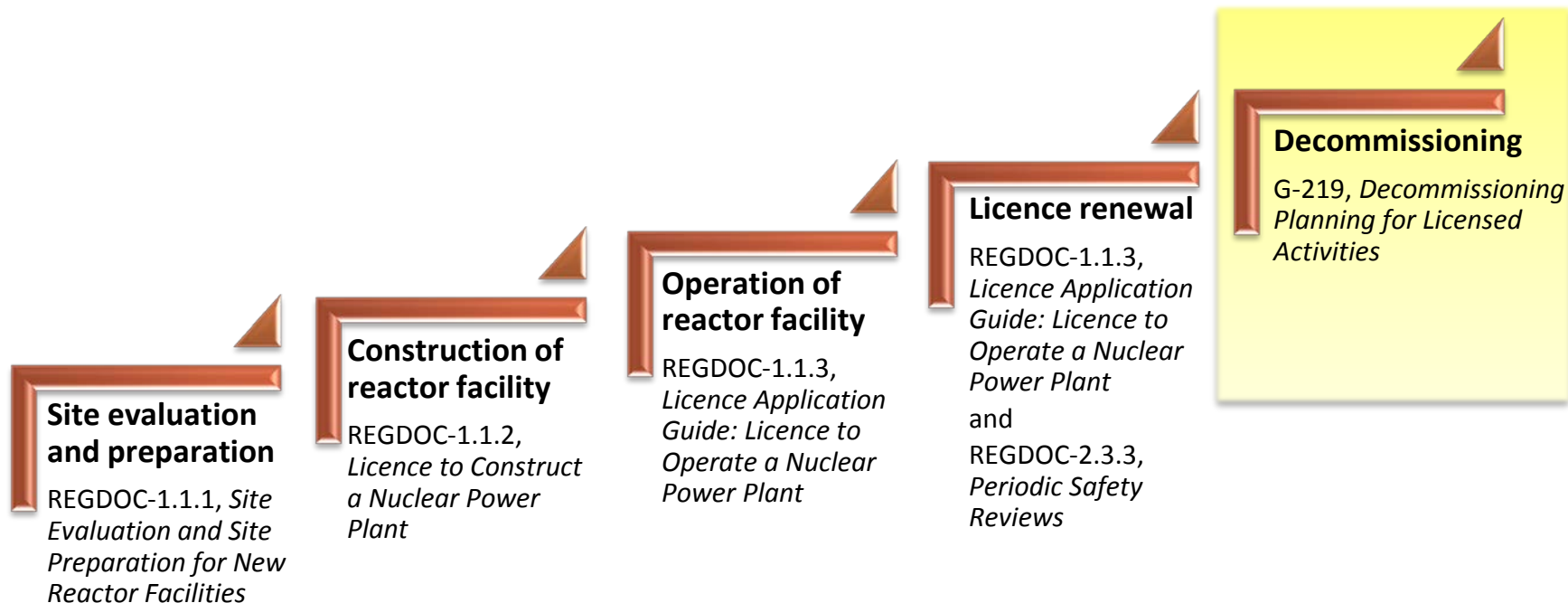


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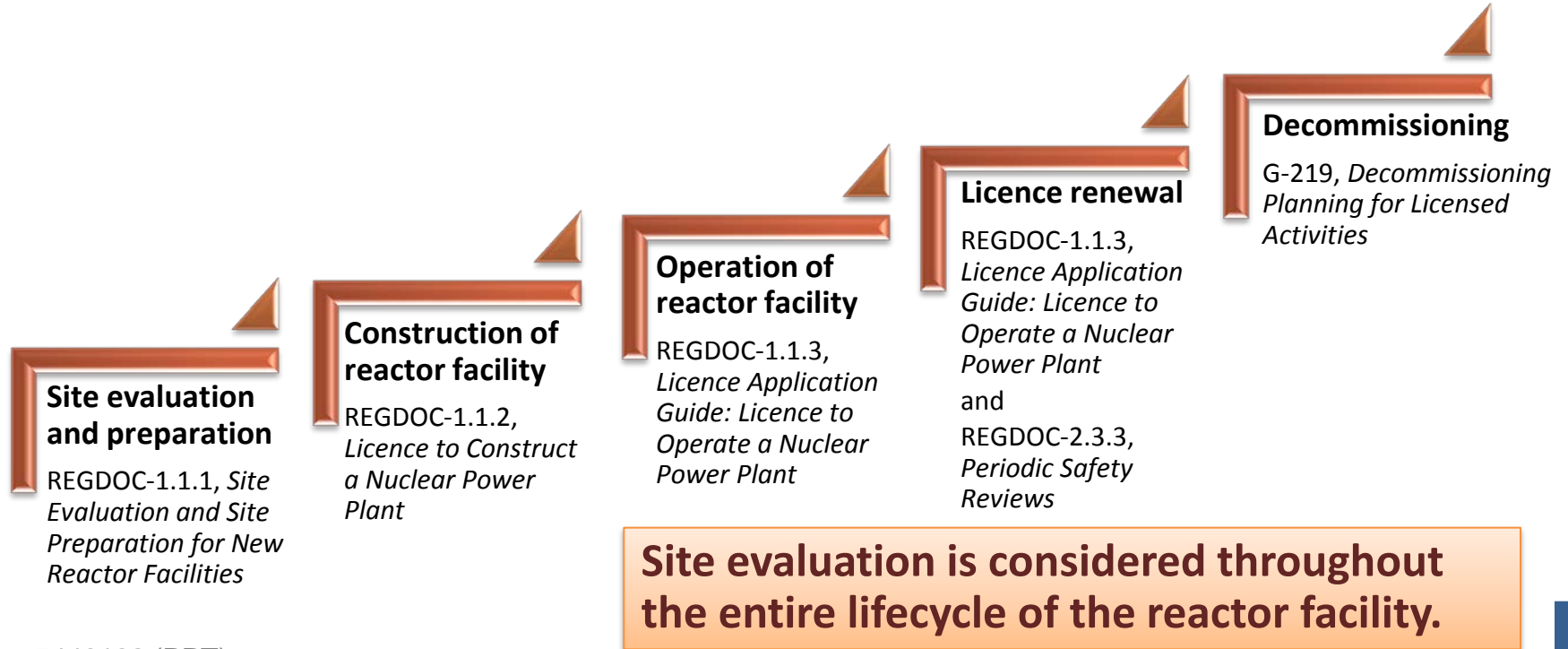


