



U.S. DEPARTMENT OF **ENERGY**

EM FY 2012 Presidential Budget Request



EM *Environmental Management*

safety ♦ performance ♦ cleanup ♦ closure

www.em.doe.gov

Leveraging strategic investments to meet compliance and maintain cleanup momentum

Environmental Management: A National Responsibility

- We reduce risks and protect our workers, our communities and the environment through cleanup
- Our work is urgent and essential to the health and economic vitality of our communities and the nation and positions our Sites for future missions and use
- Our mission is not discretionary - it is a congressional mandate to D&D the gaseous diffusion plant under the U.S. Energy Policy Act of 1992 and a federal obligation to address the cold war environmental legacy cleanup and honor our regulatory commitments
- Time is not on our side – costs and risks increase over time
- We have demonstrated value for the American Taxpayer by delivering significant progress in the past several years in reducing risks and the overall liability - but our work is not done
- The Environmental Management portfolio is one of our nation's largest liabilities - we have a responsibility to relieve future generations of this environmental and financial liability



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EM's Cleanup Vision: Journey To Excellence

Building on the ARRA momentum, the EM team will:

- **Complete the three major tank waste construction projects:**
 - Sodium Bearing Waste Facility by 2011 (operational 2012)
 - Salt Waste Processing Facility by 2014 (operational 2014)
 - Waste Treatment Plant by 2016 (operational 2019)
- **Reduce the life-cycle costs:**
 - Recovery Act investments - \$7 billion in cost savings and cost avoidances
 - Transformational Tank Waste Technology - \$19 billion reduction
 - High Priority Groundwater Remediation - \$10 billion reduction
- **Disposition 90% of legacy TRU waste by 2015**
 - All EM cleanup waste to WIPP by 2020, except for Hanford
 - 40,000 m³ TRU remaining to be disposed to accomplish 2015 goal. 78,000 m³ of the 118,000m³ total goal have already been disposed.
- **Shrink the EM legacy footprint 90% by 2015**
 - In 1989, legacy cleanup footprint was 3,125 sq miles. At the start of ARRA cleanup in 2009, it was 931 sq miles. By the end of FY 2011, 559 sq miles will remain. By 2015, it will be reduced to 93 sq miles
 - All Material Access Areas eliminated
 - 2636 facilities complete
 - 7745 remediations complete
- **By 2020, EM legacy cleanup will be virtually completed. Hanford will be the only large site remaining. Minor cleanup will remain at Savannah River, Portsmouth, and Oak Ridge.**



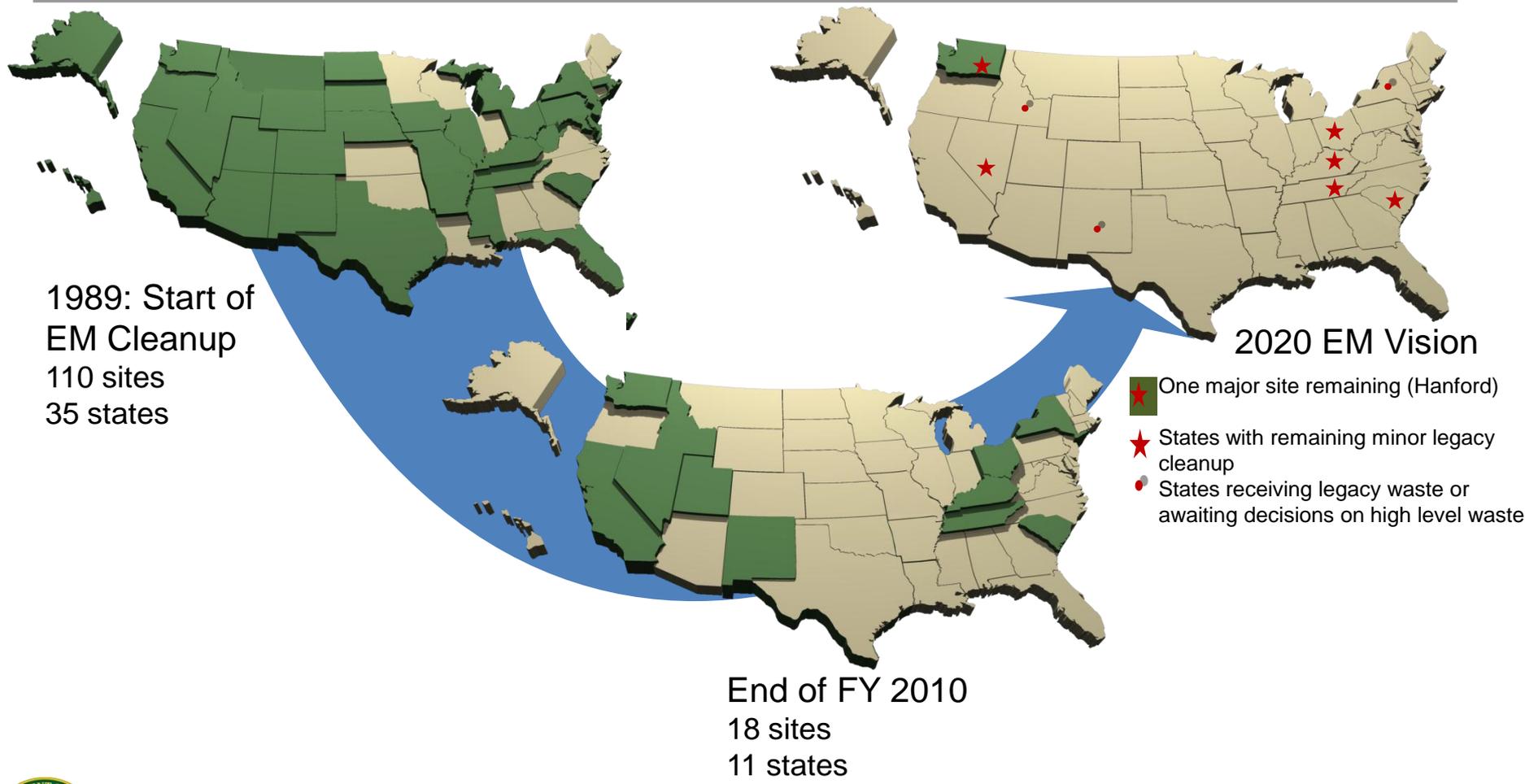
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30 Years of Progress



