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US Advanced Light Water Reactor Development (ALWR) Program

***NARUC
Committee on Electricity***

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A Global Nuclear Industry – Strategic, Collaborative, Aligned and Engaged

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Institute of Nuclear Power Operations



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US Nuclear Regulatory Commission



US Department of Energy



**NSSS Owners Groups, Global Research Institutes,
National Laboratories, Universities & Vendors**

U.S. Advanced Light Water Reactor Program Background and Objectives

- Three decades of public-private partnerships (>\$1B)
- 1980s and 1990s:
 - Leverage experience and new knowledge
 - EPRI Utility Requirements Document (URD) – ‘bid spec’
 - Predictable & stable licensing process: 10 CFR 52
 - Resolve barriers to Design Certification and deployment
- 2000 to date:
 - Evaluate detailed designs and remove barriers
 - Demonstrate licensing processes

U.S. Advanced Light Water Reactor Program

Key Elements and Results

- Utility-driven: >30 U.S. and non-U.S. utility executives
- Emphasis on safety, simplicity, standardization, reliability
- URD applicable to PWRs & BWRs
 - Evolutionary and passive safety designs
- Public-private partnership
 - Funded certification of ABWR, System 80+, AP600
 - Funded first-of-a-kind engineering for AP600, ABWR

Identifying & Resolving Barriers to Deployment Implementation Strategies

- Nuclear Energy Industry ***Strategic Plan for Building New Nuclear Power Plants***
 - 14 “building blocks”
 - Established accountabilities among utilities, vendors, EPRI, INPO and NEI
- DOE Near-Term Deployment Roadmap
 - Gap analysis identified 5 barriers to ALWR deployment
 - Evaluated each reactor design on deployment readiness
- DOE NP-2010; utility consortia
 - Demonstrate Early Site Permit and Construction and Operating License Application process

Current EPRI Focus and Future Plans

- Near-term deployment of ALWRs
 - Facilitate standardization across the new fleet
 - Transfer technology to new plant designs
 - Ensure top plant performance from start of operations
 - Reduce overall deployment risk and uncertainty
- Small modular reactors
 - Evaluate light water reactor designs against URD
 - Support resolution of obstacles to Design Certification



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