



Washington Group International

Integrated Engineering, Construction, and Management Solutions



The Nuclear Renaissance: A Life Cycle Perspective

Jim Little, President
Washington Safety Management Solutions

Washington Group's Perspective

- ◆ One of six original Manhattan Project industrial partners
- ◆ Largest grassroots construction project in commercial nuclear industry today (National Enrichment Facility)
- ◆ One of two contractors performing nuclear plant life extensions in USA
- ◆ Engineer / constructor of record for 49 nuclear power systems worldwide
- ◆ Last U.S. contractor to reprocess spent nuclear fuel
- ◆ Only contractor to vitrify high level radioactive waste in USA
- ◆ Only contractor to license / operate a deep geological waste repository
- ◆ Manufacturer of ASME certified nuclear containers and transportation casks
- ◆ Largest nuclear safety/licensing consulting business (350 analysts)

First ... A Little History



◆ The 1970s

- 300+ nuclear plants in various stages of planning, licensing, engineering, and construction
- Big “events”: Carter policy on recycling, Three Mile Island...
- A flawed long-term business model
 - Cost/schedule overruns
 - Unpredictable regulatory process
 - Poorly organized and incentivized client-supplier relationships

The Result ... The 1980s and 1990s



- ◆ Decline in new nuclear plant investment
 - 200 new plants never built
- ◆ Expertise migrated to DOE
 - Most to Savannah River Site
- ◆ But ... ultimately a strong, safe, efficient, consolidated nuclear industry emerged
 - More disciplined operating standards
 - Plant efficiencies rose from 65% to 90%
 - Life extension of existing plants

Today's View

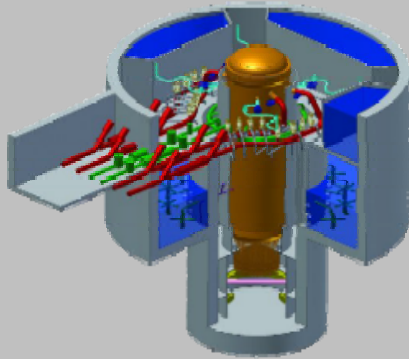
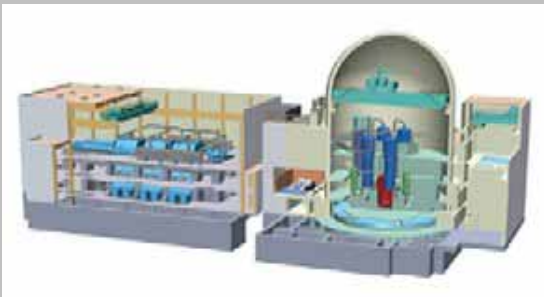


Dr. Patrick Moore
Founder - Greenpeace

“Nuclear energy is the only large-scale, cost-effective energy source that can reduce greenhouse emissions while satisfying a growing demand for power.”

- ◆ Growing consensus that nuclear power is the economic and environmental choice
 - 70% public support nationwide
 - No greenhouse gas emissions
 - Critical to long-term energy security
- ◆ 2005 Energy Policy Act offers important incentives
 - Energy production tax credit (8 years)
 - 80% loan guarantees
 - “One-step” licensing (construction and operations)
 - Price Anderson Act renewal for plants online before 2025
- ◆ Stable regulatory process is a real possibility

Today's View



- ◆ New entrants to the US market
 - Toshiba acquisition of Westinghouse
 - UniStar alliance based on Areva technology
 - Hitachi/GE joint venture
 - MHI US APWR
 - MHI/Areva Alliance
- ◆ Focus on immediate barriers to deploying the “First Wave” of new nuclear plants
 - Washington Group already working with OEMs
 - MHI
 - GE
 - Areva
 - Long-lead equipment
 - The “War on Talent”

A Word on the “Talent Shortage”

- ◆ We’ve been here before with the nuclear industry

Little’s First Law of Talent Development:

“The beginnings of any technology-rich business are all characterized by a shortage of large numbers of technically trained people needed to support ultimate growth”

	<u>1980</u>	<u>2000</u>
Nuclear Engineering Programs	41	24
BS Degrees	1,700	550
MS Degrees	850	450
PhDs	600	400

Little’s Second Law of Talent Development:

“The resources will come when the business becomes attractive to the best-and-brightest who adapt skills to become part of an exciting opportunity”

