



ELECTRIC POWER
RESEARCH INSTITUTE

R&D to Support Operational Excellence

NRC Commission Brief

Neil Wilmshurst
Vice President and Chief Nuclear Officer
EPRI

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EPRI Nuclear Sector Global Collaboration

GLOBAL PARTICIPANTS



> **350** reactors worldwide

GLOBAL BREADTH & DEPTH



> **79%** of the world's commercial nuclear units

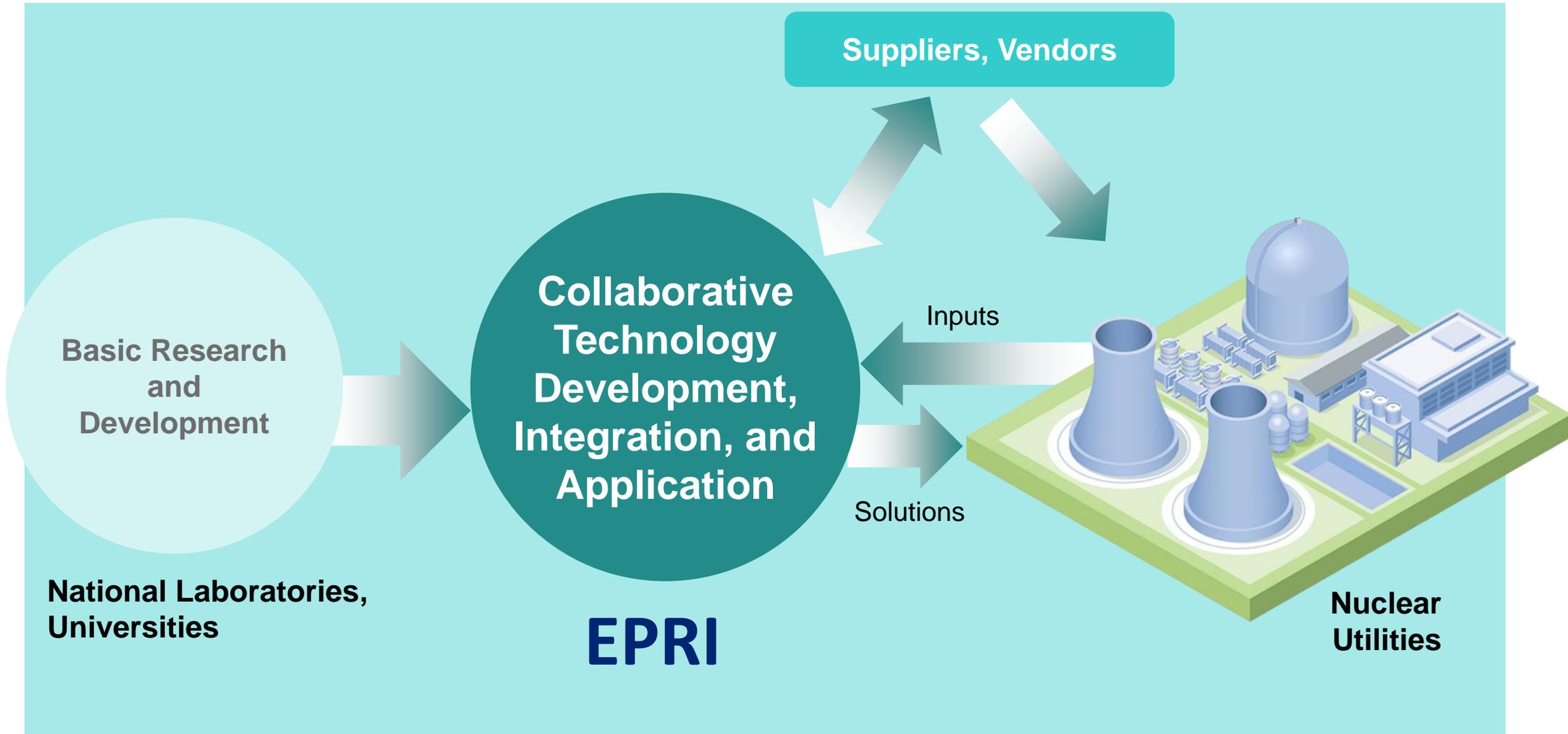
Participants Encompass Most Nuclear Reactor Designs

EPRI's Nuclear Research Areas

- Fuel Reliability
- Water Chemistry
- Radiation Safety
- Used Fuel and High-Level Waste
- Nuclear Maintenance
- Plant Engineering
- Instrumentation and Control
- Risk and Safety Management
- PWR Steam Generator Management
- PWR Materials Reliability
- BWR Vessel and Internals
- Welding and Repair Technology
- Nondestructive Evaluation
- Advanced Nuclear Technology
- Decommissioning
- Flexible Power Operations
- Long-Term Operations
- Plant Modernization

Supporting PWR, BWR, VVER, AGR, CANDU and HPWR plants and their vendor communities globally

Our Approach



Key Interfaces



EPRI Nuclear Collaboration with NRC Research

- ❑ Memorandum of Understanding in place for 10+ years (Initially signed in 2007)
- ❑ Work under MOU includes:
 - Digital I&C and Human Factors
 - PRA, Fire Risk
 - Long Term Operation (inc' electrical cables, neutron absorbers)
 - NDE
 - PWSCC (crack initiation and expert panel)
 - Seismic risk
- ❑ Annual R&D plan reviews
- ❑ Leverages resources, facilities and staffing expertise
- ❑ Jointly published results support technical alignment on subject areas

Collaboration on R&D does not compromise missions. Duplication avoided, results accelerated, conclusions made INDEPENDENTLY

The Benefits of Coordinated R&D, the Future...

- Asset Management (inc' Long Term Operation/ Second License Renewal)
- Accident Tolerant Fuel
- Digitization
- Plant Modernization
- Code updates/ re-platforming
- Sensors/ Big Data/ AI
- Knowledge Transfer/ Retention
- Risk Informed Understanding



Data: NEI

Technology APPROPRIATELY deployed can increase safety and reliability AND reduce costs

Together...Shaping the Future of Electricity