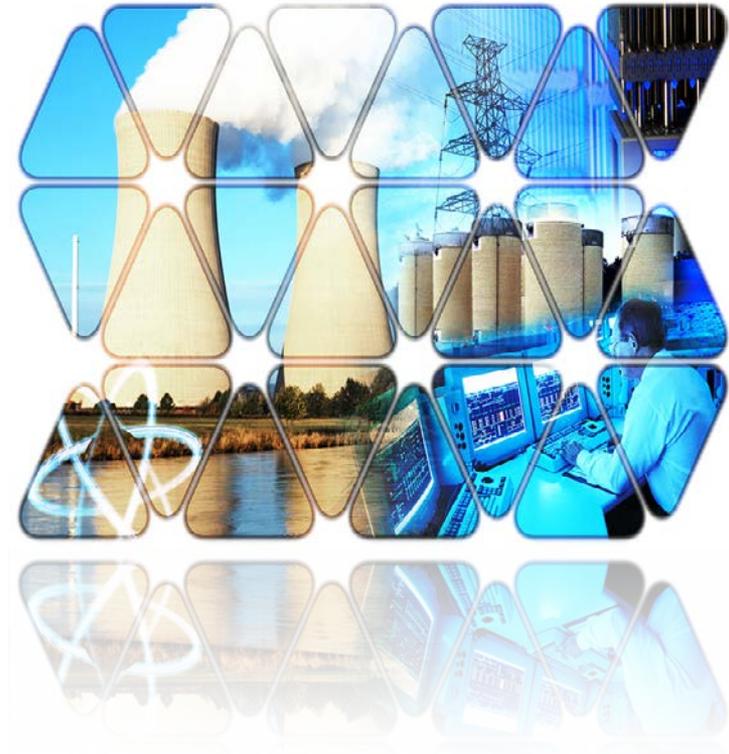


# EPRI Decommissioning Program: Overview

**David Perkins**  
Senior Program Manager  
EPRI International, Tokyo

**Rick Reid, PhD**  
Program Manager  
9-10 April 2015



# Together...Shaping the Future of Electricity

## EPRI's Mission

To conduct research, development and demonstration on key issues facing the electricity sector on behalf of our members, energy stakeholders, and society



# Our Members...

- 450+ participants in more than 30 countries
- EPRI members generate approximately 90% of the electricity in the United States
- International membership continues to increase enhancing EPRI's research, development and demonstrations



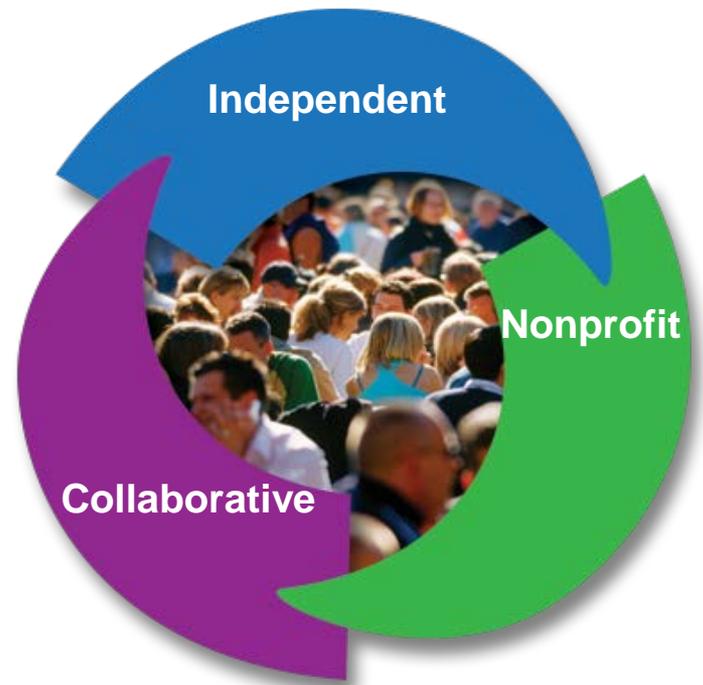
# EPRI Decommissioning Technology Program

## ■ Program Objective

- To provide technical guidance for the planning and conduct of facility decommissioning

