Los Alamos National Laboratory
Budgeting for Environmental Management

Presentation to the State of New Mexico
Radioactive and Hazardous Materials Committee

Kevin Smith
Los Alamos Site Manager

Peter Maggiore
Assistant Manager for Environmental Operations

July 19, 2012

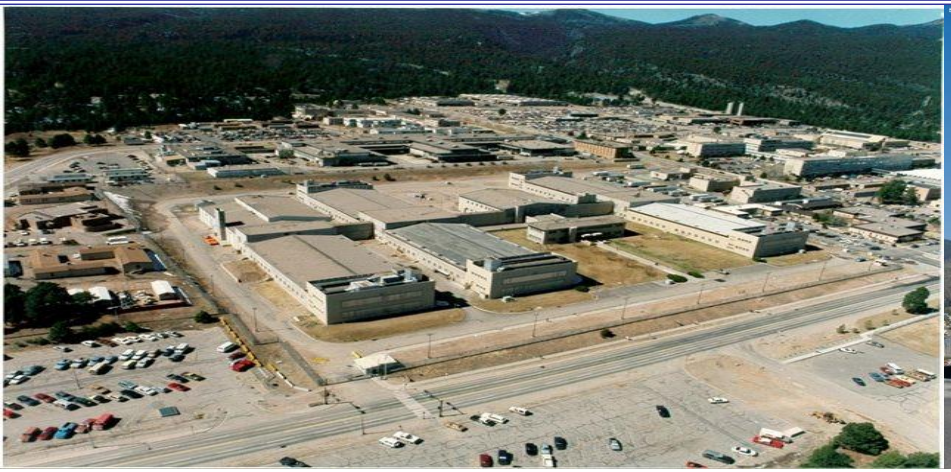
EM Environmental Management
safety ❖ performance ❖ cleanup ❖ closure

National Nuclear Security Administration

Presentation Outline

- **Mission Overview**
- **Status of LANL Cleanup**
- **Budget Outlook**
- **Stewardship and Sustainability**

Los Alamos at a Glance



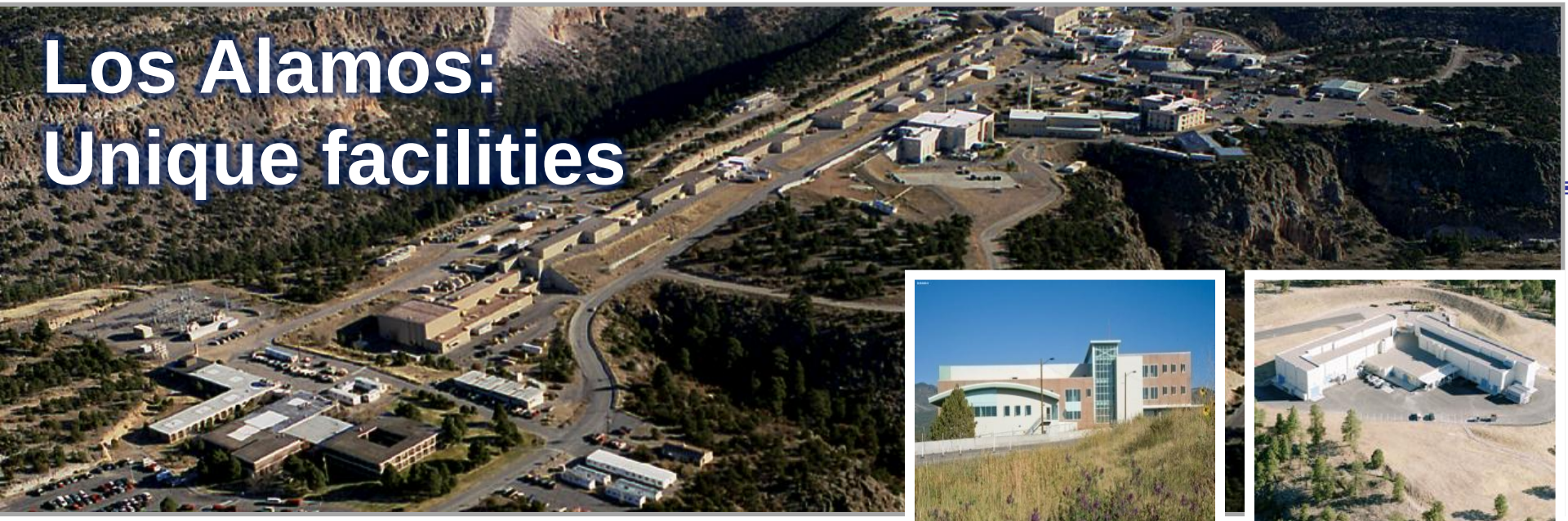
- ~ 39 square miles
- 1,169 buildings
- 9 M gross square feet
- 268 miles of roads (100 paved)
- 128 radiological facilities

