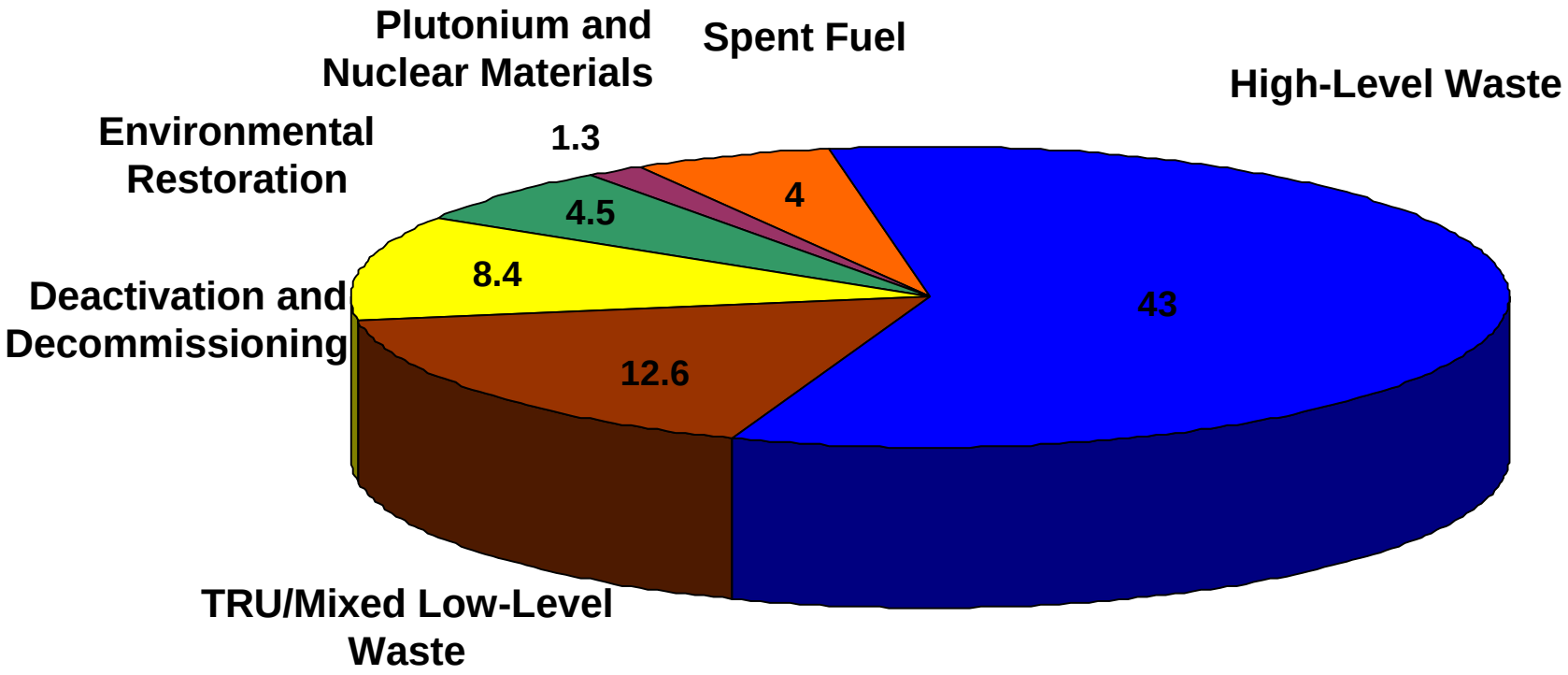
DOE Weapons Complex and R&D to Meet Cleanup Requirements

November 5, 2001

Mark Gilbertson,Director
Office of Basic and Applied Research
Office of Science and Technology

