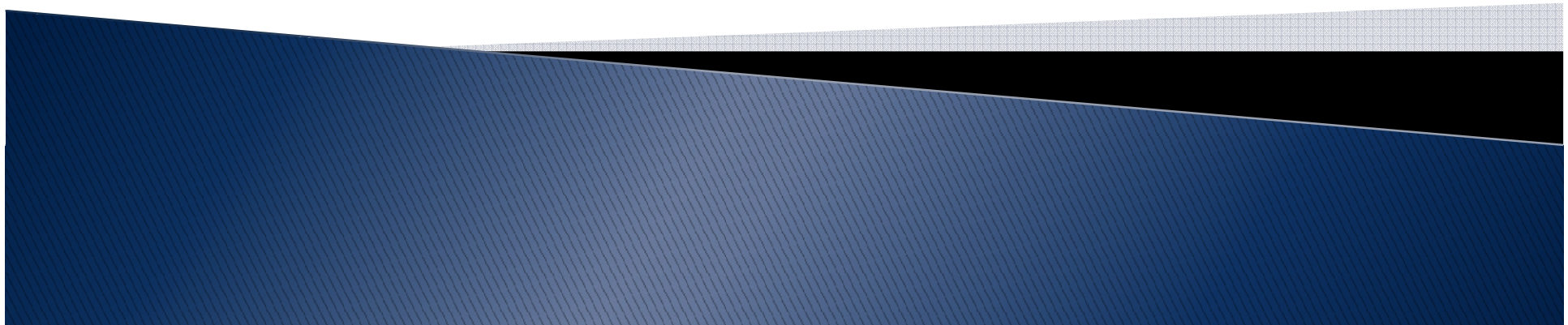




BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE

Draft Recommendations

Reactor & Fuel Cycle Technology Subcommittee
May 13, 2011



Subcommittee Membership

- ▶ Pete Domenici (co-chair)
- ▶ Per Peterson (co-chair)
- ▶ Al Carnesale
- ▶ Susan Eisenhower
- ▶ Allison Macfarlane
- ▶ Richard Meserve
- ▶ Ernest Moniz
- ▶ Phil Sharp
- ▶ BRC co-chairs Hamilton and Scowcroft (*ex officio*)



BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE

Key Questions for the Subcommittee (1):

1. This subcommittee is responding to direction given in the BRC charter, “to evaluate existing fuel cycle technologies and R&D programs in terms of multiple criteria. Criteria for evaluation should include cost, safety, resource utilization and sustainability, and the promotion of nuclear nonproliferation and counter-terrorism goals.”



Key Questions for the Subcommittee (2):

2. Given the Commission's specific focus on policies for managing of the back end of the nuclear fuel cycle, the Subcommittee also addressed the closely related question of whether any currently available reactor and fuel cycle technologies, or any commercial technologies that are now under development, have the potential to change the fundamental nature of the nuclear waste management challenge we confront over the next several decades.



Meetings / Study Approach

- ▶ Public meetings held July 12 (Idaho Falls, ID); August 30–31 & October 12 (Washington, DC)
- ▶ Deliberative meetings held December 3, 2010 and March 14, 2011 (Washington, DC)
- ▶ Toured fuel cycle facilities at INL, Hanford, SRS, and sites in France and Japan
- ▶ Subcommittee has heard from dozens of witnesses and commenters
- ▶ Extensive materials and transcripts available on the Subcommittee web page



Central Conclusion #1

- ▶ Advances in nuclear reactor and fuel cycle technologies may hold promise for achieving substantial benefits in terms of broadly held safety, economic, environmental, and energy security challenges. To capture these benefits, the United States should continue to pursue a program of nuclear energy RD&D both to improve the safety and performance of existing technologies and to develop new technologies that could offer significant advantages in terms of the multiple evaluation criteria listed in our charter.



BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE

Central Conclusion #2

- ▶ No currently available or reasonably foreseeable reactor and fuel cycle technologies including current or potential reprocess or recycle technologies have the potential to fundamentally alter the waste management challenge this nation confronts over at least the next several decades.
- ▶ Put another way – we do not believe that new technology developments in the next three to four decades will change the underlying need for an integrated strategy that combines safe, interim storage of spent nuclear fuel with expeditious progress toward siting and licensing a permanent disposal facility.



Recommendation #1

- ▶ The U.S. government should provide stable, long-term RD&D (research, development, and demonstration) support for advanced reactor and fuel cycle technologies that have the potential to offer substantial benefits relative to currently available technologies in terms of safety, cost, resource utilization and sustainability, the promotion of nuclear nonproliferation and counter-terrorism goals, and waste storage and disposal needs.



Recommendation #2

- ▶ The Subcommittee concurs with the recent findings of the President's Council of Advisors on Science and Technologies (PCAST), and recommends the need for better coordination of energy policies and programs across the federal government; for a substantial increase in federal support of energy-related research, development, demonstration, and deployment; and for efforts to explore new revenue options to provide this support.



BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE

Recommendation #3

- ▶ A portion of the federal nuclear energy RD&D resources should be directed to the U.S. Nuclear Regulatory Commission (NRC) to accelerate development of regulatory frameworks and support anticipatory research for novel components of advanced nuclear energy systems. An increased degree of confidence that new systems can be successfully licensed is important for lowering barriers to commercial investment.



Recommendation #4

- ▶ The United States should continue to take a leadership role in international efforts to address global non-proliferation concerns. This could include: support for multi-national, industrial-scale fuel cycle facilities, joint efforts with other countries to improve security and accountability technologies and protocols for nuclear materials and capabilities, and improvements in existing multilateral agreement frameworks.



BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE

Questions / Comments?



BLUE RIBBON COMMISSION
ON AMERICA'S NUCLEAR FUTURE