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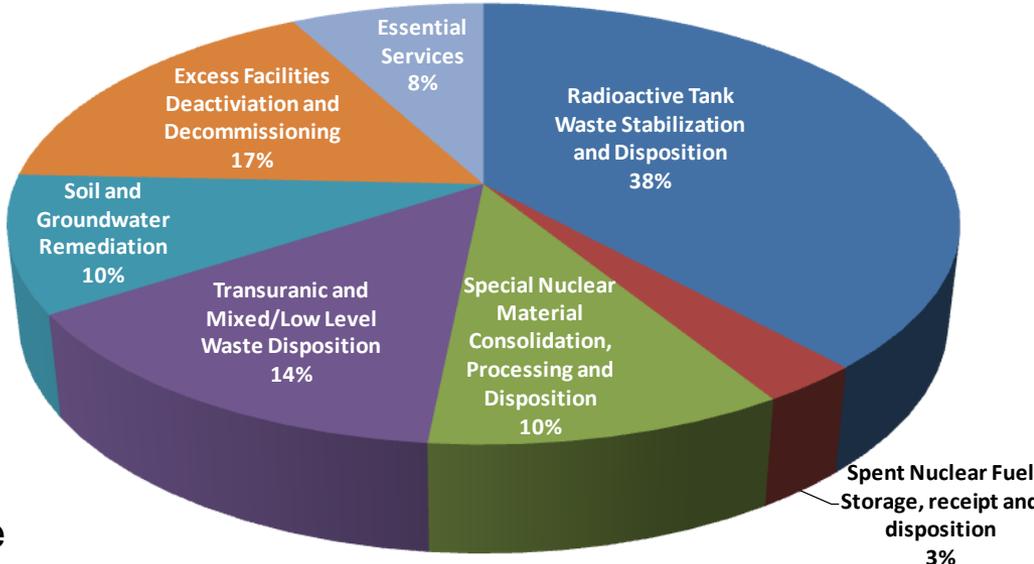
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Program Priorities

- Essential activities to maintain a safe, secure, and compliant posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent (used) nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, processing, and disposition
- High priority groundwater remediation
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning (D&D)

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Economic Benefits from EM Cleanup Mission



Received \$6 Billion in Recovery Act funds

9,362 jobs created/saved with Recovery Act funds

\$3.7B of Recovery Act funding paid to date

\$1.8B in Recovery Act prime and subcontracts awarded to small business

\$1.7B out of \$6.1B in Base prime and subcontracts awarded to small businesses in FY 2010

\$7B in future savings and cost avoidances



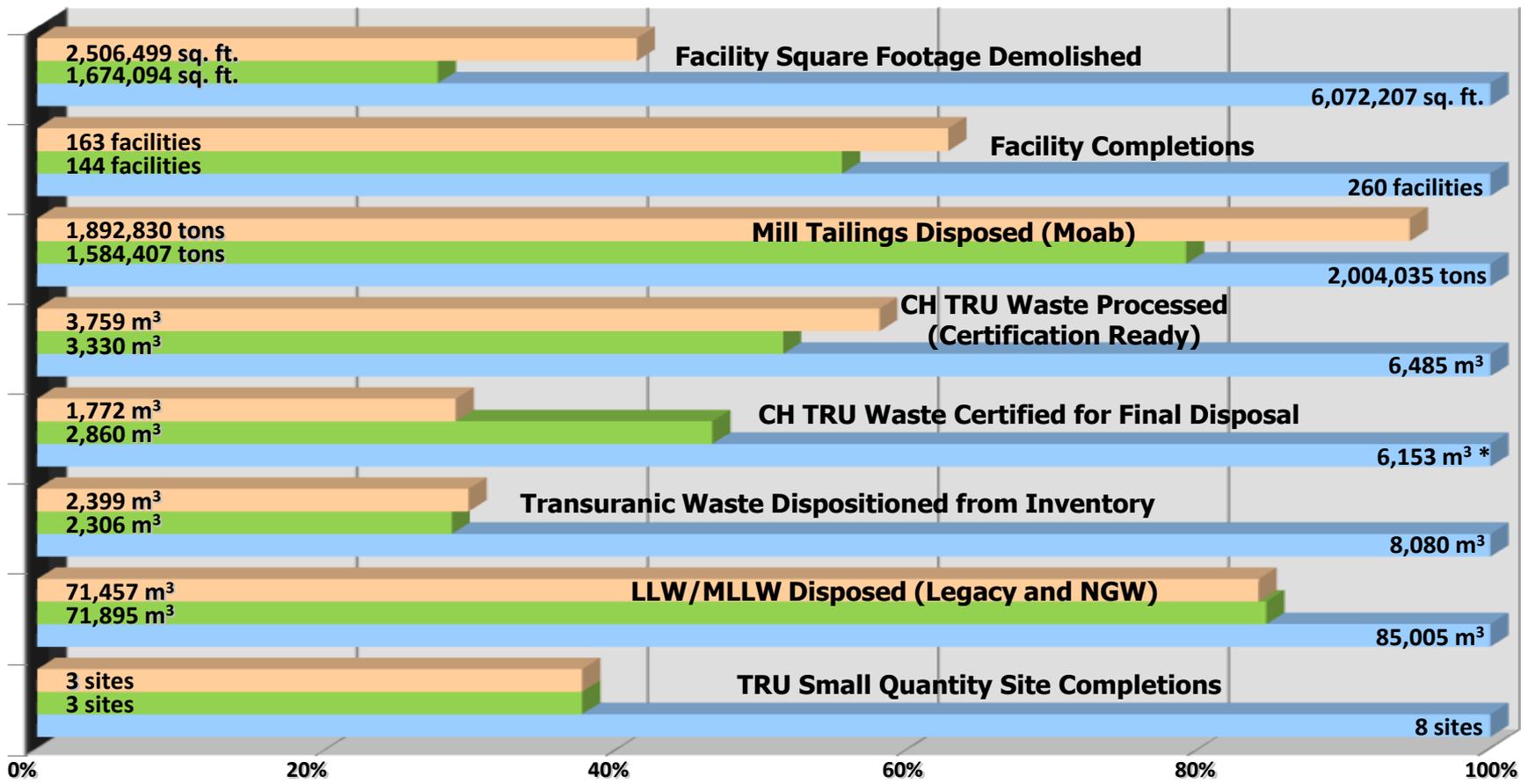
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EM Recovery Act Key Performance Metrics