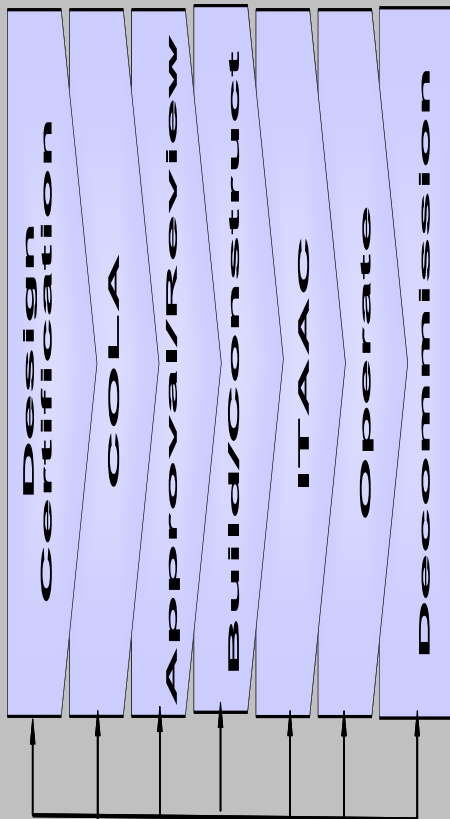
- ◆ It is essential that there be a sufficient cadre of experience
 - We must have a long reach back to complement the long view forward
 - While nuclear talent migrated ... it didn’t go away

Creating a Life-Cycle Business Model



- ◆ Evidence of and confidence in a stable regulatory process
- ◆ Attracting human resources and establishing a global supply chain
- ◆ Developing practical solutions addressing the entire nuclear life cycle
 - Yucca Mountain
 - Advanced Fuel Cycle – GNEP
 - Next Generation Nuclear Plant (NGNP)
- ◆ Continuity of political and financial support derived from a track record of successful projects

A Critical Missing Element



- ◆ Strong life-cycle alliances replace the “client-supplier” relationships of the past
 - A change in perspective of investors, suppliers, and regulators directed at team success
 - i.e. Sarbanes-Oxley
 - Strong role for a trusted technology-savvy management advisor – “Owner’s Agent”
 - Incentivized to ensure success of the project throughout its life cycle – from conception through operation and beyond...
 - Provide continuity, efficiencies, and a fundamental understanding of the plant’s technology basis