LANL: A National Security Science Laboratory Serving the National Interest

- **We anticipate, innovate, and deliver solutions**
- **We span the spectrum from Discovery through Applied Science to Prototypes**
- **We use the outstanding science, engineering, and technology from our core stockpile stewardship mission for other national needs**

> ***" It is even more important that the scientific talent and the scientific infrastructure of these nuclear security labs are maintained."***
>
> **April 2009**
> **Energy Secretary Steven Chu**

Los Alamos: Unique facilities



- Nuclear facilities address critical stockpile stewardship challenges
- Supercomputing facilities
- DARHT allows researchers to study weapons performance
- Nanotechnology center drives critical research programs
- LANSCE draws international scientists studying materials

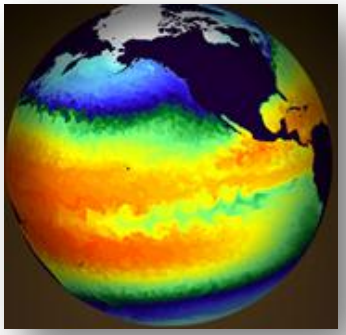
Radiological Laboratory Utilities/Office Building

Dual Axis Radiographic Hydrodynamic Test Facility

Center for Integrated Nanotechnologies

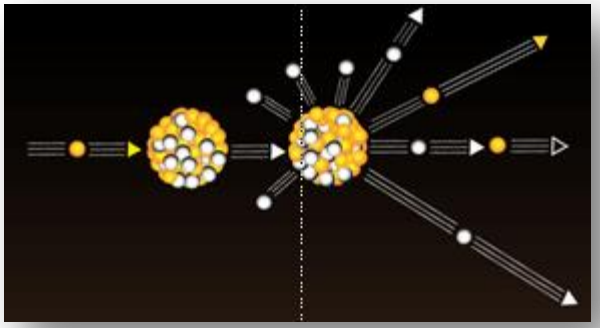
Nicholas C. Metropolis Center

Los Alamos Energy Security Pillars



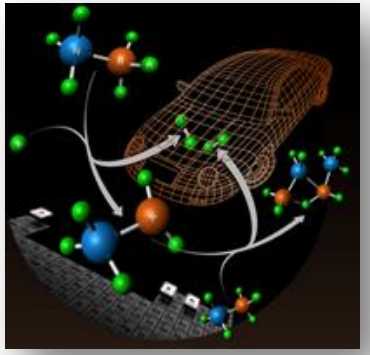
Impacts of Energy Demand Growth

- Coupled predictive models for climate, infrastructure impact analysis
- Prediction of abrupt change at multiple scales (regional to global)
- Global security and policy implications