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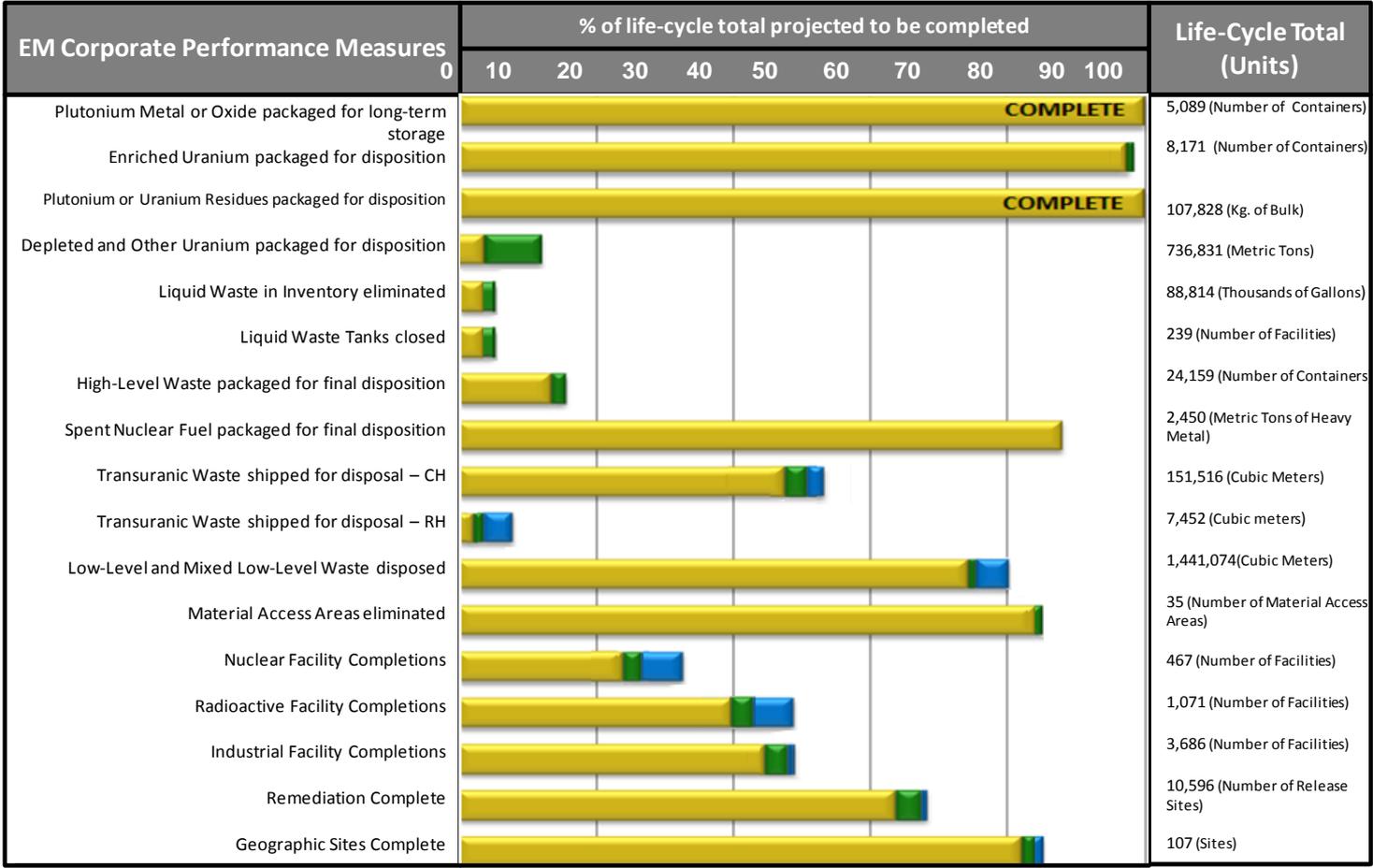
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Actual to Date (1/31/11)
 Target to Date (1/31/11)
 ARRA Total

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Corporate Performance Metric Life-Cycle Chart
 Completions through FY 2012



Legend ■ EM Actuals to Date (including FY2010 Actuals for both ARRA and BASE) ■ FY 2011 and FY 2012 Targets - BASE ■ FY 2011 and FY 2012 Targets - ARRA



