SECURITY OF SMALL MODULAR REACTORS

Ottawa, Canada, 20-21 November 2019 <mark>Draft agenda as of 12/09/2019</mark>

KEY OBJECTIVES

The purpose of this workshop is to review and discuss all security matters related to the design, commissioning and operation of Small Modular Reactors (SMRs) including:

- ✓ SMR technologies and their impact on security
- ✓ Impact of SMRs on the regulatory framework, including challenges and opportunities
- ✓ Security by design; Nuclear Safety/Safeguards/Security Interfaces
- ✓ Cyber Security
- ✓ Impact of SMRs on the security of the fuel cycle facilities
- ✓ Engagement with stakeholders on SMR security

DAY 1: WEDNESDAY 21th NOVEMBER 2019

08:30 – 09:00   Registration / Coffee & Tea

OPENING SESSION

09:00 – 09:30   Welcome remarks and objectives of the workshop
- ▪ The Canadian Small Modular Reactor Roadmap (CNSC)

09:30 – 10:00   Participants introduction and expectations (Facilitator)

10:00 – 10:30   **Keynote presentation** on security considerations for small modular reactors (WINS)

10:30 – 10:45   Coffee break

SESSION 1:   SMR TECHNOLOGIES AND THEIR IMPACT ON SECURITY

Key issues:
- ✓ What are the different SMR technologies currently under development (LWR, MSR, FNR, etc)?
- ✓ How does the choice of technology impact the security needs and why? What are the other key security considerations related to the deployment of SMRs?
- ✓ To what extent do these security needs differ from the ones for the existing nuclear facilities?

10:45 – 11:30   **Overview** of *the status of different SMR technologies* by IAEA (TBC)

11:30 – 12:00   **Presentation** on *threats and security requirements*

12:00 – 12:30   **Table discussion** on the design requirements for security based on the different technologies.

12:30 – 13:30   Lunch

SESSION 2:   IMPACT OF SMRs ON THE REGULATORY FRAMEWORK

Key issues:
- ✓ What is the expected impact of SMRs on the existing regulatory framework?
  - • What is the current status of regulations for SMRs?

- What considerations are being given to new regulations?
- Are regulations likely to be prescriptive or outcome focused?
- ✓ How would the size of Emergency Planning Zones (EPZ) be affected by SMRs? Would there be a new assessment of Loss of Large Areas (LOLA) and Integrated Response Planning (IRP)?

13:30 – 14:00   **Presentation** on an international perspective on security regulations

14:00 – 14:30   **Presentation** on addressing the licensing process. Nuclear security regulations approach to SMRs by Yves Poirier from CNSC

14:30 – 15:15   **Panel discussion**
- How to ensure inclusive consideration of SMRs to inform any required modification to nuclear security regulations;
- How to effectively enhance nuclear security regulations

15:15 – 15:30   **Coffee break**

15:30 – 16:00   **Table discussion** to consolidate the next steps for the regulator

SESSION 3:   IMPLEMENTING SECURITY BY DESIGN. MANAGING INTERFACES WITH SAFEGUARDS AND SAFETY

Key issues:
- ✓ To what extent can the Design Basis Threat (DBT) be taken into account in the design process? How do we anticipate and incorporate long-term threats?
- ✓ How can we implement security by design during siting, design, construction, operation and decommissioning of SMRs?
- ✓ To what extent can safety methodologies be used to calculate and justify security arrangements? How can we optimise security, safety and safeguards synergies?

16:00 – 16:30   **Presentation** on *security by design* by Sean Belyea from CNSC

16:30 – 17:00   **Table discussion** to identify good practices for developers and potential operators to address security in the early stages of the design

17:00   **Workshop cocktail**

DAY 2: THURSDAY 21th NOVEMBER 2019

09:00 – 09:15   Key findings of Day 1 and objectives of Day 2 (Facilitator)

SESSION 3 (Cont.):   IMPLEMENTING SECURITY BY DESIGN. MANAGING INTERFACES WITH SAFEGUARDS AND SAFETY

09:15 – 09:45   **Presentation** on *security interfaces with safeguards and safety*

09:45 – 10:15   **Table discussion** to identify how to effectively manage security, safety and safeguard interfaces to reduce the cost of nuclear security

10:15 – 10:30   Coffee break

10:30 – 11:00   **Case study** on *assessing security effectiveness on a proposed design*

11:00 – 11:30   **Panel discussion** on *reducing security costs* (Developers)
- Are we anticipating a significant reduction in term of security costs and to what extent?
- What is the expected cost of security?

- What needs to be achieved in terms of the security expenditures (capital and operating budgets) in order to make SMRs cost competitive?

SESSION 4:   INTEGRATED APPROACH TO CYBERSECURITY

Key issues:

- ✓ What are the potential threats to SMRs posed by cyberattacks?
- ✓ Are there cybersecurity challenges from an insider threat perspective?
- ✓ Are cyberattacks any more significant or of concern than for a conventional LWR?

11:30 – 12:00   **Presentation** on identifying and addressing the evolving cyberthreat by Eric Lemoigne from CNSC

12:00 – 12:30   **Table discussion**

- What are the specific risks related to IT and IC systems?
- What are the cybersecurity challenges from an insider threat perspective?
- Over the lifetime of the SMRs' operation, what developments could positively or negatively affect the security arrangements?

12:30 – 13:30   **Lunch**

SESSION 5:   IMPACT OF SMRs ON THE SECURITY OF THE FUEL CYCLE

Key issues:

- ✓ What are expected changes in the fuel cycle processes and practices? Do they have any security implications?
- ✓ What transport needs are foreseen? Does the transport of SMRs present any new security challenges?
- ✓ Could international transport be an issue? Would there need to be new international transport agreements between States when transporting SMRs?

13:30 – 14:00   **Presentation** on key relevant impacts of the SMR in the fuel cycle

14:00 – 14:30   **Presentation** on security transport considerations

14:30 – 15:00   **Table discussion** to review security implications of new processes and practices associated with the operation of SMRs

15:00 – 15:15   **Coffee break**

CONCLUSION SESSION

15:15 – 16:00   **Remarks on** *Implications for Stakeholder Engagement and Communication*

Reviewing key findings of the workshop and Way forward

- What are the key lessons that have arisen from this workshop? What are the main take-aways for Vendors, Operators and Regulators?
- What questions and challenges remain unaddressed?
- How can we ensure a follow-up to the key findings?

16:00 – 16:30   Evaluation of the workshop and closing remarks

16:30   **END OF WORKSHOP**