Sustainable Nuclear Energy

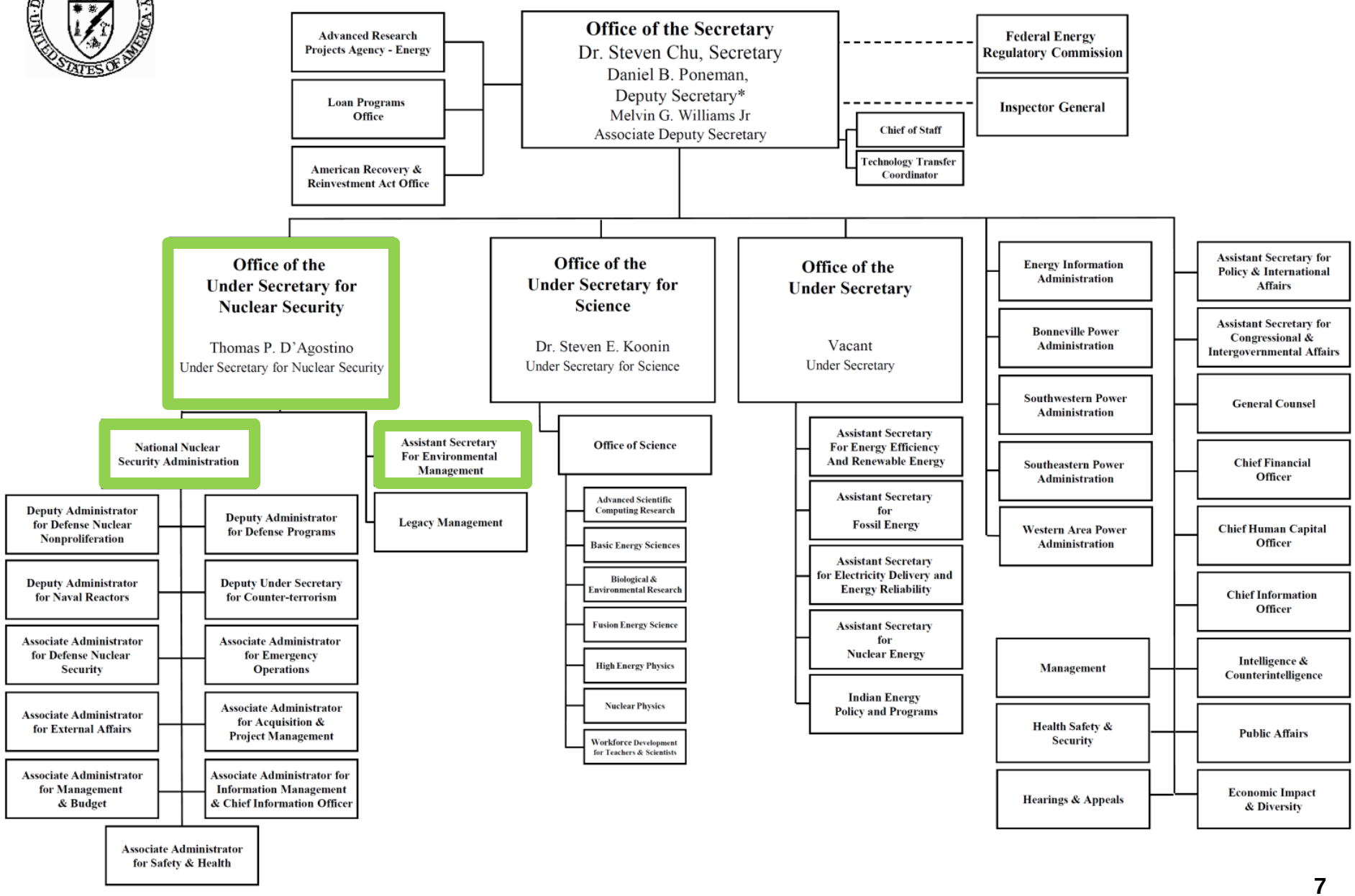
- Efficient extraction of energy content from fuel
- Nonproliferation & safeguards
- Effective waste management



Concepts and Materials for Clean Energy

- Energy storage, generation, and transmission
- Revolutionary alternatives to petroleum
- Clean fossil energy

DEPARTMENT OF ENERGY



* The Deputy Secretary also serves as the Chief Operating Officer

National Nuclear Security Administration

Under Secretary for Nuclear Security & Administrator: Thomas P. D'Agostino

Principal Deputy Administrator: Neile L. Miller

NA-1

Office of Science and Policy
Dimitri Kusnezov

Chief of Staff
Janis Greene (Acting)

Associate Principal Deputy Administrator*
Michael Lempke

Office of Civil Rights
Debra Parrish

Mission

Deputy Admin. for Defense Programs
Donald L. Cook
NA-10

Deputy Admin. for Defense Nuclear Nonproliferation
Anne M. Harrington
NA- 20

Deputy Admin. for Naval Reactors
Admiral Kirkland H. Donald, USN
NA-30

Mission Support

Associate Admin. for External Affairs
Clarence T. Bishop
NA-EA

Office of General Counsel
Bruce Diamond
NA-GC

Associate Admin. for Acquisition & Proj. Management
Robert B. Raines
NA-APM

Assoc. Admin. for Emergency Operations
Joseph J. Krol
NA-40

Assoc. Admin. for Defense Nuclear Security & Chief, Defense Nuclear Security
Douglas E. Fremont
NA-70

Assoc. Admin. & Deputy Under Secretary for Counterterrorism & Counterproliferation
Steven Aoki
NA-80

Assoc. Admin. for Infrastructure & Operations*
Michael Lempke
NA-00

Associate Admin. for Management & Budget
Cindy Lersten
NA-MB

Associate Admin. for Information Mgmt. & CIO
Robert J. Osborn II
NA-IM

Associate Admin. for Safety & Health and Chief, Defense Nuclear Safety
Don F. Nichols
NA-SH