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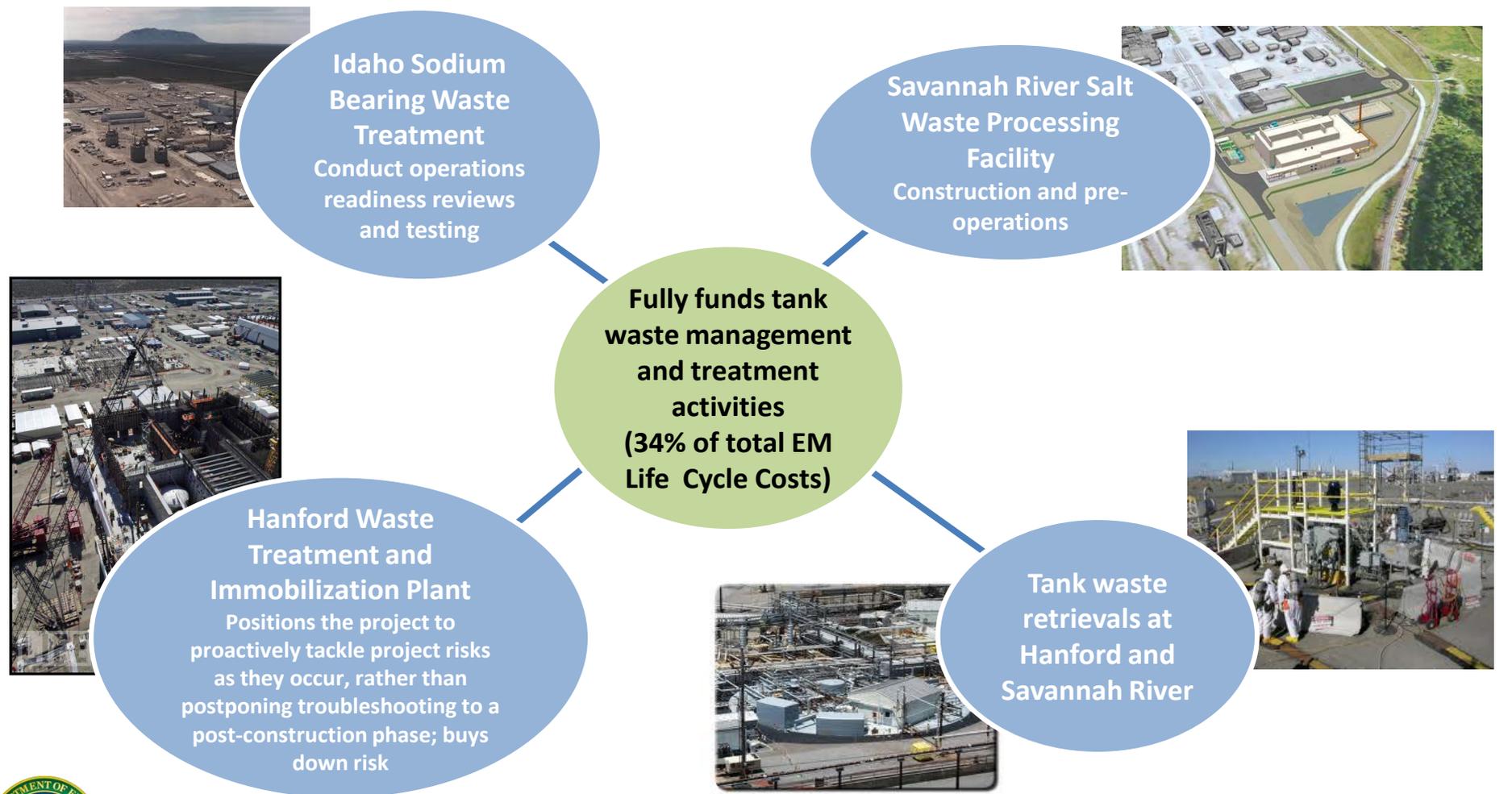
Compliance Status

- Fully funds all essential activities to maintain a safe and secure posture in the EM complex
 - Met 95% of the 141 major enforceable agreement milestones in FY 2010
 - In FY 2011, there are approximately 160 major enforceable agreement milestones due
 - In FY 2012, EM's goal is to meet 100% of its enforceable agreement milestones
- EM cleanup activities are governed by approximately 40 agreements with federal and state regulators
- Fully funds the recently negotiated Tri-Party Agreement settlement with Washington state
- Supports the required TRU waste retrievals at Idaho consistent with the terms of the Idaho Settlement Agreement
- Positions Los Alamos National Laboratory to comply with Consent Order



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FY 2012 Highlights



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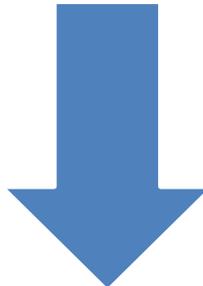
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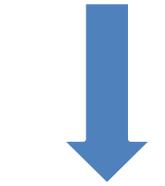
FY 2012 Highlights

Investment in transformational tank waste technologies support EM's enhanced tank waste strategy



\$16B Life Cycle Cost (LCC) Reduction at Hanford

Hanford Schedule Accelerated 7 Years



\$3B LCC Reduction at Savannah River

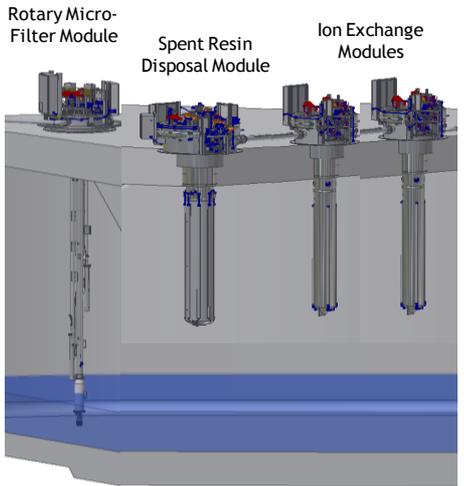
Savannah River Schedule Accelerated 6 Years



\$19B Total LCC Reduction



Fluidized Bed Steam Reformer



Modular Salt Processing: Small Column Ion Exchange (SCIX)



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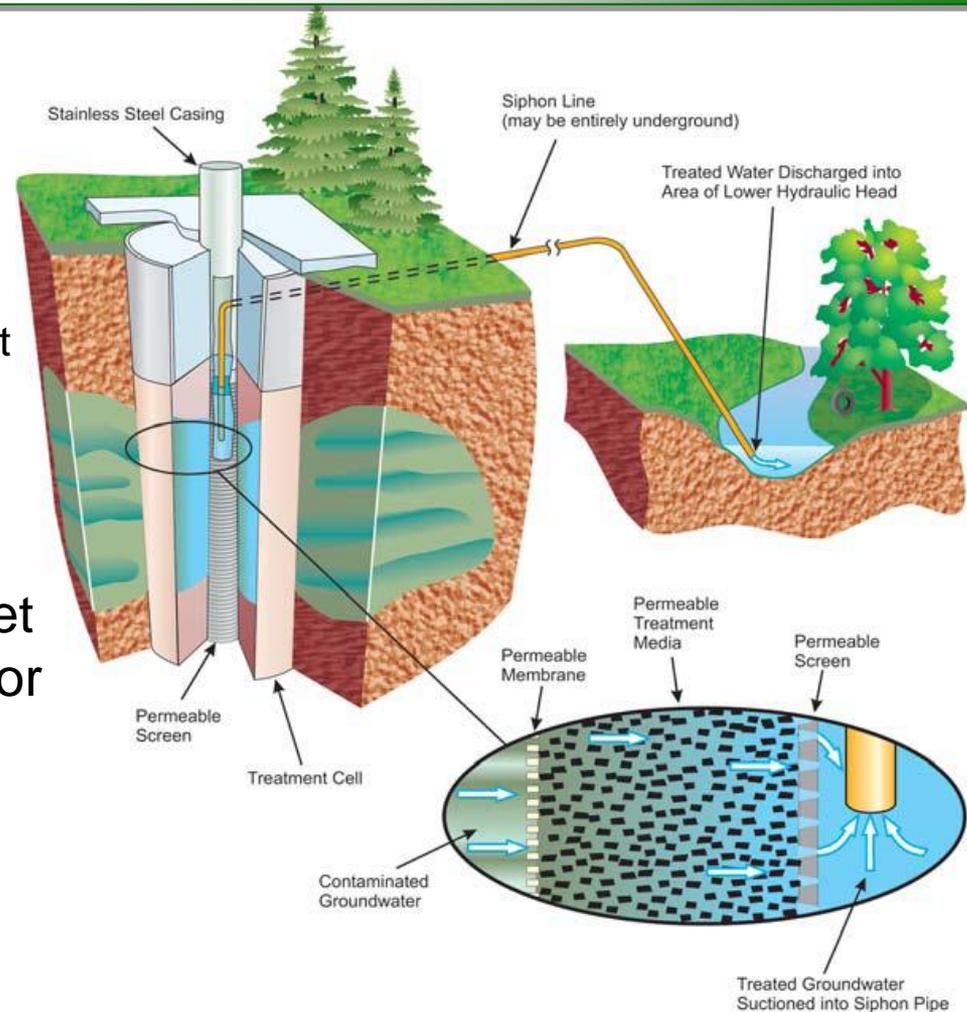
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FY 2012 Highlights