Life-cycle Costs of EM's Major Cost Centers FY 2007 - FY 2070



Dollars in Billions

Commitment to Sound Science for Environmental Management

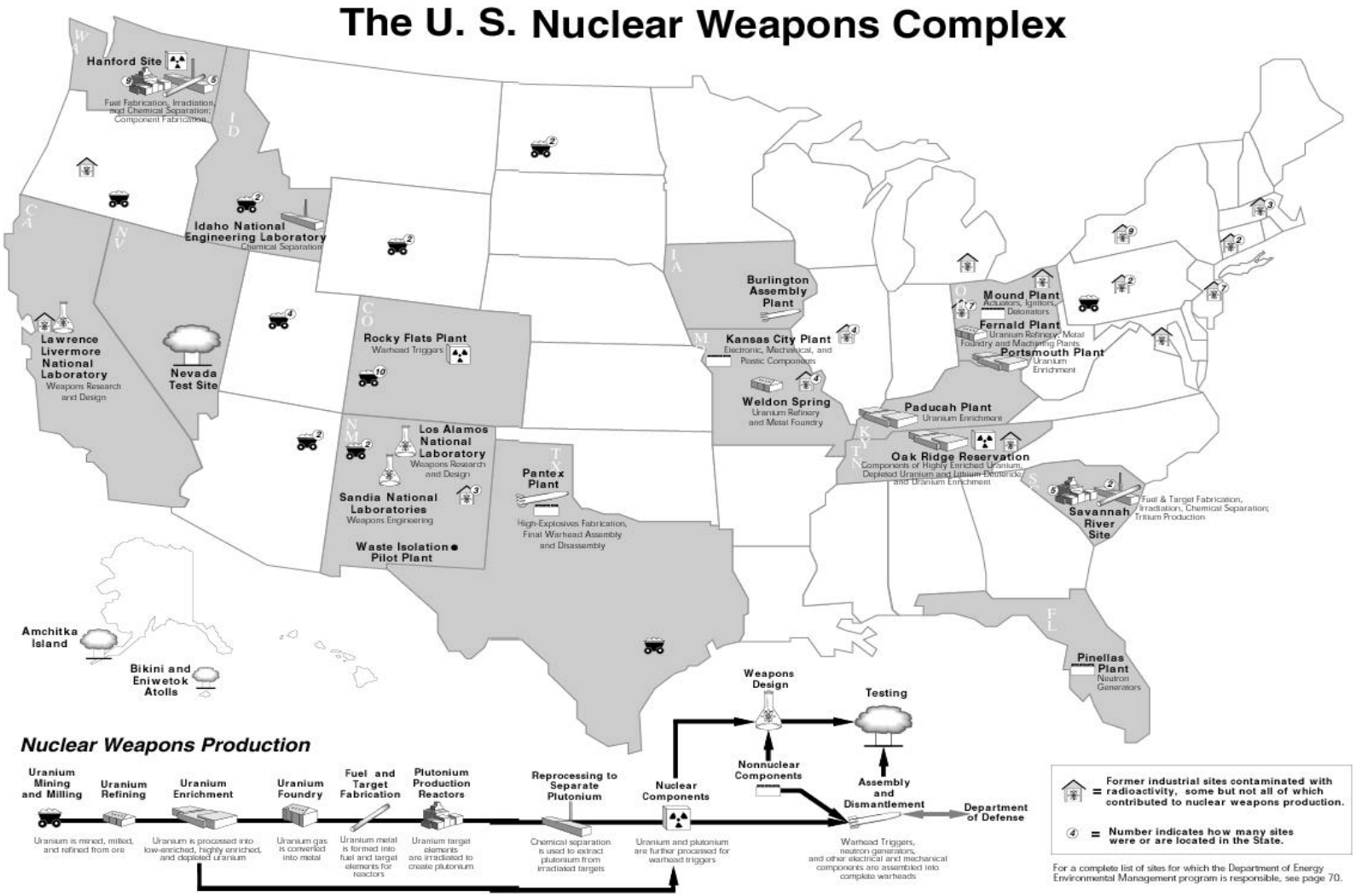
Environmental Management

"I share President-elect Bush's commitment to ensuring that sound science governs this program"…