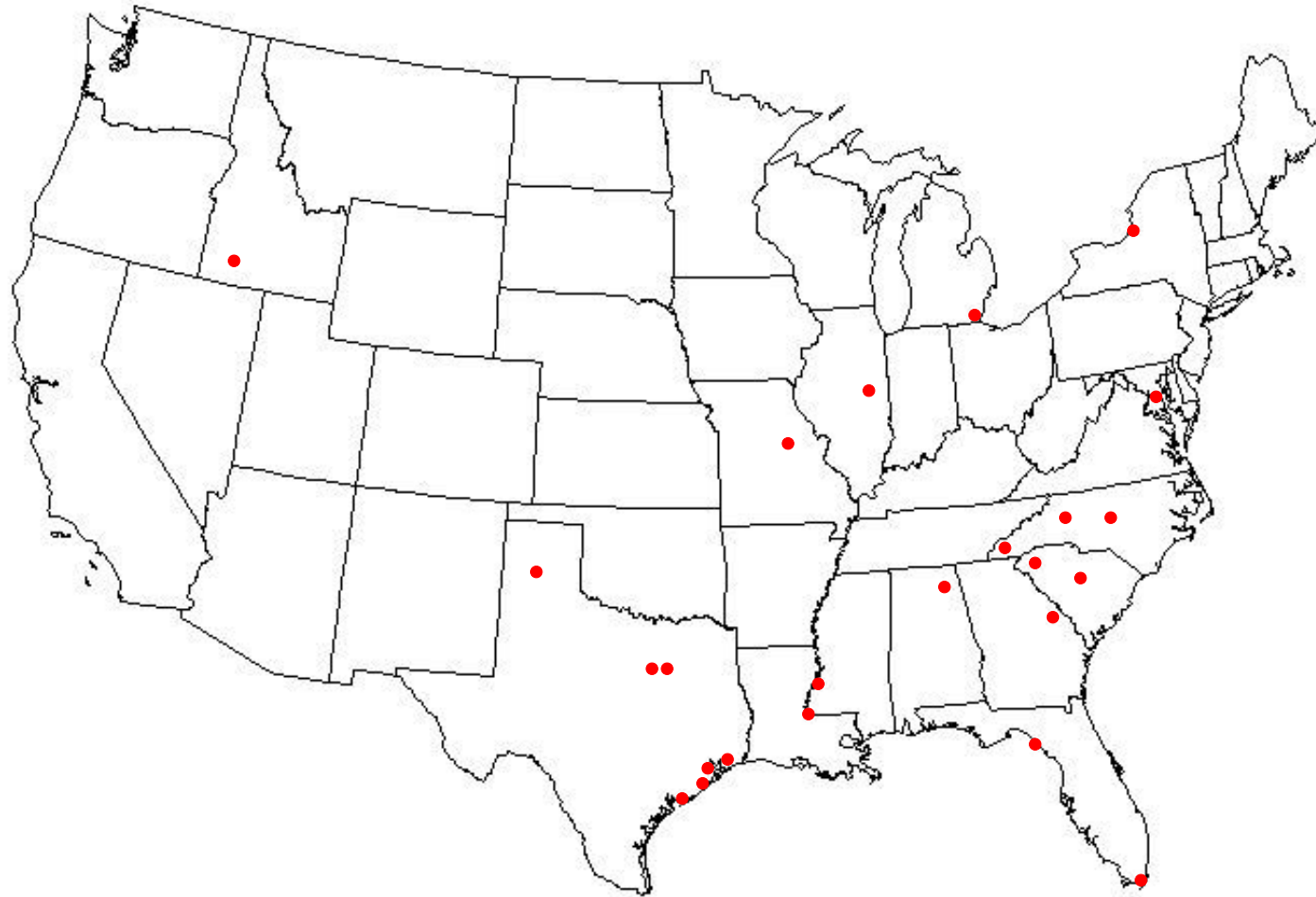
Owner's Agent Characteristics

- ◆ Experience
 - An integrated understanding of the complete nuclear life cycle
- ◆ Expertise
 - A track record of high performance in
 - Project conception
 - Financial modeling
 - Cost and schedule control
 - Risk management
 - Supplier management
 - Operations

The DOE Connection

- ◆ Since the late 1980s, talent migrated to the DOE Complex because of the challenge of complex, leading-edge projects and missions
 - K-Reactor restart
 - New Production Reactor
 - High level waste management
- ◆ Large Management & Operations (M&O) contracts are built around the “Owner’s Agent” concept
 - Comprehensive nuclear life cycle scope and responsibility
 - Performance-based financial incentives
- ◆ As the largest DOE contractor, Washington Group has a nuclear-experienced resource of more than 7,500 professionals that we are deploying to support both DOE and the commercial nuclear industry
 - Nuclear talent enriched by the DOE nuclear lifecycle experience
 - Critical asset for the industry and the region

Location ... Location ... Location



Pending
New
Nuclear
Plant Sites

It's time ...
to respond
to the
opportunity

CSRA Today ... The Nation's Nuclear Core

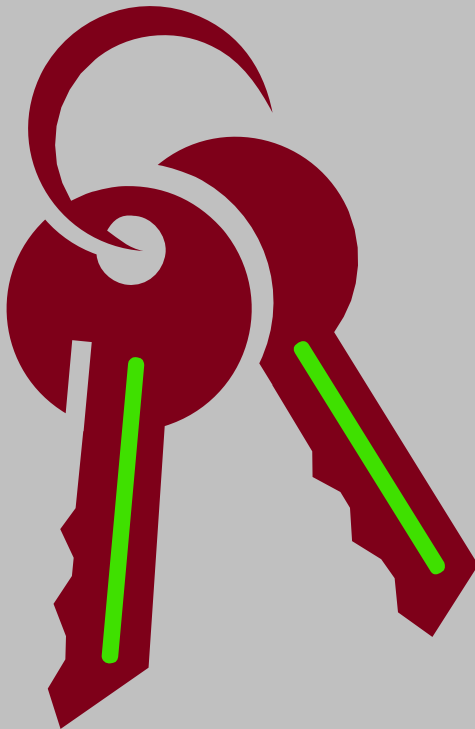


- ◆ The nation's nuclear talent "corps"
 - SRS site contractors
 - 8000+ nuclear professionals
 - Washington Safety Management Solutions
 - World's largest nuclear safety / licensing consulting firm
 - 500 analysts and support staff
 - Washington Energy Center
 - Certifying new advanced reactor designs
- ◆ CSRA assets
 - Savannah River National Laboratory
 - Savannah River Energy Park
 - Nuclear friendly citizenry
 - 11 operating nuclear plants

CSRA Opportunity

- ◆ Washington Group Commitment and Investment
 - Local Business Unit Headquarters
 - Washington Safety Management Solutions
 - Expand Washington Energy Center
 - Center for reactor design certification; engineering services
 - Engineering support to link nuclear and hydrogen
 - Thor Treatment Technologies
- ◆ Enable and encourage area colleges & universities to develop new nuclear talent
 - Advanced technical degree availability in Aiken area
 - Technical college system – technicians, operators, mechanics, crafts
 - Utilize employees for adjunct professorships

Nuclear Renaissance and the CSRA ... Real Potential With Promise



- ◆ Keys To Success
 - Think beyond the CSRA
 - Discipline and determination to address structural issues of the past
 - Life-cycle experience & expertise
 - New relationships based on owner agency to serve the entire nuclear life-cycle
 - SEMA businesses work together to reinforce critical assets ... for our own benefit ... and the benefit of the region