

## CONCLUSIONS OF THE GIF SYMPOSIUM

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It is indeed a great honour for me to draw conclusive remarks from the Generation IV International Forum Symposium. This event, the first in the Forum's history, was organised at a time when the need for sustainable development of nuclear energy has become very acute worldwide. Its attendance turned out very high, with over 200 participants, inclusive of the GIF community members as well as special guests from each GIF member country.

The GIF has been a continuous, effective and very successful focal point for collaborative R&D activities for fourth generation nuclear systems, and the various presentations made during the Symposium highlighted accomplishments of the GIF work achieved so far.

On the various nuclear systems investigated by the GIF, some of the main results presented are as follows:

**For liquid Metal reactors (Sodium cooled Fast Reactors – SFR-, Lead cooled Fast reactors – LFR-),** international collaborative R&D activities are being successfully conducted.

In particular for the SFR,

- Candidate safety provisions & systems have been assessed and
- Preliminary evaluation of Minor Actinide bearing fuel, from irradiation tests performed in Phenix, ATR and Joyo has been performed.

For the LFR, a draft System Research Plan describes a dual track viability research program for both a small and a large system, with different missions.

**For high Temperature Reactors (Very High Temperature Reactors – VHTR-, Gas-cooled fast Reactors – GFR-),** there have been clear benefits of multinational collaboration in the GIF:

- Accelerating R&D for GFR & VHTR beyond needs of related near term projects
- Spurring the interest of process heat using industries in varied energy products of High Temperature Reactors

**As for the other innovative systems (Super Critical Water Reactors – SCWR-, Molten Salt Reactors – MSR-):**

- In the case of SCWR, the identification of two key areas, *i.e.* suitable materials and coolant chemistry have triggered the launching of two major collaborative R&D projects on these topics.
- In the case of MSR, reference configurations have been defined, allowing concentrating R&D on critical areas (liquid salt properties of reference compositions, qualification of high performance materials).

**In summary,** though much more work is needed to overcome some major technological obstacles, great progress has been made within the GIF. However, because the potential

prospects of the various Generation IV systems are not yet fully established, it would be premature to eliminate any of the six technologies: *i.e.* no down selection should be performed at this point.

**Finally, it appeared, from discussions on the topic “Towards industrial implementation: public and private initiatives interconnections” that:**

- Government bodies stress that R&D shouldn't be performed without operators' views. Proper involvement of utilities and vendors even from the conceptual design stage is required.
- Industry stresses that any new plant's safety case should be convincing to

Nuclear Regulators and the Public, with great care given to helping regulatory staff move from existing practices to those appropriate for new circumstances. Also, “real decisions” related to new concepts will be made largely on economical grounds

**In conclusion,** it is important to stress that the road to be followed before the Generation IV designs are attractive enough to allow for commercial deployment, is still long and paved with numerous hurdles. However, the preliminary results achieved by the GIF, and presented during this Symposium, clearly demonstrate that only joint collaborative efforts can ensure success. The Priority Objectives for the next five years, drafted out on the basis of all the results achieved so far by the GIF, show the path to follow.