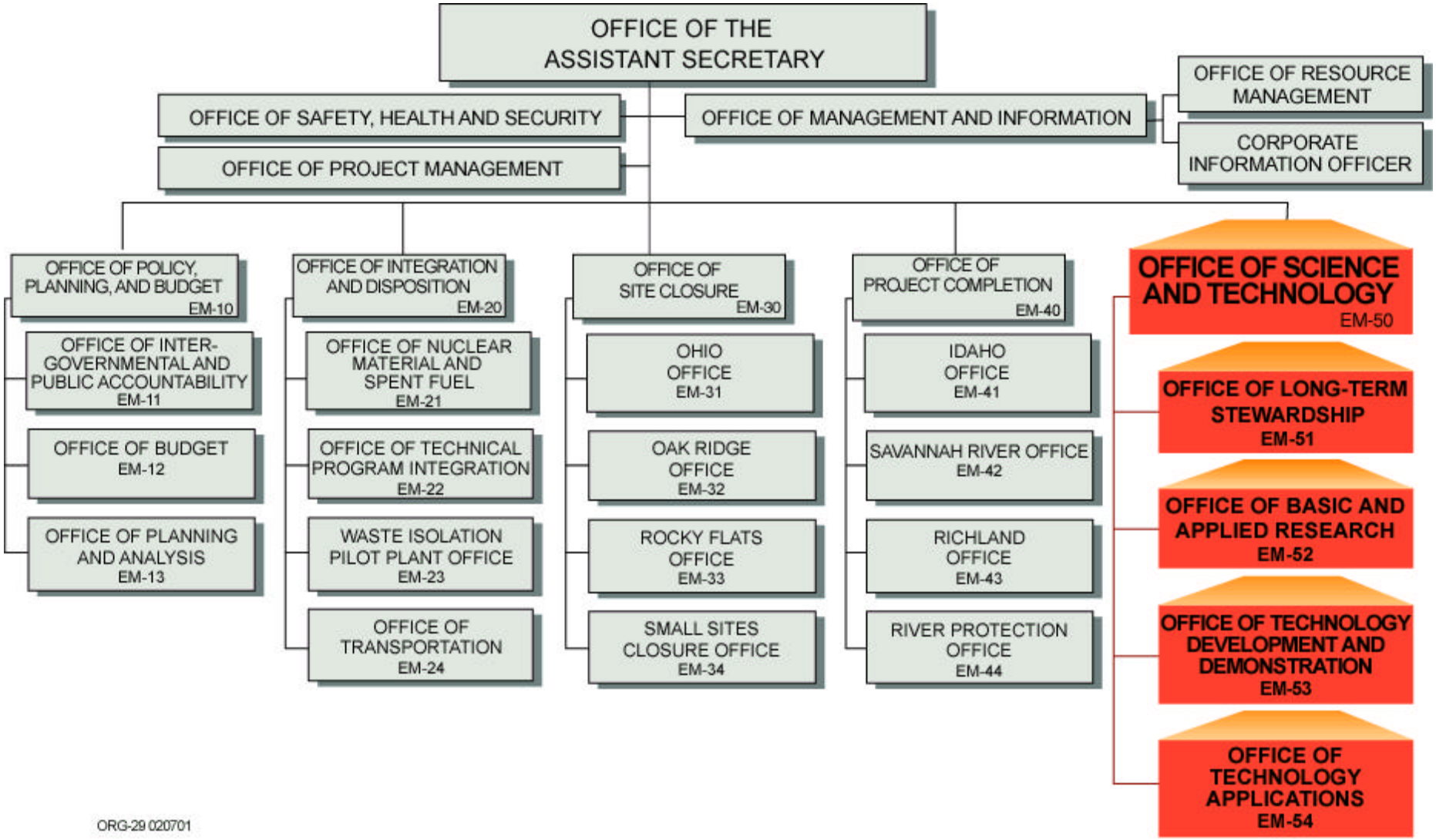
"My commitment is to make progress on the nuclear waste program while ensuring sound science governs decisions ..."

Testimony of Secretary of Energy-Designate
Spencer Abraham
before the
Senate Energy and Natural Resources Committee
January 18, 2001