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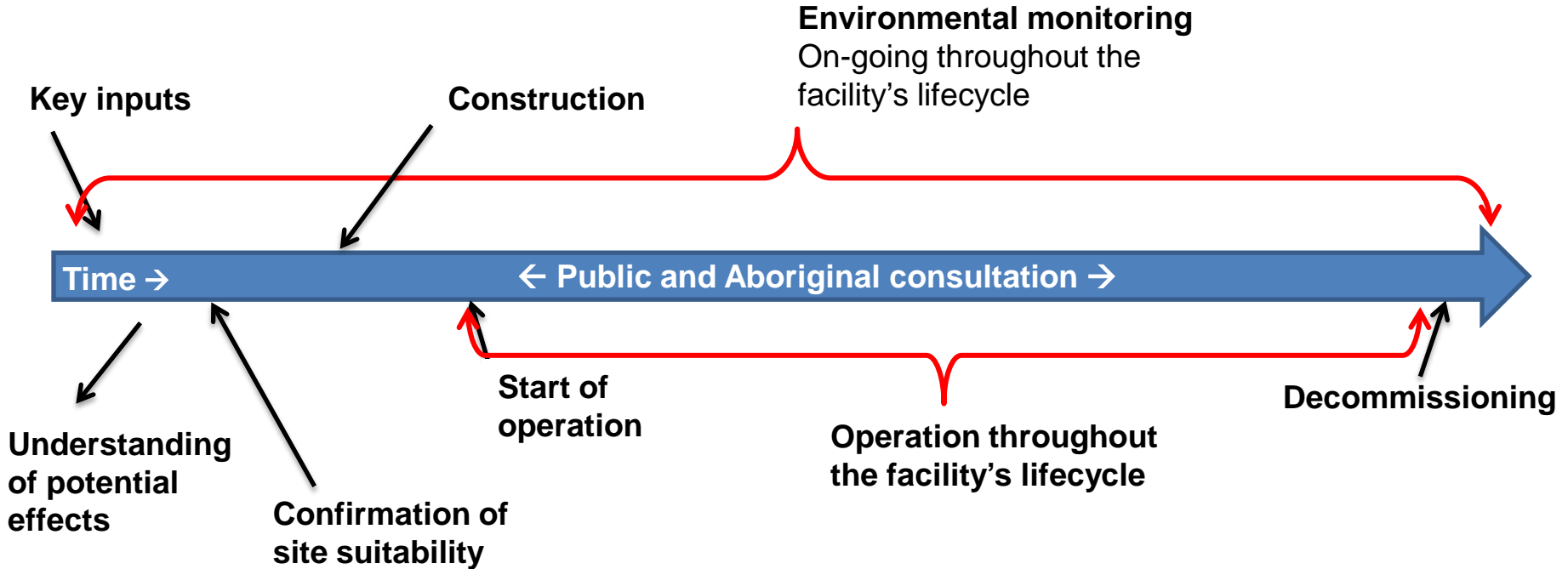


