



## RIC 2010 Siting Safety and Environmental Reviews – Looking Forward

William Reckley  
Advanced Reactor Program  
Office of New Reactors  
March 10, 2010

1

---

---

---

---

---

---

---

---



## Advanced Reactor Program

- Next Generation Nuclear Plant (NGNP)
  - High Temperature Gas-Cooled Reactors
- Integral Pressurized Water Reactors
- Liquid-Metal-Cooled Fast Reactors
- Other Conceptual Designs
- Policy & Key Technical Issues for Small Modular Reactors

2

---

---

---

---

---

---

---

---



## Next Generation Nuclear Plant

- DOE funded program to use a Generation IV reactor for electricity and/or hydrogen production
- Joint DOE/NRC NGNP Licensing Strategy issued in August 2008
- DOE to select from several candidate high-temperature gas-cooled reactor designs
- Preliminary interactions underway to support application in 2013 (including supporting research activities)

3

---

---

---

---

---

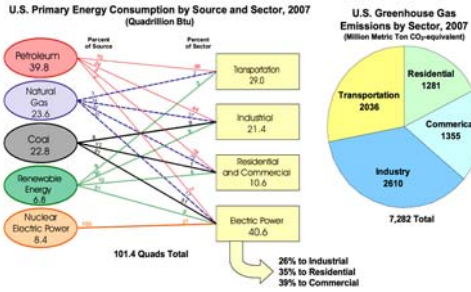
---

---

---



### Energy Sources & Sectors



---

---

---

---

---

---

---

---



### Integral Pressurized Water Reactors

- Designs
  - Westinghouse International Reactor Innovative and Secure (IRIS)
  - NuScale
  - B&W mPower
- Features
  - Steam generators, pressurizer, and other components within reactor vessel
  - Passive safety systems

---

---

---

---

---

---

---

---



### Policy & Key Technical Issues

- Source Term
- Risk Informed – Performance Based Regulation
- Emergency Planning
- Staffing Levels
- Financial Requirements
- Process Heat Applications/Nearby Facilities
- Containment Functional Requirements
- Materials Qualification
- Modular Units/Expandable Site

---

---

---

---

---

---

---

---



### Advanced Reactors Siting and Environmental Issues

- Land and water use
  - Possible use of air-cooled condensers
- Use of seismic isolators
- Underground facilities
- Possible use of small modular reactors to replace retired fossil stations
- Severe accident mitigation design alternatives (SAMDA)

---

---

---

---

---

---

---

---



### Advanced Reactors Siting and Environmental Issues

- Fuel Cycle and Transportation Differences
  - S3 & S4 Tables in 10 CFR Part 51
- Co-location of facilities for process heat applications
  - Regulatory jurisdictions, effluent migrations
- Possible generic environmental evaluations for modular designs

---

---

---

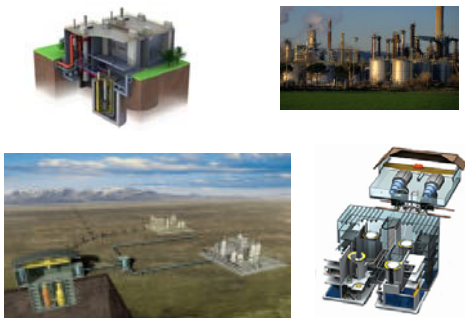
---

---

---

---

---



---

---

---

---

---

---

---

---