IEA/NEA Nuclear Roadmap 2014 update Stakeholder engagement workshop

Session 2:
Overcoming barriers to nuclear build (other than financing)
Barriers to Nuclear Projects

Industrial issues

• Supply chain bottlenecks (large heavy forgings), localisation
• Codes and standards
• Licensing - harmonisation
• Building on time and on budget
Supply chain bottlenecks (large heavy forgings), localisation

To be considered:

• Utilise local / regional supply chain (technology to be evaluated)

• Meet quality and safety requirements, long term reliability

• Meet Cost and schedule objectives
Localized Supply Chain Vision

Regionalization when Possible:
Qualified safety-related, could require Tech-Transfer (TT), or licensed technology. Usually viable only for national fleet program aspirations.

Localization when Possible:
Localization of equipment by qualified local industries. Mainly off the shelf, build-to-spec, non-safety, but need to be commercially competitive.

Typically Localized:
Construction labor and construction commodities.

Investment in local skills and capacity must begin at an early stage.
Codes and standards

• Long term goal: harmonisation of regulatory & codes requirements for design / construction (MDEP, SDOs, CORDEL)
  – Improve regulator ability to make safety decisions,
  – Increase quality of safety assessment
  – Decrease cost & schedule uncertainty

• Simplification & standardisation are already key for the plants launched (design, safety, construction, procurement, consequence on cost & schedule)
  – Harmonisation is a goal for the industry globally: in the past, localisation of codes & standards has been used to protect from competition
  – Industry involvement is key to reach convergence & acceptability of the differences

Harmonisation is the goal. Acceptability of the differences is needed as a 1st step. Important to competitiveness of nuclear energy, to training & qualification of subs (incl. entrants)
Licensing - harmonisation

• The total life cycle of a nuclear plant is under license:
  – Design
  – Construction on the specific site
  – Operation

• “International licensing” vs. local responsibility of the Regulator in front of the local government & public
  – Design competencies can be “shared”
  – Construction & operation competencies must be local

• Evolution from a 2-step licensing process to a one step licensing:
  – Introduce confidence and certainty to stimulate new projects
  – Engage stakeholders at the early stage (public inquiry)
  – But it is a process New to Regulators

• Licensing harmonisation increases safety
  – Facilitates learning curves for new entrant countries (licensing process and Safety demonstration)
  – Facilitates matching of milestones: construction vs regulators surveillance
  – Facilitates Peer reviews and resulting action plans (Regulators, Operators)

Licensing harmonisation is on track
Day to day work with the Regulator will remain local
Building on time and on budget

• Based on the following assumptions:
  – Standardisation & Modularisation
  – Quality of supply
  – One step Licensing certainty
  – Same Codes & Standards used in every countries

• Lessons learned
  – Supply chain surveillance: ensure clarity of requirements, maturity of quality process & traceability, schedule anticipation & revision
  – Project management: integrated project schedule, efficient change notice process, Project Command Center
  – Organisation of the tasks: adjust to the contractual agreements (partners, subs) and also to the licensing/regulatory milestones

Integration of the lessons learned from FOAK is key to reach a standardized construction process, on time & on budget
AP1000 Plant Value Proposition

Passive Safety Systems

Simplified Design with Modular Construction

Reviewed in Multiple Countries by Independent, Technically Rigorous and Transparent Regulators