



## Joint CNRA/CSNI Ad-hoc Group on the Safety of Advanced Reactors

Anna Bradford  
U.S. Nuclear Regulatory Commission

RIC 2016  
Domestic and International Efforts to Prepare for  
Advanced and Small Modular Reactors

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### NEA

NEA is an agency within the Organization for Economic Co-operation and Development (OECD).

NEA's mission is to assist its member countries in maintaining and further developing the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes.

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### CNRA and CSNI

The mission of these two committees is to assist member countries in ensuring high standards of safety in the use of nuclear energy by:

- Supporting the development of effective and efficient regulation and oversight of nuclear installations (Committee on Nuclear Regulatory Activities [CNRA]), and
- Helping to maintain and advance the scientific and technological knowledge base (Committee on the Safety of Nuclear Installations [CSNI]).

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## Generation IV International Forum (GIF)

GIF is a co-operative international endeavor to carry out the research and development needed to establish the feasibility and performance capabilities of the next generation nuclear energy systems.

GIF identified six nuclear energy systems for further development. The selected systems are based on a variety of reactor, energy conversion and fuel cycle technologies.

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## Background

- December 2014 - CNRA and CSNI established joint ad-hoc group to discuss regulatory and safety issues related to Gen IV designs
- April 2015 - Initial meeting held with seven countries participating and GIF observing
- June 2015 - CNRA and CSNI approved GSAR's mandate

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## Scope

The Ad-Hoc Group on the Safety of Advanced Reactor (GSAR) will be responsible for dealing with regulatory and research activities in the primary area of advanced reactors and associated installations and will plan its work to ensure improvements in nuclear safety through appropriate regulation and research for advanced reactors.

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### Methods of Working

- Report to CNRA and CSNI, and assist those Committees with their work. The program of work of GSAR will be approved by CNRA and CSNI, as appropriate.
- Closely co-ordinate its work with other CNRA and CSNI working groups such that each of the respective groups use the expertise of the individual groups and do not duplicate efforts.
- Initially, the group will conduct a pilot study on one nuclear system that has sufficient maturity and available information.
- Interact with the organizations performing research and design of advanced reactors such as Gen IV, as appropriate.
- Co-ordinate its work with other NEA committees and international organizations to avoid duplication of work.

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### Proposed Outcomes and Outputs

GSAR will provide regulatory perspective through the issue of reports containing discussions of areas in which additional or revised regulatory approaches, including safety research, may be needed to facilitate effective regulation of advanced reactors as compared to LWRs.

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### Work Proposal for GSAR

- **Title** - Regulatory Perspectives on Safety Aspects Related to Advanced Sodium Fast Reactors
- **Objective** - Increase the regulators' knowledge on selected safety aspects related to advanced sodium fast reactors as well as identify any additional research and development needs to support the safety review
- **Outputs** - Technical report describing the regulatory perspectives on safety aspects related to advanced sodium fast reactors and identification of additional research and development needs to support the safety findings by the regulators

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## Work Proposal for GSAR

- **Work Process**

- Survey GSAR member countries about (1) severe accident prevention and mitigation measures, (2) neutronics and criticality safety, (3) analytical codes, and (4) fuel qualifications
- Meet to discuss and assess responses to survey, identify common regulatory positions and understand differences
- Prepare a technical report on the regulatory perspectives on safety aspects related to advanced SFRs and identification of additional safety research needs

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## Work Proposal for GSAR

- **Schedule/Milestones**

- Early 2016 - Prepare and issue survey.
- April 2016 - Discuss survey results. Members to bring comments on GIF safety goals, with the objective of developing a common position. Share results with cognizant CNRA and CSNI working groups.
- September 2016 - GIF presentations and discussion on severe accident prevention and mitigation measures, and neutronics and criticality safety.
- Spring 2017 - Draft technical report.
- Fall 2017 - Final technical report.
- Next phases to be identified at a future date.

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*Thank you*

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