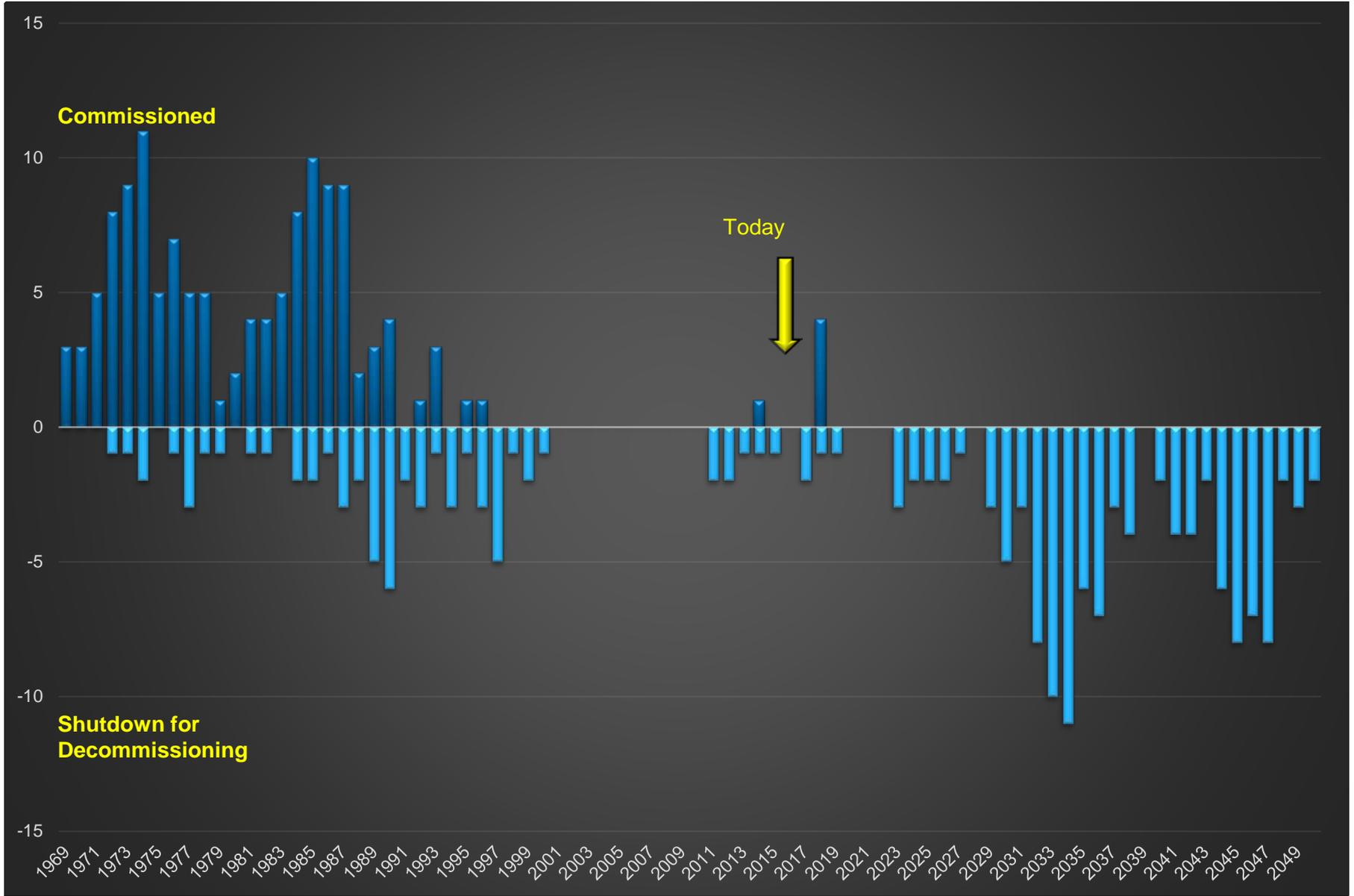
## ■ Program Strengths

- Documentation of more than 20 years experience in the successful decommissioning of commercial power plants (More than 100 EPRI Reports Published)
- More than 20 years of R&D results covering all critical technical areas in plant decommissioning
- Offers a forum for utilities to share current experiences and state-of-the-art technologies for plant decommissioning



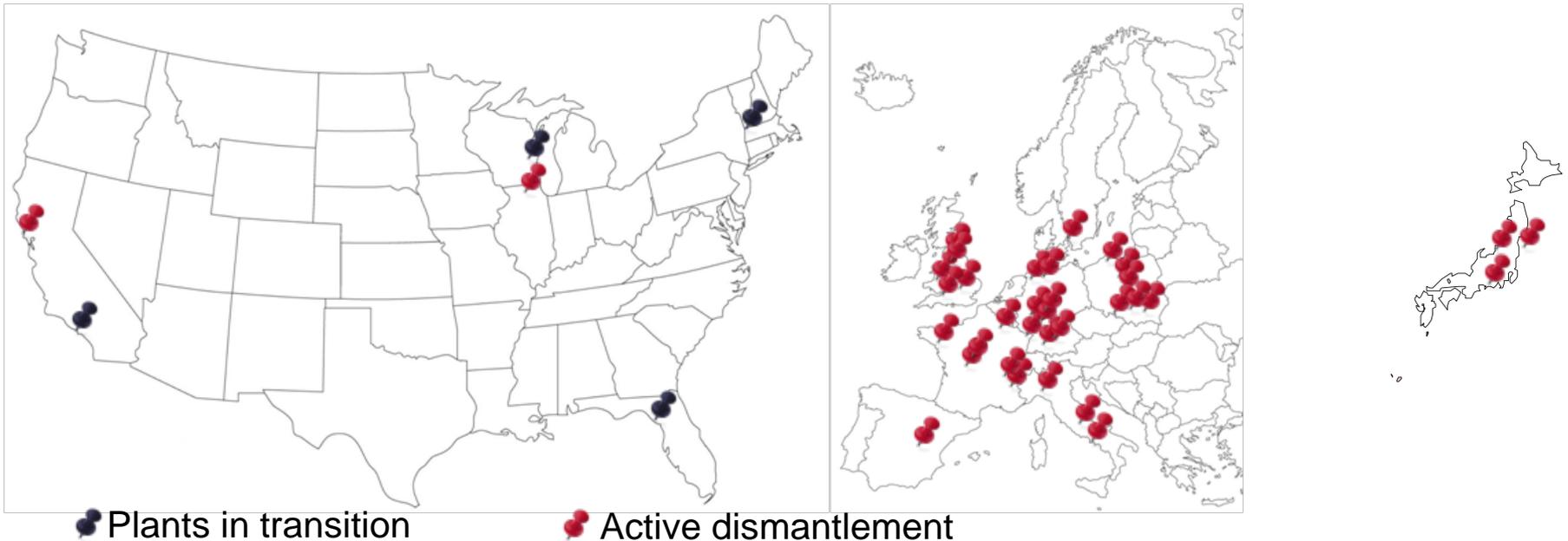
**Next EPRI Decommissioning Workshop, Orlando, Florida, June 15-16, 2015**