Technology Investments

- High priority groundwater remediation
 - Understand and quantify subsurface flow and contaminant transport behavior in complex geological systems
 - \$10B in LCC reduction
- Embedded throughout budget in specific cleanup projects for technology adaptations and demonstrations to support cleanup remedies



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FY 2012 Key Planned Accomplishments

Los Alamos National Laboratory

- Aggressively pursue cleanup in accordance with the LANL Consent Order:
- Dispose of 1,300 cubic meters of Mixed Low-Level Waste and 1,000 cubic meters of transuranic waste
- Continue D&D of 10 structures at TA-21 and TA-54
- Initiate new excavation remedy at Material Disposal Area A (new deep groundwater and vapor monitoring wells and additional sampling and analysis)

Idaho

- Utilize TD&D funding to support maturation of the Hot Isostatic Press technology
 - RCRA Part B permit application by December 2012



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FY 2012 Key Planned Accomplishments

Oak Ridge

- Operate the Transuranic Waste Processing Center to process contact-handled and remote-handled TRU to meet the Site Treatment Plan milestone
 - Approximately 384 cubic meters
- Maintain compliance at the site with the use of Recovery Act (buy-back) funding (~\$86M-\$96M)
- Conduct pre-demolition activities on East Wing and North End of K-25 to advance progress toward facility completion by 2015

Waste Isolation Pilot Plant

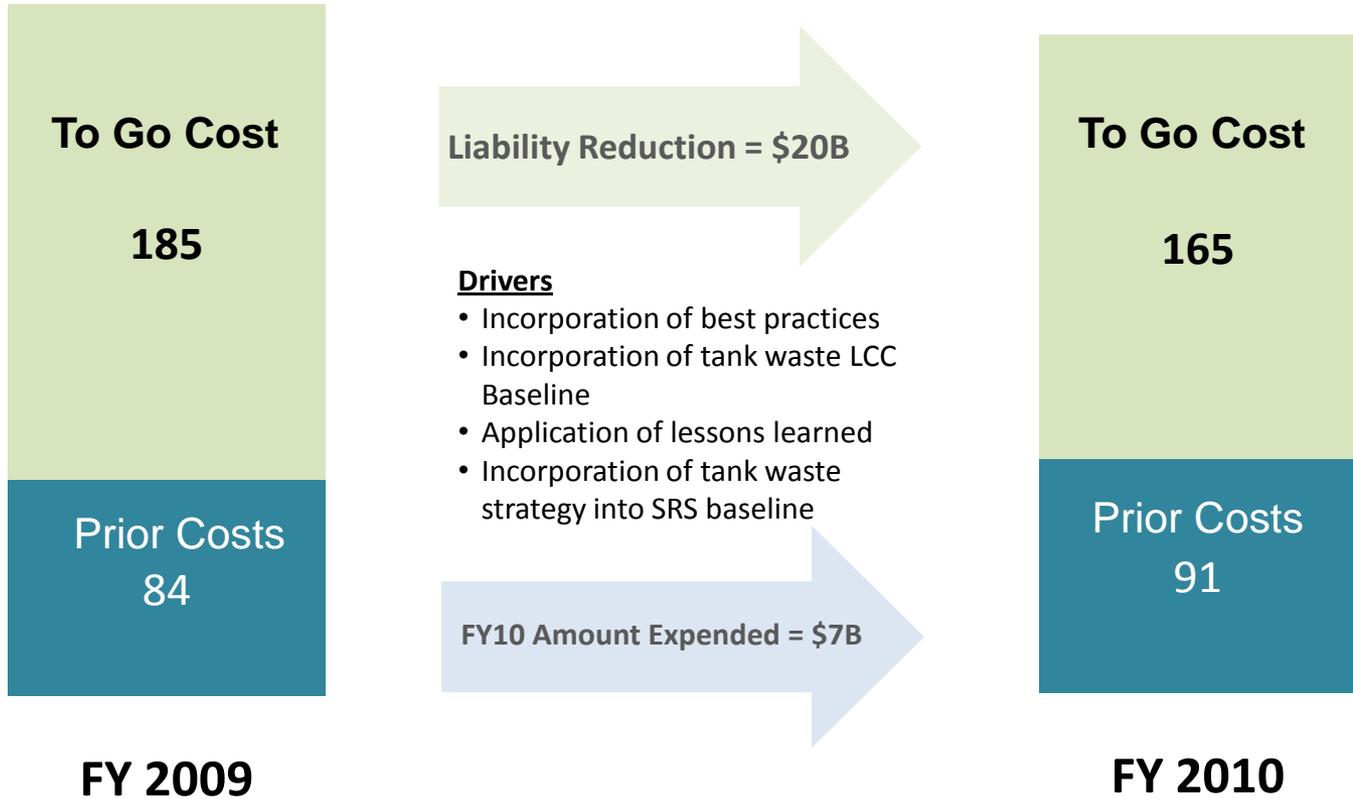
- Increase shipments of contact-handled and remote-handled transuranic waste from small quantity sites
- Accelerate removal of TRU waste from a majority of these sites
- Increase characterization efforts at TRU waste generator sites to increase inventory of shippable waste and increase WIPP's efficiency



