

Input from Utility Industry and Vendors of SMRs

Meeting held at Nuclear Energy Institute

June 28, 2012

Objectives:

Utilities - Identify the level of interest in SMRs as a future electricity source for the US.

Vendors – Identify the challenges that need to be overcome to enable the industry.

Identify what actions are needed by the government to enable an SMR industry in the US.

Attendees: (28)

9 utilities with 10 representatives

9 vendors

4 Nuclear Energy Institute staff

2 DOE/Lab

1 Guest Speaker (Mr. Joe Hezir)

2 SEAB subcommittee members –Bill Madia and Andrew Kadak

General Conclusions:

Utilities – There is definite interest in SMRs in utilities that range from one of the largest to the smallest public cooperatives. Reasons cited included diversification of fuel source, smaller overall investment, replacement of coal plants and as a clean energy alternative. The cost of power is the dominant driver in utility decision making, particularly those operating in merchant power markets. Unless SMRs can be competitive in the near and long term, they will likely not be purchased.

Vendors – The vendors are motivated to bring SMRs to market but face the significant challenge of first unit development costs and licensing requirements. Without government incentives and changes in the licensing approach, it is unlikely that vendors will be able to individually finance the development of SMRs and produce a product that is competitive. Additionally, vendors see the market as a worldwide market which is stymied by US export control policies relative to other nations.

Government Actions to Support Development and Stimulate Market – Many useful ideas were presented by both the utilities and the vendor community. There is a great deal that the government can do with the right leadership and commitment to implementation.

Specific Comments:

Utilities

Since cost of power is a prime concern, and since current natural gas prices are low, the near-term competitiveness of SMRs is not apparent. However, according to one utility, SMRs would be next in line after power uprates due to the lower total investment required to match grid growth and replace smaller aging coal plants. Other prerequisites include:

- a. Price certainty
- b. Funding vendors for design maturity to get price certainty
- c. Power purchase agreements – from government to start industry
- d. Construction Work in Progress (CWIP) allowed by both state and federal regulators
- e. Quicker tax recognition of investment – change tax codes
- f. Match NRC licensing with licensing of gas plants for subsequent plants (simplify process)

Other suggestions not in any priority order:

1. Tradable tax credits for public power
2. Pass the Clean Energy Standard which includes nuclear energy or some form of cost of carbon legislation
3. Establishment of purchase power agreements with government entities to stimulate first sales
4. Federalize process for a one stop licensing & permitting process to provide more regulatory and cost certainty
5. Find ways for merchant plants to capture advantage of government incentives
6. Stability in state regulations
7. Incentives for early deployment
 - a. Production tax credits similar to renewables
8. Executive Order to encourage EPA settlement agreements to include deployment of SMR technology as an appropriate remedy.
9. Development of a clear carbon policy to encourage development of SMRs and nuclear energy
10. Encouragement of a more “strategic” view of future electricity generation alternatives instead of just short term natural gas prices.
 - a. Monetization of fuel diversity and forward price stability benefits
 - b. Value of distributed power and “micro-grid” reliability
 - c. Land use
 - d. Hedge against carbon price
 - e. National energy security

Vendors:

From the vendor perspective, the greatest challenge is raising the capital needed for design, development and deployment. A corollary to this financial challenge is the ability to capture the safety advantages of SMRs under the current regulatory structure. All these factors affect the competitiveness of SMRs. Many are looking to the successful NP 2010 program as a model which was a 50/50 cost share the first of a kind engineering and licensing costs with the industry. Additionally vendors are looking to loan guarantees which was to be an important program but did not meet implementation expectations for new nuclear power stations (today it is still not an effective program which needs to be fixed).

Specific Comments and Suggestions:

1. A need for consistency in energy policy and direction to reduce uncertainty
2. Fund SMR technology development and demonstration as navy ships are funded, namely, - upfront of all costs and not a year by year budget appropriation.
3. Adapt the NRC regulatory process to acknowledge differences in SMRs in terms of emergency planning zone size, security, staffing, siting, etc.
4. Encourage government facilities to enter into power purchase agreements to stimulate market to get to nth of a kind plant faster.
5. Benchmark US export control policies and procedures to other nations with whom we compete.
6. Encourage NRC to adopt a regulatory structure that allows for more rapid deployment of advanced SMRs and not just light water designs
7. Investment and employment tax credits for SMRs
8. A workable and more transparent loan guarantee program
9. Support for first of a kind NRC Rulemaking on SMR certification with adequate funding
10. Assistance in building manufacturing facilities for SMRs – tax incentives, credits, etc.
11. All cost shares with industry should be government front loaded until time for construction when industry contributions catch up to initial government investment.
12. DOE should prioritize R&D to respond to industry needs (commercial pull), not national laboratory “push” to faster deployment. Additionally, more co-share funds should be given to industry to develop the needed technology and designs than the labs.

Summary of Major Recommendations for Government Action:

1. Need strong Executive leadership to point out importance of SMRs and the SMR industry for the nation.
2. Need Executive leadership to enable the changes recommended below some of which will need congressional approval and change in Office of Management and Budget practices.
3. Establish a clear carbon policy
4. Inclusion of nuclear energy in Clean Air compliance options via executive order
5. Fix the loan guarantee program
6. Production Tax Credits
7. Investment Tax Credits for SMRs and manufacturing facilities
8. Allowance for Construction Work in Progress and a national policy
9. Credit for SMR safety attributes in NRC licensing process in EPZ sizing, staffing and security
10. Stimulate market by government purchase power agreements for SMRs
11. Cost share first of a kind engineering and licensing costs (NP 2010)
12. Revise Export Control Policies to make them competitive with other nations