

SECURITY OF SMALL MODULAR REACTORS (SMRs)

Vienna, Austria. 5th-6th March 2019

DAY 1: TUESDAY 5th MARCH 2019

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

OPENING SESSION

09:00 – 09:30 Welcome remarks and objectives of the workshop (WINS)

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

10:00 – 10:30 **Keynote presentation** on *Security considerations for small modular reactors* by Riyaz Natha from Sandia National Laboratories (USA)

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 on the security requirements and why?
- ✓ To what extent do they differ from the ones for the existing nuclear facilities?
- ✓ What criteria are being used to assess whether the security arrangements are sufficient?
- ✓ Does the proposed location of the SMRs influence the security requirements?

10:45 – 11:30 **Overview** of *The status of different SMR technologies and the role of the IAEA to support its Member States in SMR Technology Development* by Frederik Reitsma from IAEA

11:30 – 11:45 **Overview** on the *Security of SMR and the Nuclear Innovation Programme in the UK* by Adrian Prior from Frazer-Nash Consultancy (UK)

11:45 – 12:15 **Panel and table discussion**

- To what extent is there regional or international agreement amongst vendors, customers and host countries on the security requirements for SMRs?
- To what extent have there been security discussions between different stakeholders (R&D organisations, SMRs vendors, IAEA, etc)? Is there a forum for these discussions and should there be?

12:15 – 13:15 Lunch

13:15 – 13:45 **Presentation** on *CAREM project* by Liliana Garrigó from National Atomic Energy Commission (Argentina)

13:45 – 14:15 **Table discussion**

- 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 expenditure (capital and operating budgets) in order to make the SMRs cost competitive?

SESSION 2: IMPLEMENTING SECURITY BY DESIGN AND CONVERGING NUCLEAR SAFETY AND SECURITY

Key issues:

- ✓ What are the design requirements for security? To what extent has the Security Design Basis Threat (DBT) already been taken into account in the design process?
- ✓ 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 the security arrangements? How can we optimise safety and security synergies?

14:15 – 14:45	Table discussion on threats and other design requirements for the security of SMRs
14:45 – 15:15	Presentation on <i>Security by design</i> by Eddie Marrett from Rolls Royce (UK)
15:15 – 15:45	Table discussion <ul style="list-style-type: none"> ▪ What lessons learned from protecting current nuclear facilities can be applied to the security of SMRs? ▪ What do we understand by implementing “defence-in-depth” for SMRs?
15:45 – 16:00	Coffee break
16:00 – 16:30	Presentation on <i>Safety and security integration</i> by Andrew Knight from Rolls Royce (UK)
16:30 – 17:00	Table discussion to identify good practices for effectively integrating safety and security
17:00 – 17:15	Review of the day (Facilitator)
17:15	Workshop cocktail

DAY 2: WEDNESDAY 6th MARCH 2019

09:00 – 09:30 Key findings of Day 1 and objectives of Day 2 (Facilitator)

SESSION 3: CYBERSECURITY FROM AN INSIDER PERSPECTIVE

Key issues:

- ✓ What are the potential threats to SMR 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?

09:30 – 10:00	Presentation on <i>Addressing cyber threats</i> by Christopher Cope from National Nuclear Laboratory (UK)
10:00 – 10:30	Table discussion <ul style="list-style-type: none"> ▪ 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 do we see that could impact positively or negatively on the security arrangements?
10:30 – 10:45	Coffee break

SESSION 4: IMPACT OF SMRs ON THE SECURITY OF THE FUEL CYCLE

Key issues:

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

10:45 – 11:15 **Presentation** on *CNL's Strategic initiative on SMRs and nuclear security issues anticipated from development and operation of new fuel cycle technologies* by Dr Bhaskar Sur from Canadian Nuclear Laboratories CNL (Canada)

11:15 – 11:45 **Presentation** on *Transport considerations for fuel cycle materials* by Simon Chaplin from World Nuclear Transport Institute WINTI (UK)

11:45 – 12:00 **Table discussion** to review security implications of new processes and practices associated with the operation of SMRs

12:00 – 13:00 Lunch

SESSION 5: 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 in operation?
 - 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)?

13:00 – 13:40 **Panel discussion** on addressing security during the licensing process

13:40 – 14:00 **Table discussion** to identify the specific needs of newcomer countries

14:00 – 14:30 **Presentation** on *Regulatory basis for emergency preparedness and physical protection* by Dr Lap-Yan Cheng from Brookhaven National Laboratory BNL (USA)

14:30 – 14:45 **Table discussion** to consolidate the right approach on harmonized the international regulation of Security of SMRs

14:45 – 15:00 Coffee Break

WAY FORWARD

15:00 – 16:00 **Reviewing key findings of the workshop**

Consolidating the good practices for strengthening the security of SMRs

Identifying the 5 key points of the new WINS Special Report Security of SMRs

16:00 – 16:15 Evaluation of the workshop and Closing remarks

16:15 **END OF WORKSHOP**