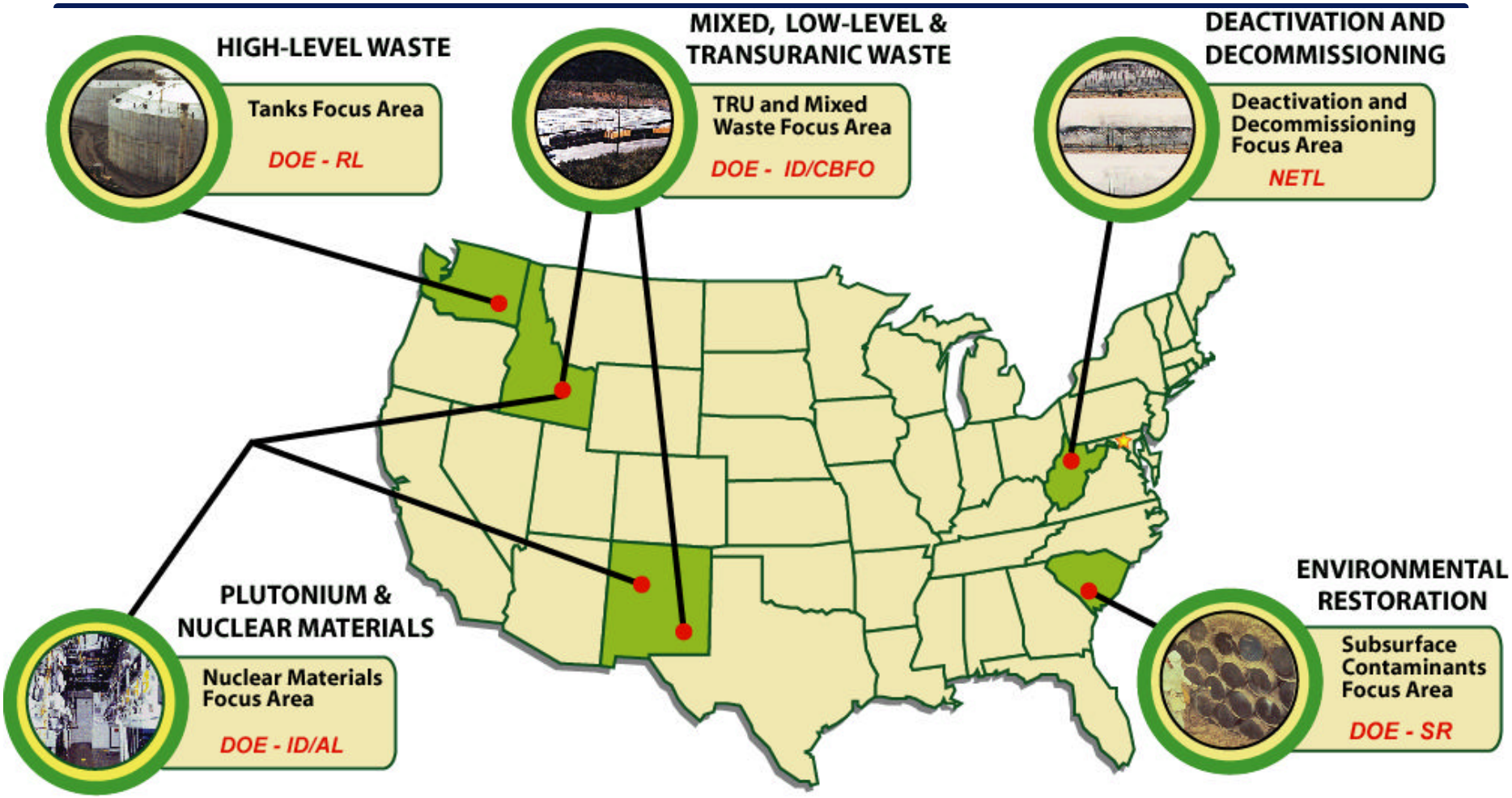
The U.S. Nuclear Weapons Complex



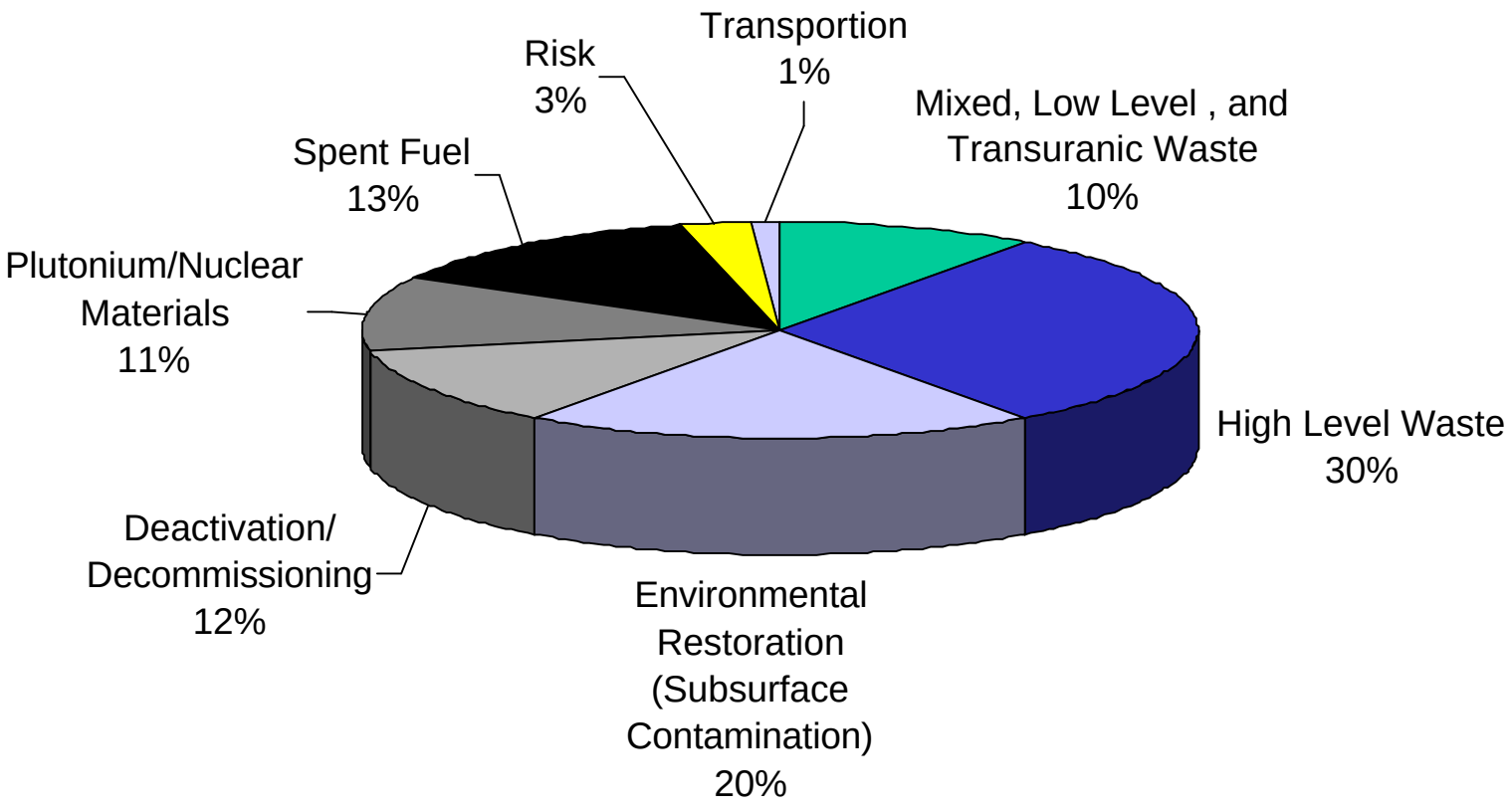
Science and Technology Investments Contribute to All Aspects of the DOE Cleanup-Stewardship Mission



OST's Work is Conducted Across the Complex by Field Focus Areas

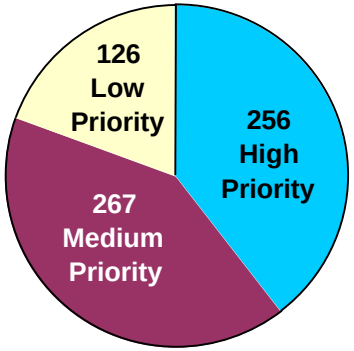


OST's Planned Investments by Problem Area Through FY-2002

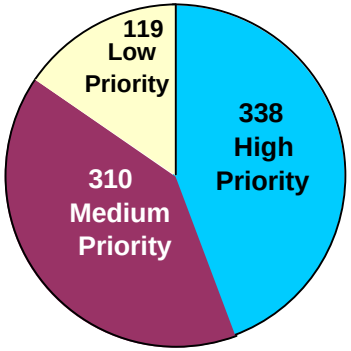


Science & Technology Activities are Focused on EM Needs

Site PBS cleanup managers identify S&T needs
High-priority needs have significantly increased