Kansas City Manager
Mark Holecek

Livermore Manager
Kim A. Davis

Los Alamos Manager
Kevin Smith

Nevada Manager
Stephen Mellington

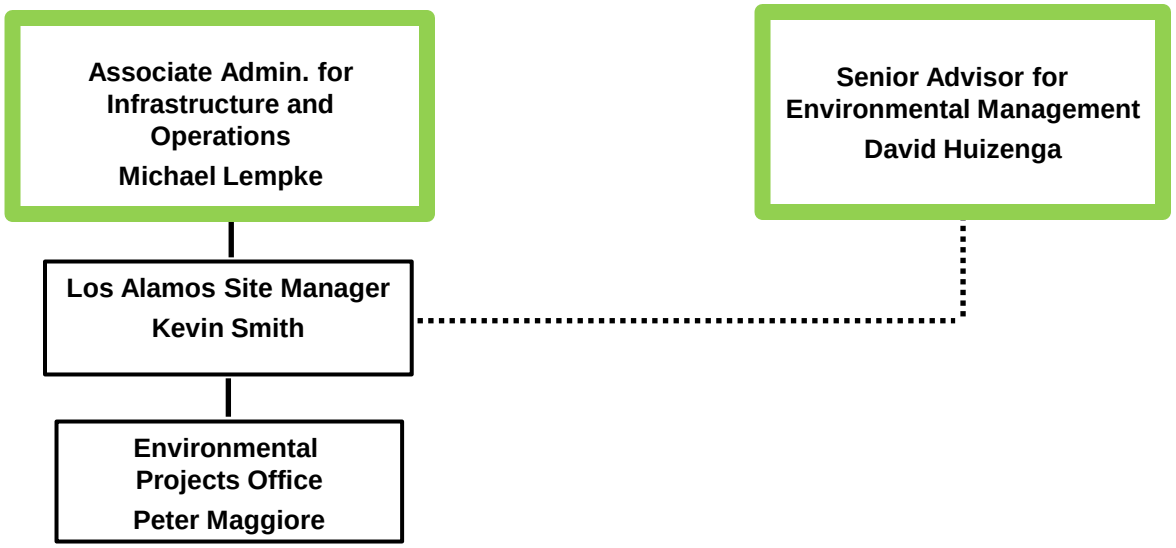
NNSA Production Manager
Steven C. Erhart

Sandia Manager
Geoffrey L. Beausoleil

Savannah River Manager
Douglas J. Dearolph

*** Dual Hatted Position**

NNSA/EM Organizational Relationship



About the National Nuclear Security Administration (NNSA)

Created by U.S. Congress as a separately organized unit of the U.S. Department of Energy

Established on October 1, 2000

NNSA oversees the operations of the U.S. Nuclear Weapons Enterprise

- Four production plants
- Three design laboratories
- Test Site
- 35,000 contractor employees

Environmental Management Mission

"Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development, production, and Government-sponsored nuclear energy research"

- From a legacy of weapons production to the world's largest environmental cleanup program
- Operating in the world's most complex regulatory environment
- EM clean-up enables DOE to maintain ongoing operations and other critical missions (NNSA/SC) while achieving compliance with governing environmental laws

EM Mission at LANL - Waste Disposition

EM Mission at LANL - Soil and Groundwater Remediation

LANL Cleanup – Significant Progress to Date

- **2100+ original sites**
  - Approximately half of the sites are completed
  - Of the remaining sites, completed initial investigation on approximately 90%
- **26 original Material Disposal Areas (MDAs)**
  - Completed removal / cleanup on 10 (7 since 2007)
  - Completed investigation of 5 major MDAs (C,G,H, L & T)
  - Selecting remedies for MDAs G, H & L
  - Remainder in investigation phase
- **Groundwater monitoring network in place**
- **Substantial monitoring and sediment controls installed**
- **Waste Isolation Pilot Plant Shipments**
  - New records for LANL TRU shipments were set each year
  - 1,000th Shipment celebrated in June

Recovery Act Funds Provided a Boost

- **Completed environmental remediation projects funded by the American Recovery and Reinvestment Act**
  - $212 million in ARRA funding provided boost to already-planned work
  - Decontamination and demolition of 24 Manhattan Project and Cold War-era buildings
  - Cleanup of about 6 acres to residential standards
  - Installation of 16 regional groundwater monitoring wells
  - Reduced footprint by ~175,000 square feet

Excavation of Material Disposal Area B

- **Part of ARRA work was excavation of MDA B, an early Laboratory radioactive waste disposal area (1944-1948)**
  - Contaminated clothing, lab materials and hazardous chemicals
  - Safely removed about 115 PE-Ci of plutonium
  - Waste retrieval inside filtered enclosures
  - Cleanup of about 6 acres to residential standards

Framework Agreement

- Removal of non-cemented above-ground TRU currently-stored at Area G by June 2014 (3,706 m^3)
- Removal of all newly generated TRU waste received in Area G during FY12/FY13, by December 2014
- Develop schedule for disposition of the below- ground TRU at Area G by December 2012
- Groundwater and surface water protection
- Storm Water Individual Permit
- Successful Buckman Direct Diversion Project

