The 16th INPRO Dialogue Forum on Opportunities and Issues in Non-Electric Applications

Chair's Summary

14 December 2018

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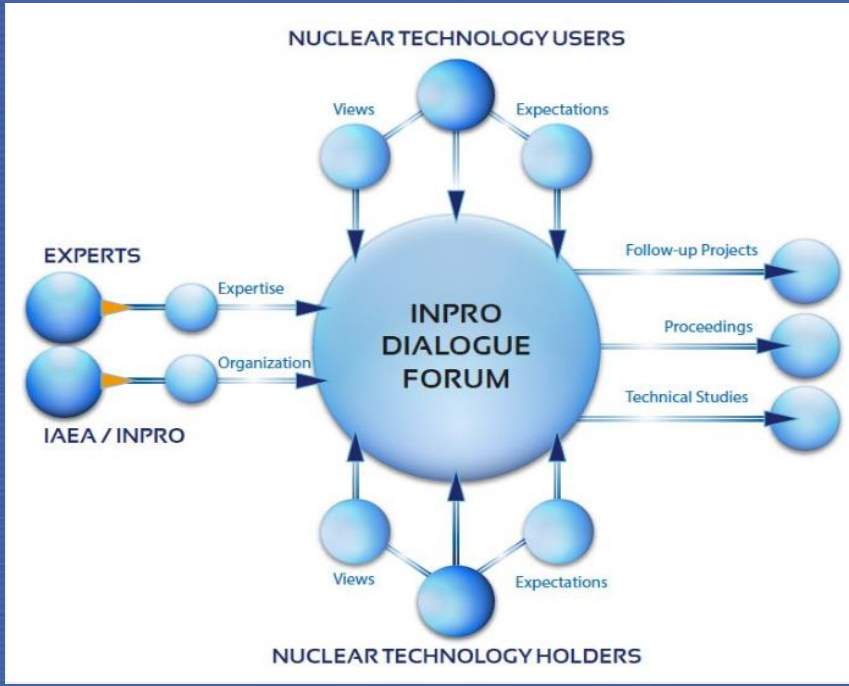
IAEA
International Atomic Energy Agency

INPRO Dialogue Forums

- Bringing together technology holders and users to jointly consider international and national actions for achieving innovations in nuclear reactors and fuel cycles

- Supporting Member State efforts that keep nuclear energy available to contribute to meeting sustainable energy needs of the current century and beyond



16th INPRO Dialogue Forum

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- **Main objectives:**
  - Discuss and share information and knowledge on non-electric applications
  - Identify Opportunities and Challenges
  - Identify the barriers to entering commercial market and potential solutions
  - Recommendations for the IAEA
- **Participation and structure:**
  - 46 experts from 34 Member States and International Organizations
  - 12 IAEA staff from 3 Sections and 2 Divisions
  - 10 plenary sessions and 3 break-out sessions

Opportunities

- Current emphasis on environmental protection
  - ✓ Reduce CO_2 through non-electric sectors
  - ✓ Reduce heat dump on environment by increasing efficiency of NPPs
- Increase flexibility of NPP operation by load following – flexibility of cogeneration
- Improve economics
- Increase economic activities
- Increase energy independence
- Reduce poverty through improved water supply

Challenges

- Convince stakeholders, particularly potential users, public, and politicians about merits of NPP with non-electric applications and cogeneration
- Select most appropriate NPP (SMRs versus large NPPs) for cogeneration
- Select most appropriate coupling scheme for cogeneration processes
- Develop mature high temperature processes
- Develop as needed safety standards and regulations of NPP with cogeneration, i.e., coupling to heat processes
- Demonstrate economic, reliable, and safe NPP with heat processes (presently non-existence of NPP with high temperature processes)

Challenges (based on survey)

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- Public acceptance
- Political will, government commitment
- Economics
- Availability of the right size reactors
- Qualified human resources
- Approval from regulatory body, development of new regulations, licensing issues

Barriers to entering commercial market

- Public and political acceptance
- Cooperation between utilities and heat users
- Licensing of NPP with cogeneration
- Qualified human resources and expertise
- Financing

Recommendations (1)

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- Assist MSs in increasing awareness and communication of opportunities for various nuclear cogenerations
- Assist MSs by enhancing their qualified human resources and capacity building (training courses, workshops, coordinated projects, etc.) to address the challenegs and barriers identified
- Assist MSs by expanding IAEA safety requirements /guidelines/regulations to NPP with nuclear cogeneration

Recommendations (2)

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- Assist MSs in launching nuclear cogeneration projects by expanding the current IAEA milestone documents for NPP

- Initiate IAEA activity to assess techno-economic aspects of low temperature nuclear power cogeneration from operating NPPs including use of waste heat

…Thank you for your attention

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