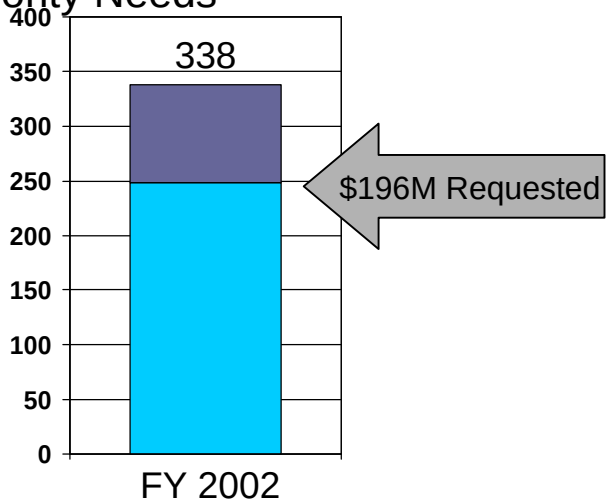


648 Total Needs
FY 2001

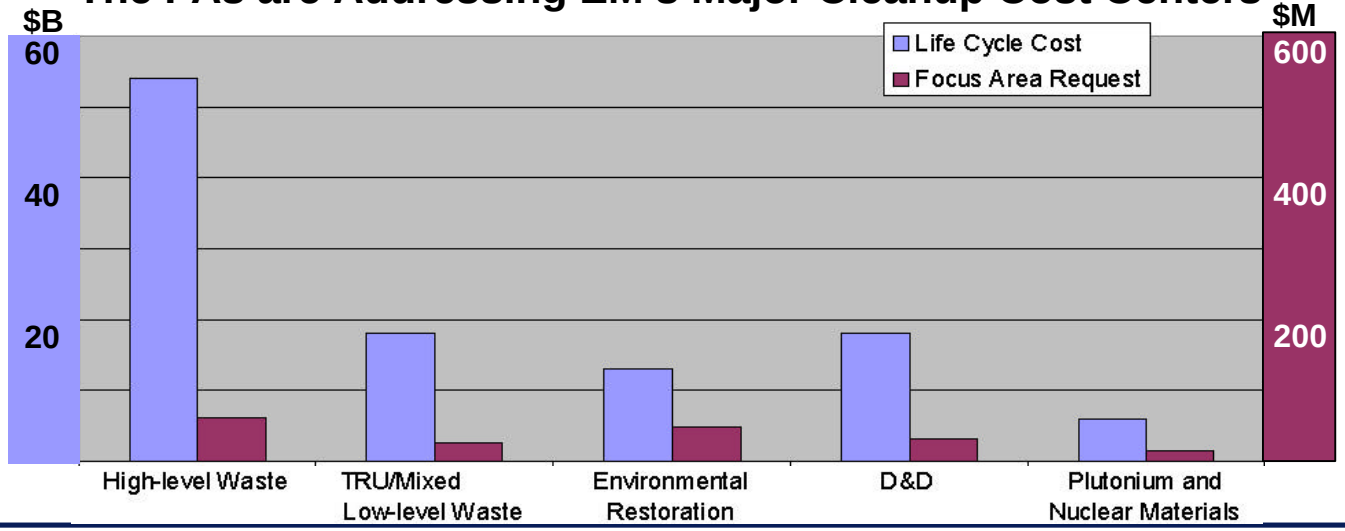


767 Total Needs
FY 2002

High-priority Needs



The FAs are Addressing EM's Major Cleanup Cost Centers



Source: 1999 *Paths to Closure*

Note: Not all EM Cost Centers represented

Office of Science and Technology FY 2002 Congressional Budget Request

	FY 2000 Comparable Appropriation	FY 2001 Comparable Appropriation	FY 2002 Congressional Request
FOCUS AREAS			
Radioactive Tank Waste Remediation Focus Area	43,882	55,558	55,825
Subsurface Contaminant Focus Area	41,508	40,729	32,465
Transuranic and Mixed Waste Focus Area	28,067	31,870	23,067
Deactivation and Decommissioning Focus Area	26,322	27,105	17,555
Nuclear Materials Focus Area	4,001	7,954	9,647
Subtotal, FOCUS AREAS	143,780	163,216	138,559
ENVIRONMENTAL MANAGEMENT SCIENCE PROGRAM	31,235	36,919	32,050
ENVIRONMENTAL SYSTEMS RESEARCH AND ANALYSIS	33,273	21,000	-
TECHNOLOGY APPLICATIONS	19,978	19,254	15,891
LONG TERM STEWARDSHIP	1,500	8,000	8,000
SMALL BUSINESS INNOVATIVE RESEARCH PROGRAM (TECHNOLOGY DEVELOPMENT)	-	3,72	1,500
TOTAL, SCIENCE AND TECHNOLOGY	$ 229,766	$ 252,112 3/	$ 196,000

