Introduction

Mike Shepherd, SVP, Business Development
EnergySolutions, Charlotte N.C.

Manage 90% of the nation’s nuclear waste

Own 100% of the assets required for decommissioning

Executing 50% of the current decommissioning projects

Attained 100% of the different commercial contract models

“The views and opinions expressed in this presentation are those of the presenter and do not necessarily reflect the views of EnergySolutions’ decommissioning customers.”
D&D Capabilities /Knowledge & Lessons Learned

Successful methods and lessons learned are transferred from one site to the next

D&D Capabilities
• Consulting for D&D Planning / Transitioning
• Decommissioning Cost Estimates
• Decommissioning and Dismantlement
• Spent Fuel Transfer
• Site Restoration
• All Regulatory Filings
Decommissioning Market
The History of Decommissioning


Shippingport (60MW)

Fort St. Vrain (330 MW)

Savannah River Production Reactors (up to 3,000 MW)

Yankee Rowe (185 MW)*

Shoreham (820 MW)

Maine Yankee (900 MW)*

Connecticut Yankee (582 MW)*

Millstone 1 (680 MW)*

Windscale Advanced Gas Reactor (WAGR) (100 MW)

Windscale Piles

Hanford N Reactor (860 MW)

Calder Hall (UK) (240 MW)

Dounreay Prototype Fast Reactor (UK) (250MW)

San Onofre Units 2&3 (2 x 1127MW)

*Various AECOM personnel experience only
US Operating Reactors with Completed / Planned Retirements

- 8 more units announced retiring by 2025
- D&D contracts yet to be decided
  - Kewaunee (May 2013 close)
  - TMI 1 (Sep 2019 close)
  - Duane Arnold (2020 close)
  - Beaver Valley 1,2 (2021 close)
  - Diablo Canyon 1,2 (2024/25 close)
- There are additional reactors at risk for possible premature closure.
Transition to Decommissioning

- Existing ISFSI
- PSDAR Submitted to NRC
- Plant Shutdown
- LTP Submitted to NRC
- License Termination
- LTP Development
- NRC Review
- Site Release
- Final Status Survey
- Final ISFSI
- RV/RVI, Large Component Removal, Demolition, Waste Disposal, etc.
- Shutdown Transition
- Maintaining ISFSI During Demolition
- 8 - 10 YEARS
Major D&D Milestones

- Planning, Estimating & Transition
- Spent Fuel Management
- Major Component Removal
- Waste Management
- Dismantle & Demolition
- License Termination
- Site Restoration
Waste Classifications

- **Class A**: 90% of D&D waste
  - Clive

- **Classes A, B & C**:
  - WCS

- **GTCC & Spent Fuel**:
  - On-site ISFSI
  - US DOE

**90% of D&D waste**
Commercial D&D Models
D & D MANAGEMENT MODEL 1

Owner-led with Integrated Decommissioning Contractor

The utility staff fills most of the positions while the contractor fills positions commensurate with the specialized skill sets needed for nuclear decommissioning. The utility gets the full benefit of the contractor’s know-how and has access to its intellectual property.

- Utility interfaces with regulators and stakeholders
- Job creation for existing employees
- Cost savings are retained by utility and ratepayers

CONTRACTOR RISK METER

USNIC – Contract Oversight
D & D MANAGEMENT MODEL 2

Utility-owned with Decommissioning General Contractor (DGC)

The utility continues to own the license and maintains responsibility for the overall project and management of spent fuel. Major D&D work is awarded to an experienced contractor responsible for execution, cost, and schedule.

- Performance risk to DGC through target/fixed-price terms
- Job creation for some existing utility employees
- Cost savings retained by utility and ratepayers

CONTRACTOR RISK METER

USNIC – Contract Oversight
License Stewardship

The utility transfers operational license to a Special Purpose Entity (SPE) who assumes full responsibility for all decommissioning and license activities. The owner ultimately returns ownership for spent fuel.

- Performance risk to DGC through target/fixed-price terms
- Job creation for some existing utility employees
- Cost savings retained by utility and ratepayers
Asset Transfer

This model is similar to license stewardship except the contractor permanently acquires all assets and liabilities of the plant, including property and spent fuel in exchange for NDT funds.

- SPE assumes full responsibility, performance, and cost risks for all decommissioning and licensing activities
- SPE takes ownership and accountability of nuclear decommissioning fund (NDT)
- SPE takes ownership and responsibility for spent nuclear fuel
Thank you!