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Environmental Liability



*All costs are in constant 2010 dollars



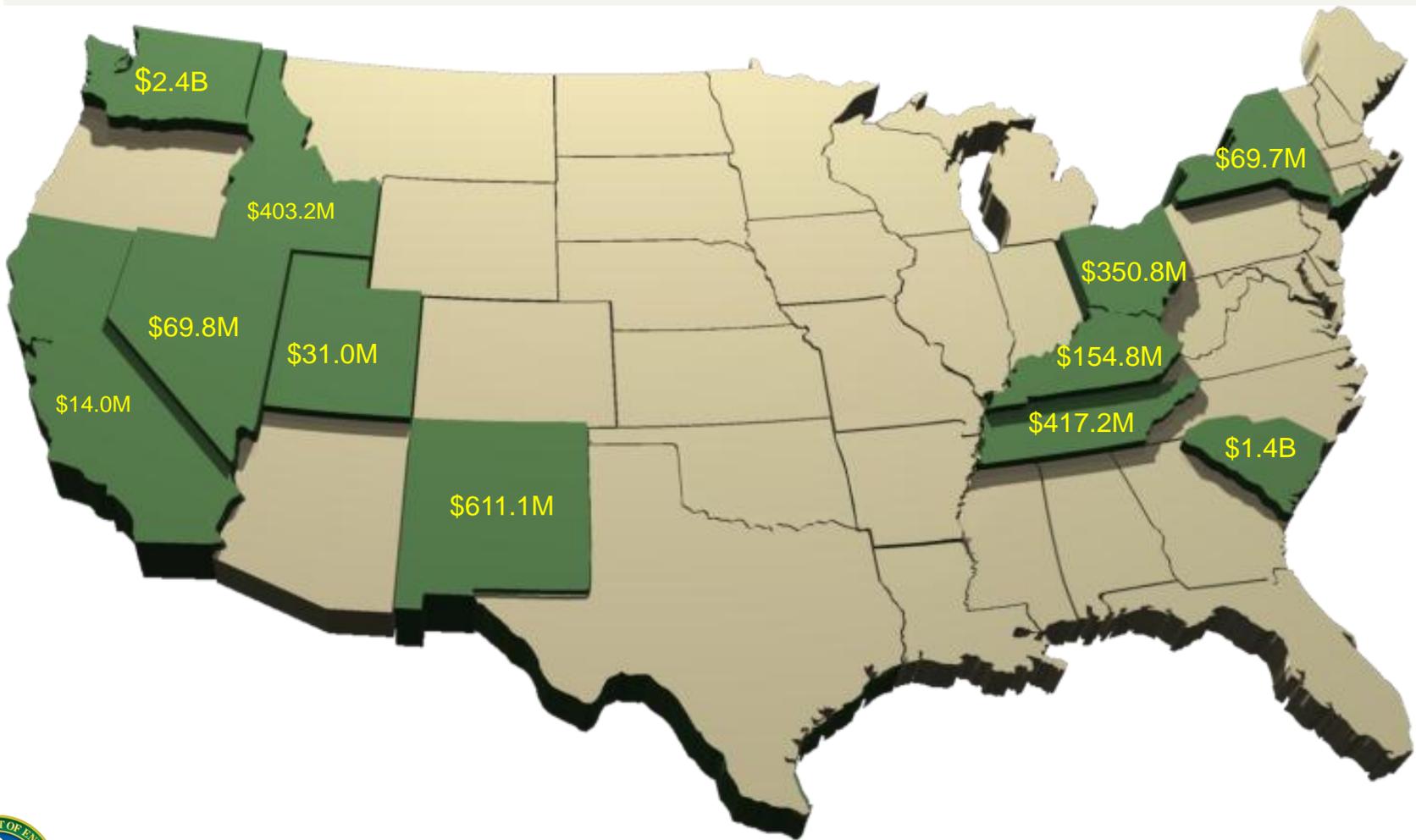
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Funding by State (FY 2012 Congressional Request)



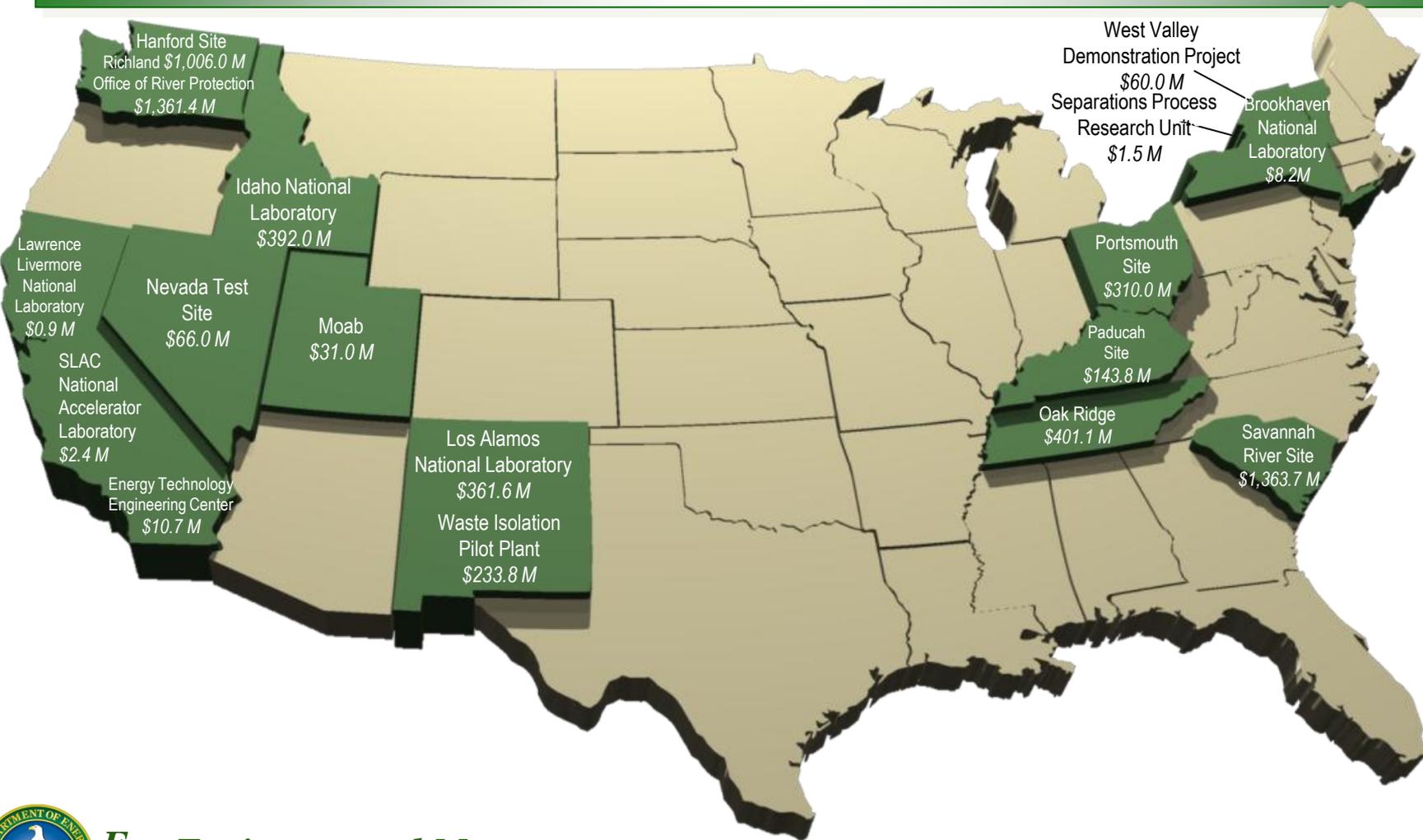
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Funding by Site (FY 2012 Congressional Request)