EMSP Mission

- Provide scientific knowledge that will revolutionize technologies and clean-up approaches to significantly reduce future costs, schedules, and risks
- "Bridge the gap" between broad fundamental research that has wide-ranging applicability such as that performed in DOE's Office of Science and needs-driven applied technology development that is conducted in EM's Office of Science and Technology
- Focus the Nation's science infrastructure on critical DOE environmental management problems

Environmental Management Science Program

	FY 2000	FY 2001	FY 2002
EM Science Program	**$31,235**	**$36,919**	**$32,050**

The EM Science Program is a partnership between the Office of Science and the EM program. Since the start of the program in 1996, 316 projects have been selected for support: subsurface contamination (132); high-level waste (113); mixed waste (35); health and ecological effects (29); nuclear materials (8); deactivation and decommissioning (36); and spent fuel stabilization and disposal (8). Forty-two renewal projects from the most promising of the FY 1996 and 1997 awards were initiated in September 2000. In FY 2001, an additional 45 new research projects were awarded to address issues identified in National Academy of Sciences' reports related to high-level waste management and deactivation and decommissioning activities. In FY 2002, 10-15 new awards will be issued to address technology needs related to subsurface contamination.

EMSP Projects by Problem Area

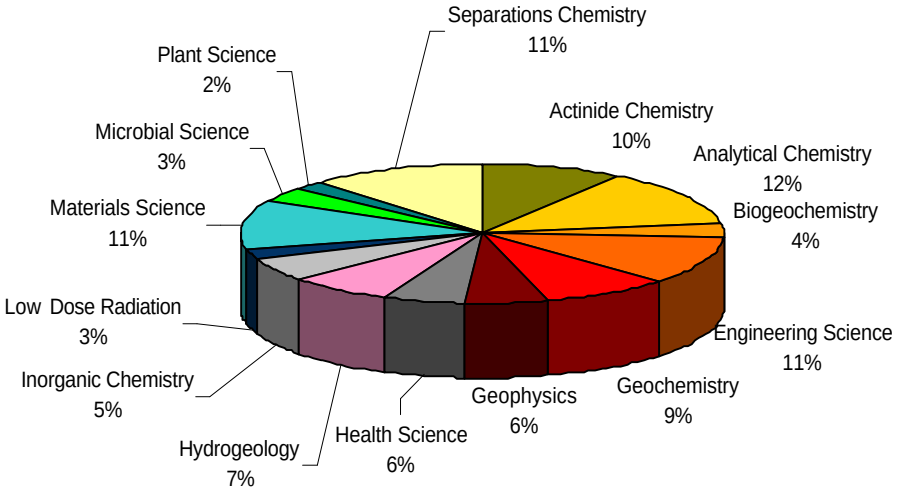
	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01	FY 02
Preapplications	*2200*	*1200*	*600*	*630*	*	*	
Full Proposals	*810*	*540*	*224*	*298*	*121*	*150***	
High Level Waste	26	22	20		13	32	
Spent Nuclear Fuel		5			3		
Mixed Waste	23	9			3		
Nuclear Materials	2	6					
Subsurface Contamination	71	11		31	19		
Health/Ecology/Risk	10	8		8	3		
Decontamination and Decommissioning	4	5	13		1	13	
	136	**66**	**33**	**39**	**42**	**45**	
Funding (Millions)	**$48.9**	**$48.7**	**$46.1**	**$45.8**	**$31.2**	**$36.9**	**$32** **Requested**

* There were no preapplications for the FY-00 or FY-01 solicitations

Environmental Management Science Program

- 43% of funding to date to universities and other private labs
- Scientists funded at 90 universities, 13 DOE Labs, and 21 other governmental and private labs
- Award distributed to 39 states, District of Columbia, Switzerland, Canada, Australia, Czech Republic, United Kingdom, Ireland, and Russia
- Some projects are already having impact on cleanup operations
- Received Vice President Gore's Hammer Award

EMSP Funding by Scientific Research Area



Total Funding $293.9M

361 Projects

FY 2002 Planned Accomplishments

- Finalization of the research commenced in FY 1999
- New solicitation for research in the area of Subsurface Contamination based on needs identified by NAS/NRC study
- Completion of studies of research needs for Transuranic and Mixed Waste and Nuclear Materials and Spent Fuel by the NAS/NRC