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

Topic Area C
SMR Supply background & Design dependent issues

• Design dependent specifications leading to uncommon or specific components

• Opportunity: range of specifications for SMR components can be closer to other industries
SMR Supply Chain Challenges

• Highly regulated (including fabrications)
• Different codes and requirements to meet
• Uncertain market demand – investment vs returns
• Typical of large NPP: Low volume, high value, high risk component & services (opportunity)
• Limited number of existing supply chain companies with relevant experience (high cost to entry)
New supply chain entrants – challenges for entry

• Requirements – understanding gaps and costs
• Staff experience – limited resources pool, up-skilling
• Developing a nuclear safety culture – time and cost
• Quality systems – gap and routes to certification
• Facility and infrastructure – cleanliness, segregation
• System – planning, management, document/records
• Control – materials, manufacture, quality, export & security
• Management of supply chain sub-tiers

(No different issues between large NPP and SMR)
The risks of supply chain to be managed

• In-country regulations, language and cultural differences
• Interpretation of requirements and consequences of product failure
• Experience – e.g. cost estimating, planning
• Security – intellectual property, facilities, system access
• Export control – awareness, restrictions and controls
• Counterfeit, fraudulent and suspect items management
How to mitigate risks

• Coordinated approach – governments, regulators, industry
• Industry focus group – sharing and influencing
• Sharing of experiences (e.g. working groups, systems, etc.)
• Common codes and standards – guidance to certification
• Applying a graded approach to quality and oversight
• Supply chain development programs
• Partnership arrangements
Opportunities for Newcomers

- New industrial schemes are possible to involve local industries
  - For conventional island, manufacturers for SMRs and other energy sectors are similar. As carbon reduction is incentivized, manufacturers for other industries may begin to support nuclear development.
  - Partnerships are feasible with local industry suppliers to develop pre-fabrication factories. This would facilitate a deeper understanding of the technology by the local industry.
  - Implementation of an SMR in a country with no nuclear history would be easier than initiating a nuclear program with a large reactor (e.g. operation, daily maintenance, etc.).
What could the IAEA do?

• Technical meeting (TM) on SMR supply chain management
  • The TM could invites stakeholders, including industry representatives, standard development organizations, technical support organizations, and other international organizations to discuss supply chain oversight challenges and lessons learned.
  • Issues for consideration:
    • Global supply chain oversight challenges
    • Standard approaches for equipment qualification and commercial-grade dedication
    • Counterfeit, fraudulent, and suspect items (CFSI) lesson learned
    • Advancing early integration of safety culture in the supply chain
    • Enhancing international co-operation to prepare for new technologies and emerging challenges.

• To ask SMR vendors to provide supply chain information for ARIS booklet
Thank You