

SESSION II SUMMARY / DISCUSSION

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Session II of the GIF Symposium focused on four of the six GIF systems: the GFR, SCWR, LFR, and the MSR. In all, nine presentations on the four systems were given, where each presented an overview of their system's current designs and status, and on priority research being undertaken in support of these systems. Since all four systems were reviewed in one session, it provided a unique opportunity for the audience to consider common issues between the systems in addition to a better appreciation of the unique design and challenges of each system. This was evident in the moderated discussion session. Overall, this moderated session had engaged discussions on four main topics that arose from the presentations.

From the LFR presentations and subsequent discussions, two different opinions on the coolant composition (lead or lead-bismuth) for the LFR reactor were noted. The LFR System is currently considering lead coolant given that there is known challenges associated with the use of a lead-bismuth (LB) based coolant. As such, the audience sought clarification from Mr. Zrodnikov, Co-Chair of the session, on Russia's current plans associated with the LFR development. It was noted that Russia's current efforts on a LFR system would use LB as the coolant and hopes to have a demonstration reactor in the near future (by 2014). The reactor design would be classified a Generation IV

design as it would introduce new levels of safety and new advanced technologies. Russia is not currently participating in the LFR System; a decision is to be made in the near future.

During the presentation, a common underlying challenge in developing any one of the four systems presented was associated with materials and the on-going effort required to address these challenges. Given the world's limited resources, and expertise required to address material concerns, participants in the audience noted that better use of research resources may be possible if the different systems could share their material research instead of each system working in solos. Numerous participants noted the potential benefits that could be obtained if a mechanism that would not require the establishment of new legal agreements could be established.

In addition to the amount of material research being undertaken in each system, most of the systems are looking at multiple reactor designs. Given the variety and number of different designs being considered and the effort required to support these designs, it raised the question of whether there is a need to focus the GIF effort only on a few of these designs, given that not every design seems possible. The methodologies presented in the first session could be used as a means to focus the GIF effort to a few designs. Participants noted that this is not the time to reduce research as legal

agreements have only recently been established and many projects have just started. As such, it may be better to consider this in 5-10 years, once more results are known. The audience also noted that utilities will decide in the end. The session ended with the audience highlighting the benefits and positive impacts that GIF has made in the world nuclear community. Members of the audience noted that GIF is directly linked to:

- the revived interest in the nuclear industry and engagement of governments in nuclear energy;
- the creation of a framework in which the international community has come

together to undertake collaborative nuclear research that:

- allows for and supports innovation; and
 - supports nuclear research to develop technology solutions.
- the engagement of university participation; and
 - providing the means by which the international community came together and agreed to focus R&D effort on six systems, from the approximate hundred systems originally reviewed by the GIF.