FY 2012 Progress

- **Framework Agreement presentation given to the public at the Northern New Mexico Citizen's Advisory Board Meeting on January 5, 2012**
- **Development of 3706 TRU Campaign**
- **Issued 1st , 2nd and 3rd Quarter Progress Reports**
- **3706 TRU Campaign Progress (3rd qtr report)**
  - Volume shipped: 585 m^3
  - MAR Removal: 12,695 PE Ci
  - Shipping: 150 shipments

- **Water Protection Progress**
  - Buckman Early Notification System operability
  - Continued implementation of Interim Facility-Wide Groundwater Monitoring Plan
  - Continued protection of surface water through implementation of the Individual Stormwater Permit (IP)
- **Keeping the Public Informed**
  - Information published on NMED and LANL Websites
  - Meetings with NGOs, NNMCAB, LANL Regional Coalition, and other Stakeholders
  - 3706 Campaign Public Displays, News Releases, and Tours

3706 TRANSURANIC WASTE CAMPAIGN

New Mexicans working together to meet a national environmental challenge

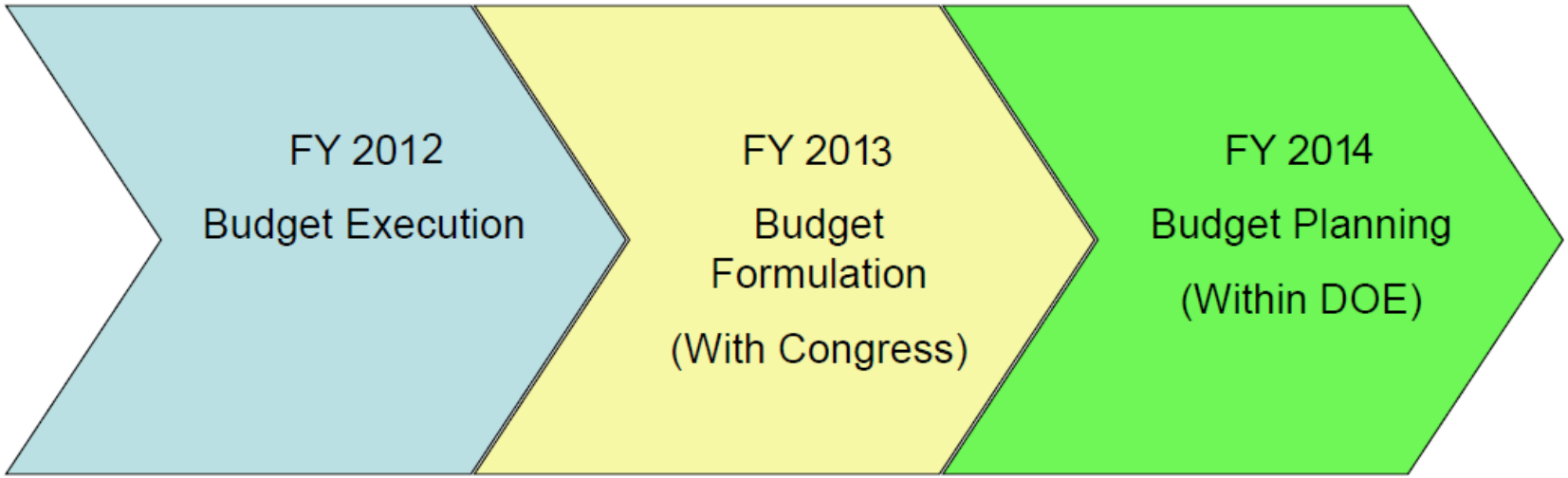
Los Alamos NATIONAL LABORATORY EST. 1943

