



**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

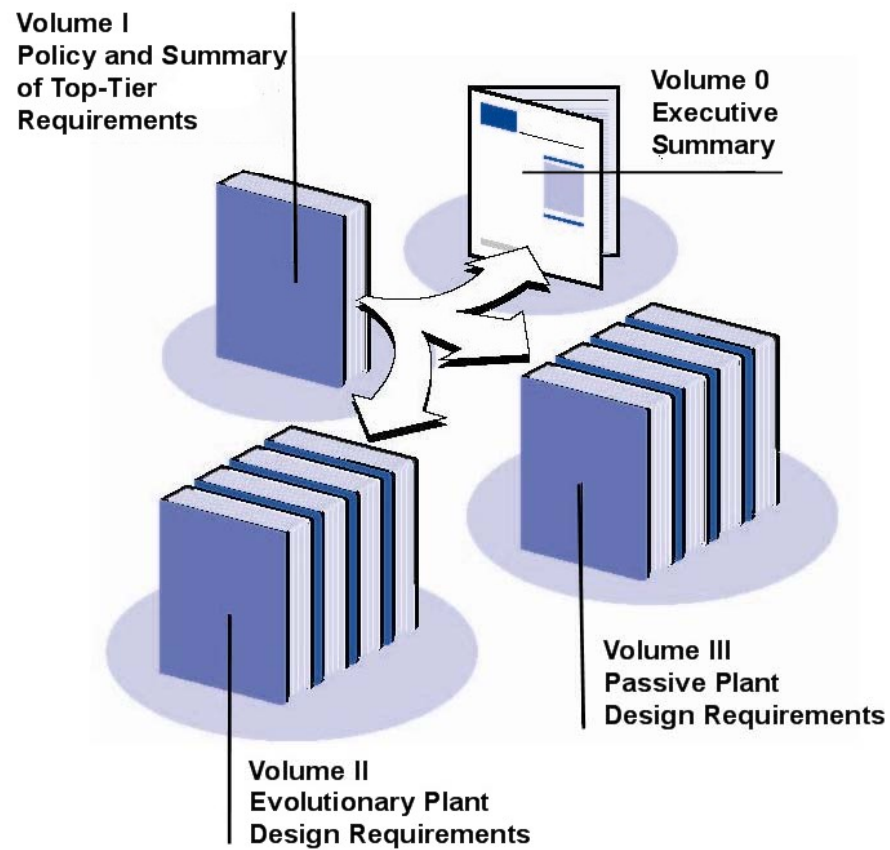
1985 - The EPRI ALWR Program is launched

- 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