

Meeting Summary

Small Modular Reactors Subcommittee
Secretary of Energy Advisory Board
U.S. Department of Energy Headquarters
March 9, 2012

Members attending: Nicholas Donofrio (Chairman), Norm Augustine, James Baker, Al Carnesale (by telephone), Bruce DeMars, John Deutch, Andrew Kadak, William Madia, Richard Meserve, Burton Richter. Not attending: Frances Beinecke.

Department of Energy staff attending: Pete Lyons, John Kelly, Matt Crozat, Vic Reis, Rebecca Smith-Kevern, Sal Golub, Matt Bowen, and Renee Stone (designated federal official).

Opening Remarks

At 9 am, Chairman Donofrio opened the meeting by welcoming the members and thanking them for their participation. He outlined the importance of the Small Modular Reactor (SMR) issue to the Secretary and the Department. He shared a draft of the Terms of Reference document, which outlines the objectives and task of the Subcommittee, and asked the members to comment. Members then discussed the issues and their perspectives on the scope of the tasks in order to define the work ahead.

Ethics Briefing

Sue Wadel of the DOE General Counsel's Office provided an ethics briefing to the members. She explained the general constraints of the Federal Advisory Committee Act (FACA) and the conflict of interest provisions that apply to members. She advised all members of their obligation to inform DOE and recuse themselves of any matter that may directly affect their financial interests. She specifically noted her understanding that the Subcommittee is dealing with broad policy issues, and is not focusing on the Funding Opportunity recently announced by the Office of Nuclear Energy.

DOE Briefings for Subcommittee

Vic Reis, a DOE staff expert, briefed the Subcommittee members on the development history of SMRs and the government's role in the technology development. Pete Lyons, Assistant Secretary in the Office of Nuclear Energy, presented an overview of the Department's interest in SMRs as well as some of the challenges to deployment and a description of the international interest in the technology. John Kelly, Deputy Assistant Secretary in the Office of Nuclear Energy, briefed the group on the Office's programs and recent work on SMRs including the current SMR licensing support program, its R&D efforts on advanced concepts, and strategic considerations beyond the licensing stage.

Remarks by the Deputy Secretary

Deputy Secretary Dan Poneman joined the Subcommittee in the morning to share his views about the importance of U.S. leadership in the nuclear energy field and to thank the group for its time. The Deputy explained that the U.S. nuclear industry sets the "gold standard" on safety standards internationally and underscored the importance of maintaining that leading role. Recent events have demonstrated that a nuclear safety failure anywhere in the world creates problems for the industry world-wide. In addition, while the U.S. plays a leading role in this industry, it is in a better position to ensure that nonproliferation safeguards remain strong.

Discussion of Issues

The Subcommittee is charged with identifying “challenges, uncertainties and risks” to the development of SMRs, as well as approaches for dealing with these problems. The group spent most of the rest of the meeting identifying these challenges. The following issues and questions were identified:

- *Export controls
- *Financing at all stages, including the construction of factories
- *Tension between the cost efficiencies of standardization and the benefits of innovation
- *The maturity of Light Water Reactor technology compared to newer technologies
- *Learning curves vs. forgetting curves – importance of continuous production to establish efficiency
- *The costs, complexities and time involved working through the NRC regulatory process
- *The importance of safety culture
- *Issues working with international regulators in potential markets
- *Public concern over siting nuclear facilities of any kind
- *The appropriate size of Emergency Protection Zones for SMRs
- *Whether SMR technology is appropriately used in load-following situations
- *International competition
- *The Valley of Death dilemma
- *Potential issues working with DOD as an early adopter of this technology
- *Regulatory and Political uncertainties when Administrations and/or Congress change priorities
- *Different issues with the costs of the first SMRs, the costs of the first 20, and the cost of a fleet
- *Perils of choosing a couple of priority technologies and stifling good ideas from others
- *Importance of understanding costs at each stage of development of the industry
- *Need to define the government’s role in each stage
- *Need to identify tools the government can use to support each stage
- *Need to make this a good business proposition
- *Need to reduce regulatory uncertainty
- *How confident can we be that switching to a manufacturing model from a construction model will be successful?
- *Identify barriers to entry in the market in this country
- *Can we license by prototype?
- *Proliferation risks

Remarks by the Secretary of Energy

Secretary Steven Chu joined the group in the afternoon to discuss his thoughts about SMRs. He underscored the importance of the issue to the Department and thanked the group for their time. He engaged in a discussion with the members about how to develop SMRs as an industry in the U.S., what types of technologies should be explored in the future (beyond Light Water Reactors), and how to deal with uncertainties. He made clear that he is interested in deploying the technology on a broad scale, particularly in the U.S.

Request for Additional Materials

Members requested that DOE provide additional information and reading materials to the Subcommittee members. Particular items requested included: staff papers and other documents from the Nuclear Regulatory Commission (NRC); information on the status of international efforts to develop SMRs; copies of Departmental testimony on the issue; the recent Wall Street Journal article on the industry; and further information on the technology.

Next Steps

The Subcommittee agreed that it would like to have DOE create a publicly available webpage on its behalf and agreed it would like to sponsor a public meeting. The members discussed, without making final decisions, the types of outreach it would like to conduct with relevant agencies and stakeholders involved in this issue.