NMED LANL WIPP

WIPP

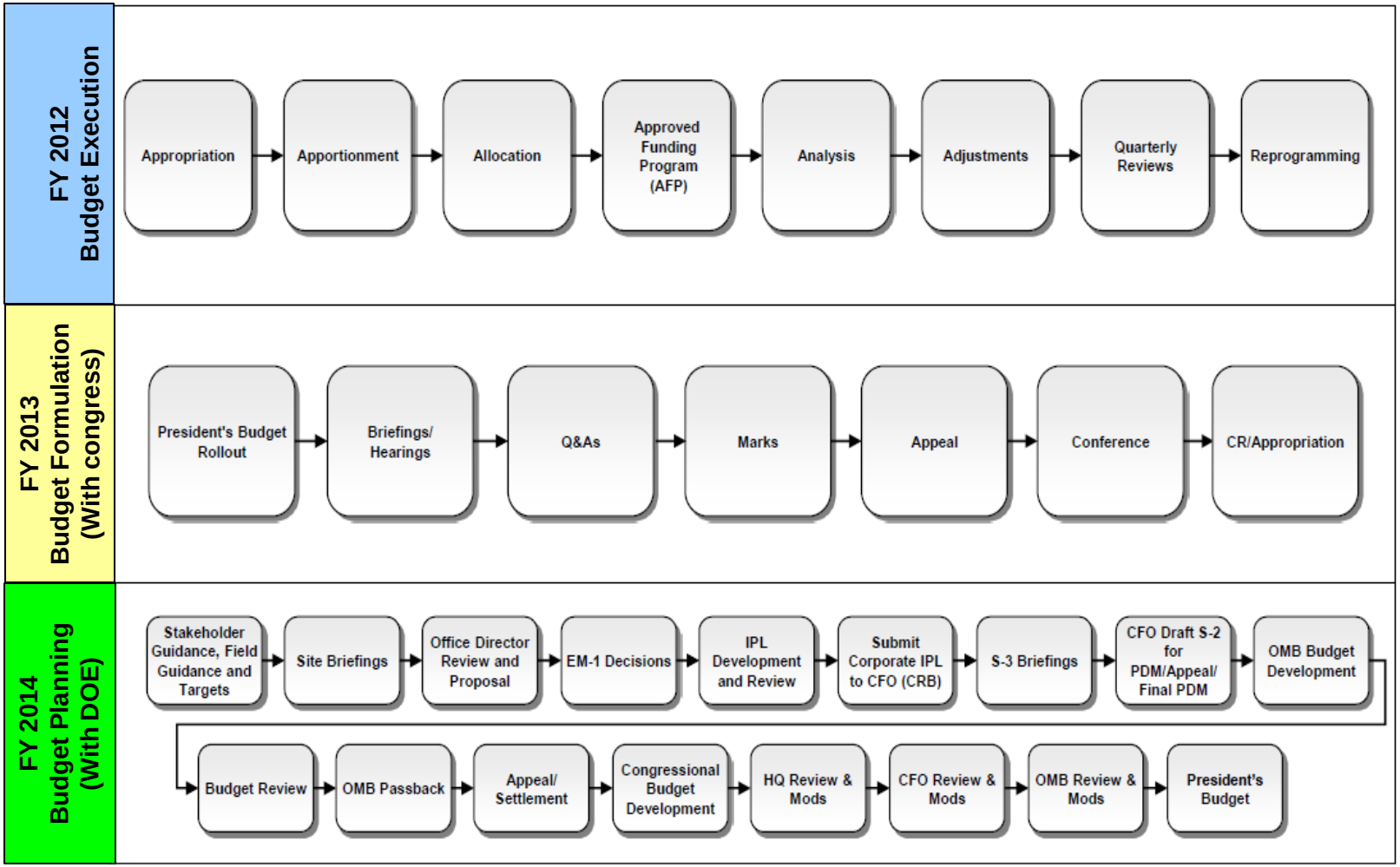
1,000 Shipments and Counting

Budget Phases

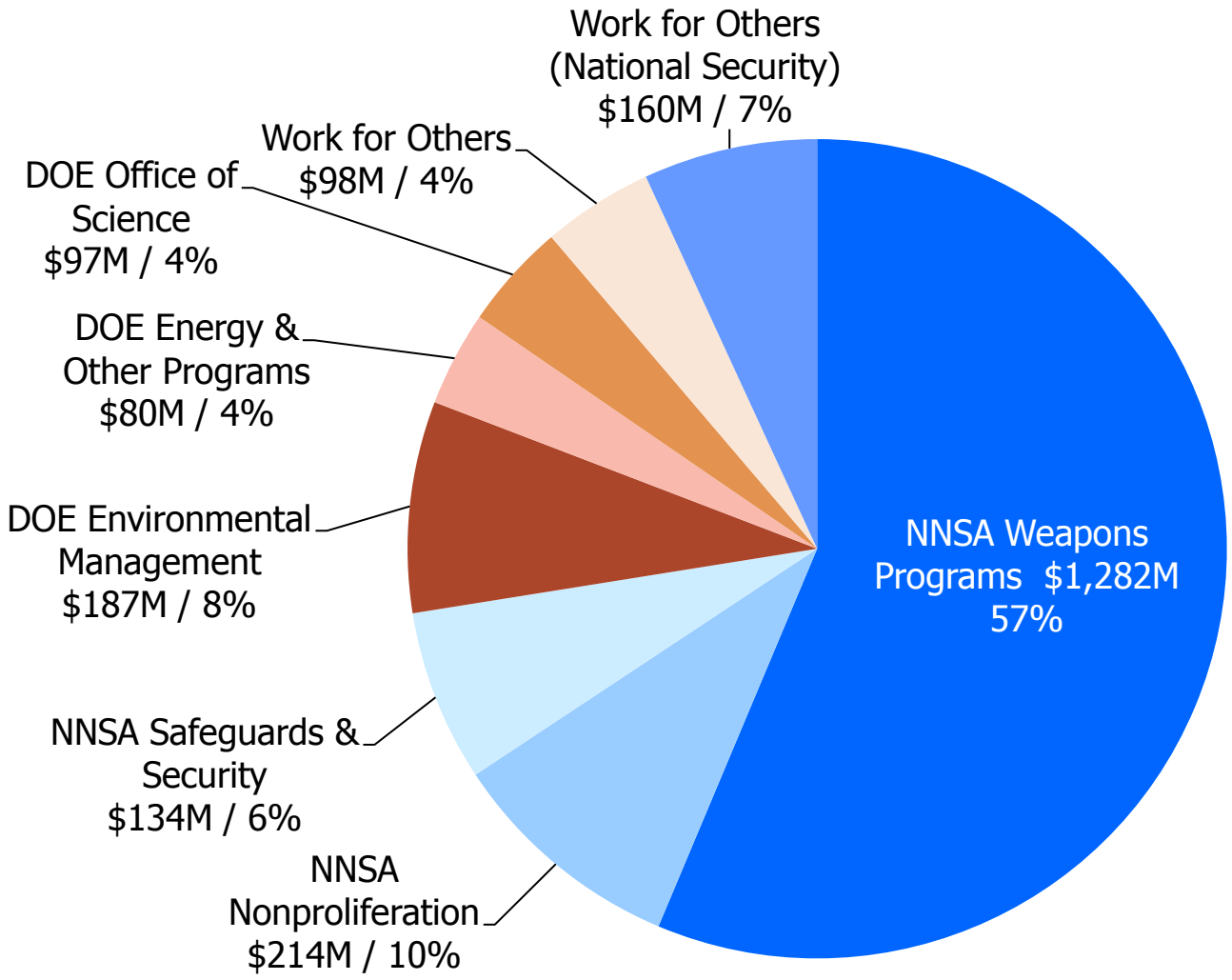


At any given time, Office of Environmental Management (EM) is working on the budgets for three Fiscal Years (FY) simultaneously. For example, in May 2012, EM is implementing the FY 2012 budget, seeking funds for the FY 2013 budget, and developing the FY 2014 budget.

Budget Phases – Step by Step



FY12 Estimated LANL Funding = $2,252M (as a frame of reference)



FY 2013 – FY 2018
Framework Oriented Budget Request

Dollars in thousands

	FY 2012 Execution Plan	FY13 President's Request	FY14 Plan	FY15 Plan	FY16 Plan	FY17 Plan	FY18 Plan
Solid Waste Stabilization	90,000	120,000	103,953	90,908	96,450	116,120	96,812
Soil and Water Remediation	95,000	114,913	110,490	127,535	136,993	117,323	121,631
D&D	0	0	20,000	15,000	0	0	15,000
Agreement in Principle	3,561	4,230	4,700	5,700	5,700	5,700	5,700
Los Alamos Site Total	**188,561**	**239,143**	**239,143**	**239,143**	**239,143**	**239,143**	**239,143**

FY 2013 Framework Oriented Budget ~$239M

- **Transuranic and Mixed/Low-Level Waste Disposition**
  - Supports expedited de-inventory and disposal of above-ground transuranic waste
  - Continue operation of new oversize modular box line and disposition of excess materials
  - Continue accelerated de-inventory and disposal of mixed low-level waste/low-level waste (600 cubic meters) and of transuranic waste (1,800 cubic meters)
  - Five Operating Lines plus additional Super High-Efficiency Neutron Counter
- **Soil and Groundwater Remediation**
  - Continue protection of Ground Water and Surface Water
  - Complete remediation of Townsites
  - Material Disposal Area B D&D Enclosures
  - Compliant with Environmental Protection Agency Individual Permit
    - Installation of Controls
  - Cañon de Valle
    - TA-15 and TA-16 Investigations
    - Surface and Subsurface Water Corrective Measures
  - Material Disposal Area C Landfill Cover Design