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BACKGROUND



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Economic Benefits from EM Program Investments

	ARRA funds received (\$M)	ARRA jobs created/saved	ARRA funding paid thru 2-4-11 (\$M)	ARRA prime and subcontracts awarded to small businesses (\$M)	Base and prime subcontracts awarded to small business in FY 2010 (\$M)
Savannah River Site	1,615	1,768	1,028	299	428
Idaho Operations Office	468	694	316	63	74
Oak Ridge	755	2,059	362	319	149
Office of River Protection	326	431	213	95	207
Portsmouth	120	385	103	110	126
Richland Operations Office	1,635	2,633	981	433	366
Waste Isolation Pilot Plant	172	262	110	34	63
Los Alamos Site Office	212	290	176	55	71
Paducah Gaseous Diffusion Plant	80	120	50	79	112
Subtotal, Large Sites	5,383	8,352	3,339	1,487	1,462
Subtotal, Other Sites	606	1,010	442	191	134
Grand Total	5,989	9,362	3,781	1,678	1,596



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EM Budget by State

State	FY 2010 Current Approp	FY 2012 Request
California	20,786	13,987
Colorado	6,375	5,375
Idaho	480,567	403,211
Illinois	10,000	0
Kentucky	175,397	154,794
Mississippi	4,000	0
Nevada	78,254	69,821
New Mexico	455,030	611,109
New York	89,933	69,685
Ohio	393,978	350,816
South Carolina	1,395,909	1,415,655
Tennessee	455,621	417,216
Utah	39,000	31,000
Washington	2,253,899	2,444,757
Washington, DC	158,932	146,026
Sub-Total	6,017,681	6,133,452
PY Offsets	-11,787	-3,381
Total	6,005,894	6,130,071



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EM Budget by Site

Site	FY 2010 Current Enacted	FY 2012 Request
Argonne	10,000	-
Brookhaven	15,000	8,185
ETEC	10,500	10,679
Hanford	1,080,503	1,005,987
Idaho	469,168	392,000
Los Alamos	200,438	361,577
Lawrence Livermore	2,924	873
Miamisburg	33,243	-
Moab	39,000	31,000
Nevada	74,405	66,000
Oak Ridge	436,448	401,056
River Protection	1,096,600	1,361,391
Paducah	165,127	143,769
Portsmouth	310,307	310,035
Savannah River	1,342,013	1,363,728
SPRU	15,000	1,500
SLAC	7,100	2,435
Sandia	2,864	-
WIPP	234,981	233,771
West Valley	59,933	60,000
Other	13,687	5,375
Program Direction	345,000	321,628
Program Support	34,000	20,143
TD&D	19,440	32,320
D&D Fund Deposit	463,000	-
Subtotal, EM	6,480,681	6,133,452
UED&D Fund Offset:	(463,000)	-
Defense Prior Year Offset:	(11,787)	(3,381)
Total, EM	6,005,894	6,130,071



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FY 2012 Key Accomplishments

Idaho

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
469,168	392,000

- Complete readiness testing in and startup of operations of the Sodium Bearing Waste facility
 - Process approximately 900,000 gallons of radioactive waste
 - Complete treatment of all tank waste and meet milestone to cease use of the Tank Farm Facility
 - Close four waste tanks
- Continue shipping stored contact-handled transuranic waste to the Waste Isolation Pilot Plant using the Advanced Mixed Waste Treatment Facility
 - Approximately 5,700 cubic meters
- Continue to dispose mixed low-level and low-level waste at the Radioactive Waste Management Complex
 - Approximately 1,640 cubic meters
- Continue to receive Domestic and Foreign Research Reactor spent (used) nuclear fuel shipments
- Maintain compliance with the “1995 Idaho Settlement Agreement”
- Utilize TD&D funding to support maturation of the Hot Isostatic Press technology
 - To acquire certain technology parameters to support submission of a RCRA Part B permit application by December, 2012



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FY 2012 Key Accomplishments

Oak Ridge

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
436,448	401,056

- Continue D&D at the East Tennessee Technology Park
- Continue D&D at ORNL and Y-12
 - Meet Federal Facility Enforceable Agreement Milestones and safety requirements
- Operate the Transuranic Waste Processing Center to process contact-handled and remote-handled TRU to meet the Site Treatment Plan milestone
 - Approximately 384 cubic meters
- Continue disposition operations for a portion of the Building 3019 Waste. Continue to develop alternatives and proceed with revised path forward



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FY 2012 Key Accomplishments

Richland

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
1,080,503	1,005,987

- Complete interim remedial actions in the 100 D and 100 H Areas
- De-inventory Knock-Out Pot Sludge from K West Basin and ship to the Canister Storage Building
- Operate 200 West Pump and treat system to contain and prevent contaminants from reaching the Columbia River
- Continue remediation of waste sites and facilities along the Columbia River to support completion by 2015.
- Support high-priority groundwater remediation efforts
 - Complete operational testing of the groundwater system for treating technetium at S/SX Tank Farm
 - Complete 100 and 300 Area remedial investigations to obtain final Record of Decision
- Remediate contaminated waste sites to prevent hexavalent chromium from entering the Columbia River



