

Industrialization, design
engineering, testing,
manufacturing, supply chain
and construction technology

Topic area 3

- Suggested sub-topics for discussion:
“how to realize enabling features of SMRs (e.g. volume production) to Industrialize, design eng. etc”

- What could the IAEA do?

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1. Realise through supply chain diversification with the aim of:
 - Reducing costs of component manufacture and construction
 - Localisation of supply
2. How to maximise these opportunity
 - Vendor country to move from stick build to factory build / mass production.
 - Country of deployment to industrialize.
 - Transfer technologies for other sectors.
 - Broaden supply chain (N-Stamp capability)
 - Option to have both vertical integration and horizontal supply chain
3. key mechanisms and how could these be addressed
 - Regulators
 - Safety classification of components
 - Many standards exist – how are these understood by broader supply chain
 - Quality assurance and quality control for nuclear components.

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4. Consideration of the title w.r.t. specific technology challenges / areas:

- Floating platforms
- Integral components
- Factory production
- Very small technologies (single shot, long lived cores)
- Fuel cycle / fuel
- Different coolants

What could the IAEA do (in support of these sub-topics)?

1. Clarify the 'families of technology' that are to be considered here as near term deployable

- Focus on where we have the information e.g. water cooled
- Coordinate with other TWGs that consider gen 4
- Have gen 4 in scope as perspective topics

2. Identify neutral/common areas of supply chain e.g. construction and manufacture

- Common areas of technology across balance of plant, power plant.
- Instrumentation.
- Reference case study.

3. Learning from other industries e.g. oils and gas

- How can companies go into nuclear without the cost.
- How can companies remain in nuclear for many years.
- Importance of early sight of opportunities for supply chain (not detailed design as you go).

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Mechanisms for IAEA

- gather experts, discuss, record output
- gather information
- information platform for SMRs

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4. Nuclear class standards and quality for manufacture and construction

- What is the range of current standards in nuclear, including quality assurance and control.
- How can nuclear learn from other regulatory regimes to support a diversified/ larger supply chain and enable factory construction.
- Gap between other industry quality assurance and nuclear quality assurance (can inform the cost of upskilling).

5. Identify relevant existing IAEA standards and guidance and forums

- Review the relevant outputs and relevance for SMRs.
- Make suggestions/ comments on SMR requirements for the work of other groups.

6. Evaluation and fit of local infrastructure and supplier capability

- IAEA develop a generic database standard that could be utilized by nuclear projects to help them to identify supply chain landscape.

Prioritization

- Near-term technology is first focus (mid and long term to be prioritised later)?
- ..
- .

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