## REGDOC-1.1.1 IN CONTEXT

- Describes the CNSC's requirements and guidance for site evaluation and site preparation for a new reactor facility
  - Codifies past practice
  - Refers to applicable standards and CNSC regulatory documents
- Used by:
  - Applicants to prepare their applications (appendix A)
  - CNSC staff to assess licence applications in support of recommendations to the Commission on licensing



# SITE EVALUATION OVER THE LIFECYCLE





# PUBLIC CONSULTATION



**90-day** public consultation period



**152 distinct comments** from eight respondents

(Bruce Power, New Brunswick Power, Ontario Power Generation, Starcore Nuclear, Canadian Environmental Law Association, Greenpeace, Canadian Nuclear Association, Canadian Nuclear Laboratories)



**2 weeks for feedback** on the comments received, 17 comments was submitted



Comments addressed and document restructured in 2017



# KEY CONCERNS RAISED DURING PUBLIC CONSULTATION

Scope of the  
Document

Future Lifecycle  
Phases

Regulatory  
Responsibility

Exclusion  
and  
Emergency  
Planning Zones

“Lessons  
Learned”  
from Fukushima

Selection of a  
specific  
technology  
before site  
preparation

1

2

3

4

5

6





# 1

## CONCERN 1: SCOPE OF THE DOCUMENT

- Industry stakeholders questioned the scope of the document, specifically the structure, clarity and effectiveness
- Specific comments identified:
  - Redundancy and duplication in the document
  - That site evaluation is a precondition for site preparation but those topics appeared in reverse order in the public consultation draft
  - The scope of the document hinders its clarity and effectiveness



# CONCERN 1: SCOPE OF THE DOCUMENT

## CNSC staff response:

- The document has been restructured and reordered
- Text has been revised to use cross-references where possible
- The restructured document was presented to all stakeholders who commented
  - No negative comments received to date



## 2

## CONCERN 2: FUTURE LIFECYCLE PHASES

- Another concern of industry stakeholders was that the applicant is expected to submit too much information on future lifecycle phases
- In other words:
  - REGDOC-1.1.1 covers the topics of site evaluation and site preparation
  - Why are applicants asked to consider construction, operation, and decommissioning?