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FY 2012 Key Accomplishments

River Protection

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
1,096,600	1,361,391

- Continue construction of waste treatment facilities
 - Supports operations of the Low Activity Waste facility as early as 2016
- Complete one single-shell tank retrieval
- Complete hard heel removal from three single-shell tanks
- Complete infrastructure for the retrieval of the next three single-shell tanks
- Continue infrastructure build-out needed to support waste processing operations once construction complete
- Continue to perform single-shell and double-shell tank integrity evaluations



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FY 2012 Key Accomplishments

Paducah

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
165,127	143,769

- Operate the DUF6 conversion facility at full capacity
 - Begin disposition of resultant uranium oxide and hydrofluoric acid
- Treat, package and dispose of 18,000 metric tons of depleted uranium and continue disposition of newly generated waste
- Complete the D&D of two industrial facilities, dispose of all demolition waste, and complete site restoration activities
- Complete construction of Southwest Plume pump and treat system and initiate operations



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FY 2012 Key Accomplishments

Portsmouth

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
310,307	310,035

- Increase focus on D&D of the gaseous diffusion plant, ancillary facilities and systems
- Operate the DUF6 Project conversion facility
 - Dispose of uranium oxide and hydrofluoric acid
 - Package approximately 13,500 metric tons of depleted uranium for disposition
- Continue disposition of uranium materials, including surplus low enriched natural and depleted uranium from Fernald, Hanford, and several universities no longer used in research
- Characterize, treat, and dispose of any newly generated waste



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FY 2012 Key Accomplishments

Savannah River

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
1,342,013	1,363,728

- Continue construction of the Salt Waste Processing Facility (last year of significant funding)
- Close two tanks (first delivery on the recently approved tank acceleration strategy)
 - Continue isolation and closure activities of multiple tanks
 - Deploy at tank pre-treatment technologies such as rotary microfiltration and small column ion exchange
 - Continue Tank 48 Return to Service
- Continue operation of the Defense Waste Processing Facility
 - Vitrify 312 canisters of high-level waste
- Dispose of up to 2,517 m³ of newly generated low-level waste
- Complete construction of Saltstone Disposal Unit #2



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FY 2012 Key Accomplishments

Waste Isolation Pilot Plant

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
234,981	233,771

- Safely and compliantly operate WIPP
 - Receive and dispose of contact-handled and remote-handled transuranic waste from 27 DOE sites
 - Maintain an average shipping capability of 21 contact-handled and 5 remote-handled shipments per week
 - Increase characterization efforts at transuranic waste generator sites to increase inventory of shippable waste and increase WIPP's efficiency
- Increase shipments of contact-handled and remote-handled transuranic waste from small quantity sites
 - Accelerate removal of TRU waste from a majority of these sites
- Provide for economic assistance to the State of New Mexico pending the assumed re-authorization of the WIPP Land Withdrawal Act



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FY 2012 Key Accomplishments

Los Alamos National Laboratory

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
200,438	361,577

- Aggressively pursue cleanup in accordance with the Consent Order
 - Dispose of 1,300 cubic meters of MLLW and 1,000 cubic meters of transuranic waste (significant increases over FY2011 planned levels)
 - Continue D&D of 10 structures at TA-21 and TA-54
 - Initiate new excavation remedy at Material Disposal Area A (new deep groundwater and vapor monitoring wells and additional sampling and analysis)
- Complete MDA A exhumation of the wastes in the central pit and eastern trenches, remove and dispose of tanks, backfill the excavation area, and cover and sample the area for release
- Continue disposal of low-level waste
 - 277 cubic meters (160 cubic meters remain at the end of 2012)



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FY 2012 Key Accomplishments

Nevada National Security Site

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
74,405	66,000

- Continue operations of the low-level waste disposal cell and the RCRA mixed low-level waste disposal cell
 - 22,423 cubic meters emplaced
- Continue characterization and investigation activities, in preparation for closure of approximately 1180 soil and industrial facility sites and five groundwater regions.
- Continue waste acceptance audits and reviews to ensure waste generators fully meet Nevada National Security Site waste acceptance criteria.

SPRU

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
15,000	1,500

- Complete demolition and closure activities for G2 and H2 facilities
 - Deferred demolition and closure from FY 2011 to FY 2012 due to contamination incidents in early FY2011
- Complete offsite shipment of all building debris and waste from the site
- Transfer decontaminated land to Naval Reactors Program



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FY 2012 Key Accomplishments

Brookhaven National Laboratory

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
15,000	8,185

- Provide surveillance and maintenance activities for the Soil and Water Remediation Project, the Brookhaven Graphite Research Reactor, and the High Flux Beam Reactor
 - Initiate transfer to the Office of Science in FY 2013

SLAC National Accelerator Laboratory

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
7,100	2,435

- Provide surveillance and maintenance activities
 - Initiate the transfer to the Office of Science in FY 2013

West Valley Demonstration Project

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
59,933	60,000

- Continue processing, storage, and disposal of legacy and remediation low-level waste
- Begin demolition of the Main Plant Processing Building
- Begin the design of the High Level Waste Canister Storage Facility

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FY 2012 Key Accomplishments

Moab

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
39,000	31,000

- Continue to haul mill tailings from the Moab site
 - Currently have 2 trains with 34 cars, 5 days a week (24 hours a day)
 - Recovery Act funds support removal of 2 million tons of mill tailings

Technology Development and Deployment

(\$ in thousands)

FY 2010 Current Enacted	FY 2012 Cong Request
19,440	32,320

- \$32 million in technology development and deployment funding will support groundwater and soil remediation subsurface science issues to develop state-of-the-art methods and models for fate and transport in the subsurface.
- \$60 million requested within the Office of River Protection will continue the acceleration of development and deployment of needed technologies to address tank waste issues, advance retrieval technologies, improved melter throughput, and increased glass waste loading.
- Support activities embedded in cleanup projects to ensure that specific remedies/technologies meet cleanup end states such as removing or containing contaminants of concern and schedules.



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