# Part of a Normal Plant Life Cycle



# Active Commercial Nuclear Power Plant Dismantlement Projects

- Dismantlement activities for ~45 plants at ~35 sites
  - Includes BWR, PWR, VVER, Gas-Cooled and Fast Breeder designs



**Additional projects in the planning phase in Asia, Europe and North America**

# Decommission Planning

- Lessons learned from completed projects are key inputs to planning
- Most regulators require some level of planning throughout plant operations
  - Necessary to establish set-asides for decommission fund
  - Inaccuracies in planning may result in budget shortfalls during decommissioning
- Detailed planning should optimally be started no later than five years before permanent plant shutdown
  - Address early and long-lead decommissioning activities

**Estimated costs in excess of \$10M attributed to lack of time for good planning at several early-shutdown plants in the 1990s**

# Decommissioning Process

Post-Shutdown Transition

Fuel to Dry Storage

Removal of Highly Radioactive Systems

Removal of Remaining Systems

Structure Decontamination and Dismantlement

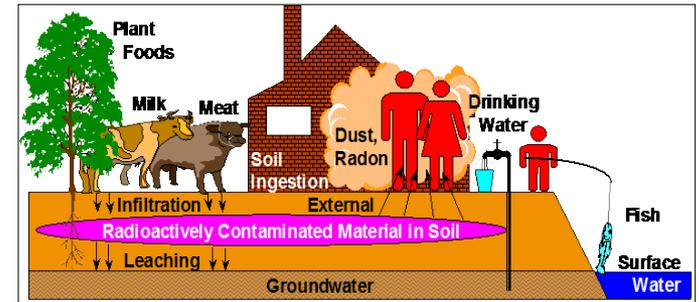
Final Remediation and Site Release



# Major Program Topic Areas

## *Decommissioning Planning and Early Decommissioning Tasks*

- Approach to decommissioning
- Transition from operations to decommissioning
- Early site characterization and historical site assessments
- Regulatory interactions and technical bases
- Approach for large component removal



# Major Program Topic Areas

## *Plant Dismantlement and Waste Management*

- Radiological characterization of systems, structures, and components and site
- Safe removal of contaminated components
- Remediation of contaminated structures and environment (e.g. concrete, soil, bedrock, etc.)
- Waste reduction technologies
- Waste characterization and packaging for disposal



# Major Program Topic Areas

## *Site Characterization, Remediation and Release*

- Site remediation
- Confirmatory site characterization and survey
- Regulatory interactions
- License termination



# Near-Term Program Research Focus

## Technology

- Concrete decontamination
- Hazardous waste management
- Low level waste management
- Graphite removal and disposal
- Metal waste recycling and release
- Applications for automated/robotic equipment

## Decommissioning Experience

- Experience outside the U. S.
- Fukushima Dai-ichi

## Planning/Regulatory

- Update decision making tools
- Update guidance for regulatory submittals

**Coordinate activities with IAEA, OECD, US NRC, US DOE, NEI  
And other international industry organizations**

# 2014-2015 Decommissioning Program Research

## 2014-2015 Reports

*Collection and Analysis of Site Characterization and Final Status Survey Data to Show Compliance with Site Release*

*Software for the Automatic Estimation of the Radiological Inventory for the Dismantling of Nuclear Facilities*

 *Waste Management for Decommissioning Nuclear Power Plants*

 *Characterization and Management of Concrete Waste from Decommissioning*

*Evaluation of Automated Systems for Application during Decommissioning*

*Characterization of Irradiated Metals for Disposal*

*Experience Report: Chemical Decontamination at Chooz A*

*Experience Report: Reactor Internals Segmentation at José Cabrera*

 *Summary of Experience with SAFSTOR during Decommissioning*



Denotes reports of widest immediate interest



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