## CONCERN 2: FUTURE LIFECYCLE PHASES

### CNSC staff response:

- Site evaluation information is carried through to all subsequent facility lifecycle phases, including construction and operation
- Changes have been made to:
  - Clarify the use of site evaluation and site characterization information
  - More clearly note the sections of the document applicable to construction and operation



# 3

## CONCERN 3: REGULATORY RESPONSIBILITY

- Stakeholders had concerns about perceived overlap of regulatory responsibilities; that is:
  - The regulatory document overlaps responsibilities between the CNSC and other government bodies
    - Conventional health and safety
    - Emergency preparedness
  - Licensees are forced to replicate research and submissions in order to meet redundant requirements



## CONCERN 3: REGULATORY RESPONSIBILITY

### CNSC staff response:

- There is shared jurisdiction with the province or territory in the areas of conventional health and safety and in environmental protection
  - The CNSC coordinates their efforts in these areas with the province or territory
  - The CNSC allows applicants to minimize duplication wherever possible
- Offsite emergency preparedness is the jurisdiction of the province or territory
- Social expectations are covered by confirming with the province or territory that offsite emergency preparedness arrangements are adequate

# 4

## CONCERN 4:

### EXCLUSION ZONE, EMERGENCY PLANNING ZONES

Stakeholders had concerns with the exclusion zone and emergency planning zones:

- Industry stakeholders stated that design criteria and requirements pertaining to dose limits and safety goals should not be included in this regulatory document except by reference to the source document
- Greenpeace and the Canadian Environmental Law Association stated that REGDOC-1.1.1 should be amended to acknowledge that the increased hazard of multi-unit nuclear stations should be reflected in determining the exclusion zone



## CONCERN 4:

# EXCLUSION ZONE, EMERGENCY PLANNING ZONES

- CNSC staff response:
- Applicants need to consider the exclusion zone and emergency planning zones early in the project
- The exclusion zone is based on the design basis accident
- “Protective zone” has been reworded as “emergency planning zones”
- CSA N1600, *General requirements for nuclear emergency management programs* has been added as a reference





## CONCERN 5:

### “LESSONS LEARNED” FROM FUKUSHIMA

- Greenpeace and CELA commented that the draft regulatory guide does not take into account “lessons learned” from the nuclear event at Fukushima, Japan in 2011



## CONCERN 5:

# “LESSONS LEARNED” FROM FUKUSHIMA

### CNSC staff response:

- REGDOC-1.1.1 addresses lessons learned from the Fukushima nuclear event of March 2011
- The objective of the site preparation stage is to assess whether the site is suitable for the construction and operation of a nuclear facility
- Information on population and emergency planning is provided in REGDOC-1.1.1, and additional information can be found in REGDOC-3.5.1, *Licensing Process for Class I Nuclear Facilities and Uranium Mines and Mills*



# 6

## CONCERN 6: SPECIFIC REACTOR TECHNOLOGY

Whether a specific reactor technology must be selected before a licence to prepare the site can be approved:

- Industry stakeholders stated that REGDOC 1.1.1 requires assessments and analysis based on a detailed reactor design well before an applicant might reasonably be expected to have chosen a design
- Greenpeace and CELA stated that the applicant should be required to specify the specific technology when applying for a licence to prepare a site



## CONCERN 6: SPECIFIC REACTOR TECHNOLOGY

CNSC staff response:

- The application for a licence to prepare the site:
  - Must meet all applicable regulatory requirements
  - Must provide enough information to demonstrate that releases of nuclear and hazardous substances will be within limits claimed in the environmental assessment
  - Is not dependent upon detailed information for a specific reactor facility design



## IMPLEMENTATION

If approved, REGDOC-1.1.1 will:

- Be published on the CNSC's website (replacing RD-346, *Site Evaluation for New Nuclear Power Plants*)
- Provide regulatory expectations to applicants on conducting a site evaluation and on the content of an application for a licence to prepare a site for a new reactor facility



# CONCLUSION

## REGDOC-1.1.1, *Site Evaluation and Site Preparation for a New Reactor Facility*

- Provides clarity to applicants and other stakeholders on evaluating a site for a new reactor facility, and on the information to be included in an application for a licence to prepare site
- Contributes to greater regulatory certainty for applicants and licensees
- Ensures transparency for the Canadian public and international community on the CNSC's regulatory requirements and guidance



## RECOMMENDATION

- CNSC staff recommend that the Commission approve REGDOC-1.1.1, *Site Evaluation and Site Preparation for New Reactor Facilities*



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