



RIC 2010
Regulatory and Policy Issues for
Small Modular Reactors (SMRs)

Tom J. Mulford
Managing Director
Electric Power Research Institute
March 10, 2010

EPRI Advanced Nuclear Technology Program Support of Industry SMR Activities

EPRI's Utility Requirements Document (URD) established framework for advanced light water reactors that provides:

- A stabilized regulatory basis for new technologies
- A standardized set of requirements for use in design certification
- A standardized set of requirements for future owner bid packages

This framework can provide the basis for successful design, licensing and deployment of small modular reactors

URD Background

- Purpose of the URD is to present a clear, comprehensive set of design requirements for the next generation of nuclear plants...including future designs
- The requirements are grounded in proven technology of 50 years of commercial U.S. and international light water reactor (LWR) experience.
- The utility design requirements build on the current LWR experience base, correcting problems which existed in operating plants and incorporating features which assure a simple, robust, more forgiving design.

URD Initiating Events...

1983 - Feedback from a survey of nuclear utility executives: nuclear power plants must be:

- Safer and Simpler
- Competitive
- Standardized
- Pre-licensed by the U.S. NRC

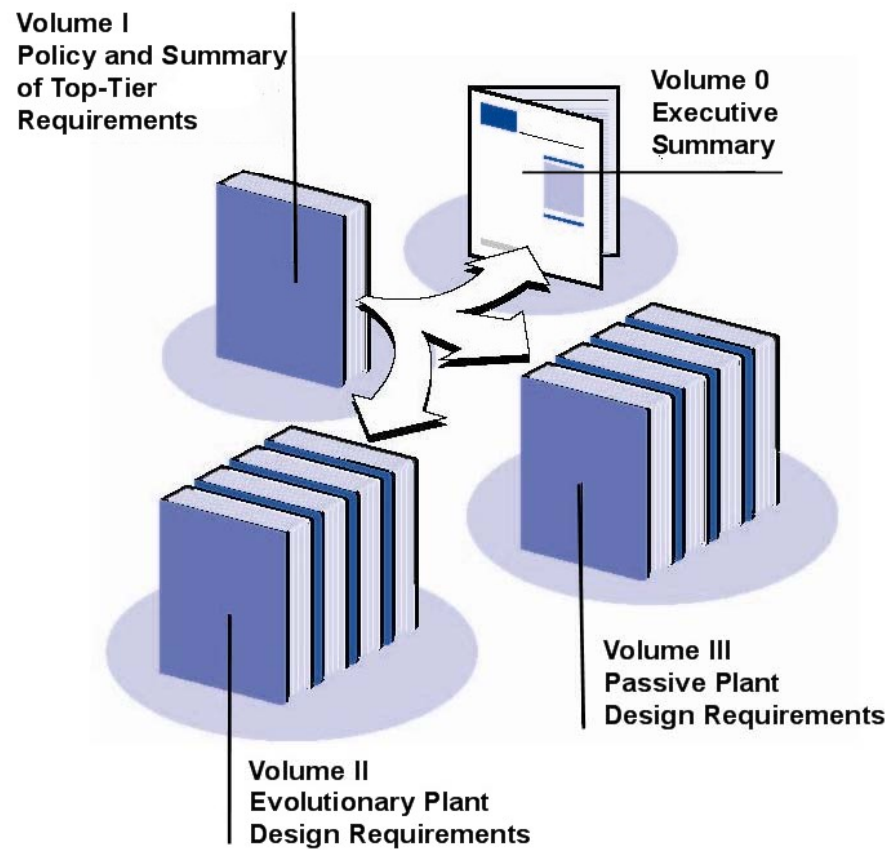
1985 - The EPRI ALWR Program is launched

- Initial focus of the ALWR Program was on the development of a Utility Requirements Document (URD) to facilitate standardization

Value of URD Process for Today and Tomorrow's Designs

- Incorporate / reflect the thousands of reactor-years of industry experience
- Realize significant improvements in safety
- Stabilize Regulatory basis:
 - Regulatory optimization
 - Margin to regulations
 - Resolution of state and local regulatory issues
- Promote standardization
- Reduce capital and O&M costs
- Restore investor confidence

Utility Requirements Document Structure



Phase I of EPRI ANT SMR Activities

- Building upon the successful framework established by the URD - start by assessing existing Volume 1 to determine need for additional SMR requirements
 - Establish a Technical Advisory Group (TAG) of SMR stakeholders – collaborate with industry (DOE, NRC, NEI, ANS, Utility and Vendors)
 - Assess Volume 1 Chapters including:
 - Policy Statements
 - Design Requirements
 - Economic Goals
 - Implementation
 - Document assessment in EPRI Technical Report, defining R&D needs for successful / standardized SMR Deployment

Envisioned Subsequent Phases

- Develop Volume IV for ALWR SMRs, as appropriate
- Assess role of URD in non-light water reactor deployment
 - High Temperature Gas Reactors (HTGRs) for electricity and process heat application
 - Liquid Metal Cooled Reactors for fuel recycling and waste management
 - Other Advanced Reactor Concepts