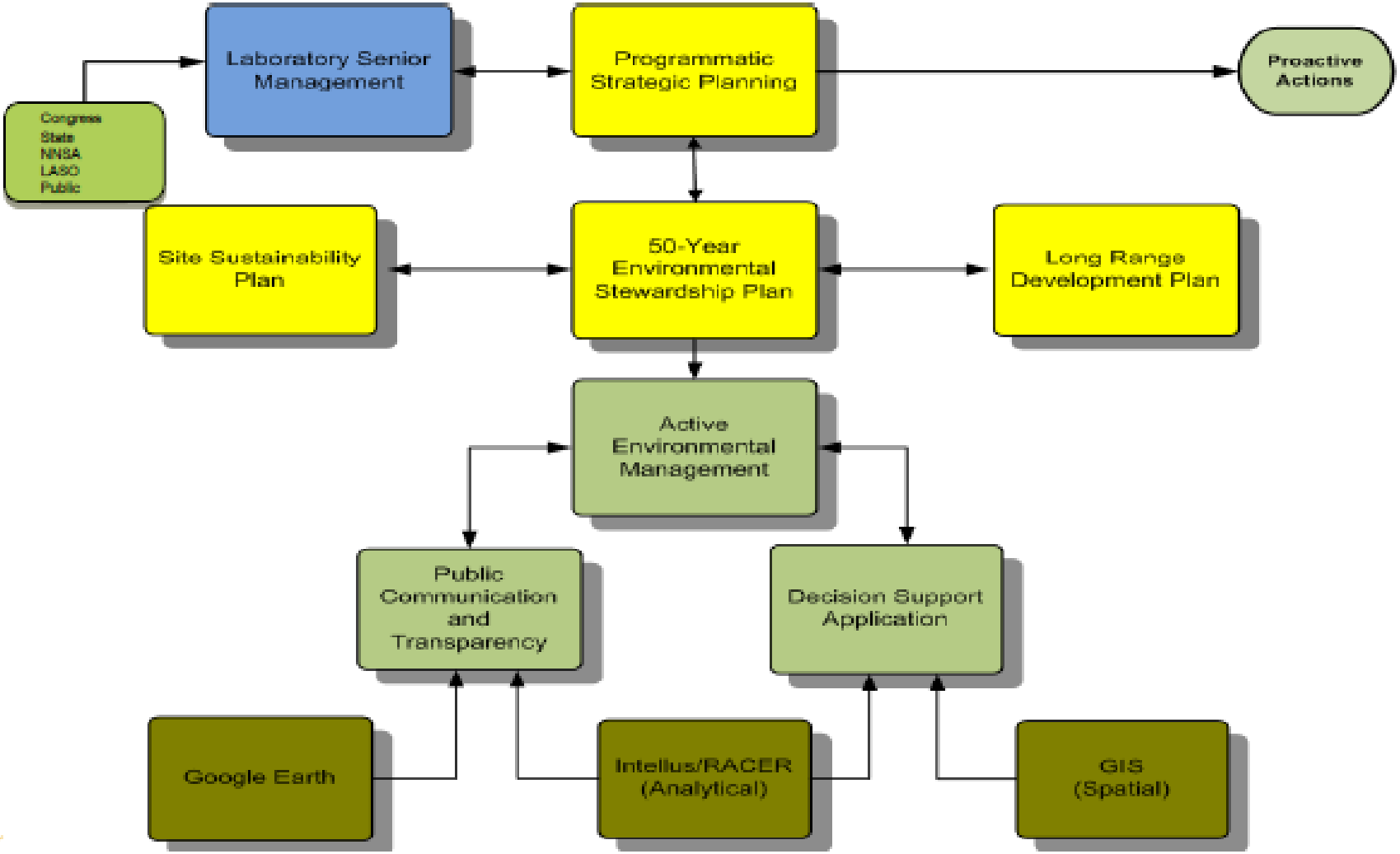
Los Alamos Site Office
FY 2014 – FY 2018 Budget Request

- **Budget Planning – Flat Funded at FY 2013 Request Level – No Inflation**
  - As a result of the recent wildfires in New Mexico in Summer 2011, New Mexico Governor directs higher priority removal of Transuranic (TRU) Waste stored at Los Alamos National Laboratory (LANL)
    - Budget Plan supports New Mexico Governor's direction
    - DOE is committed to demonstrating performance with removal of TRU waste
    - The funding profile is based on a $239M target funding profile, and ensuring the prioritizing/sequencing of work as necessary to accommodate the Framework Agreement
- **Waste Disposition**
  - Complete 3,706 m^3 above ground TRU waste campaign to meet the Framework Agreement with the State of New Mexico
  - Implement disposition /closure strategy for above ground and below ground TRU waste
    - MLLW/LLW Operations and retrieval/remediation/repacking of: Pit 9 Drum, Trenches A-D, Corrugated Metal Pipes (CMPs), Container Venting, Oversized Container Processing, and address 33 Shafts

Los Alamos Site Office
FY 2014 – FY 2018 Budget Request

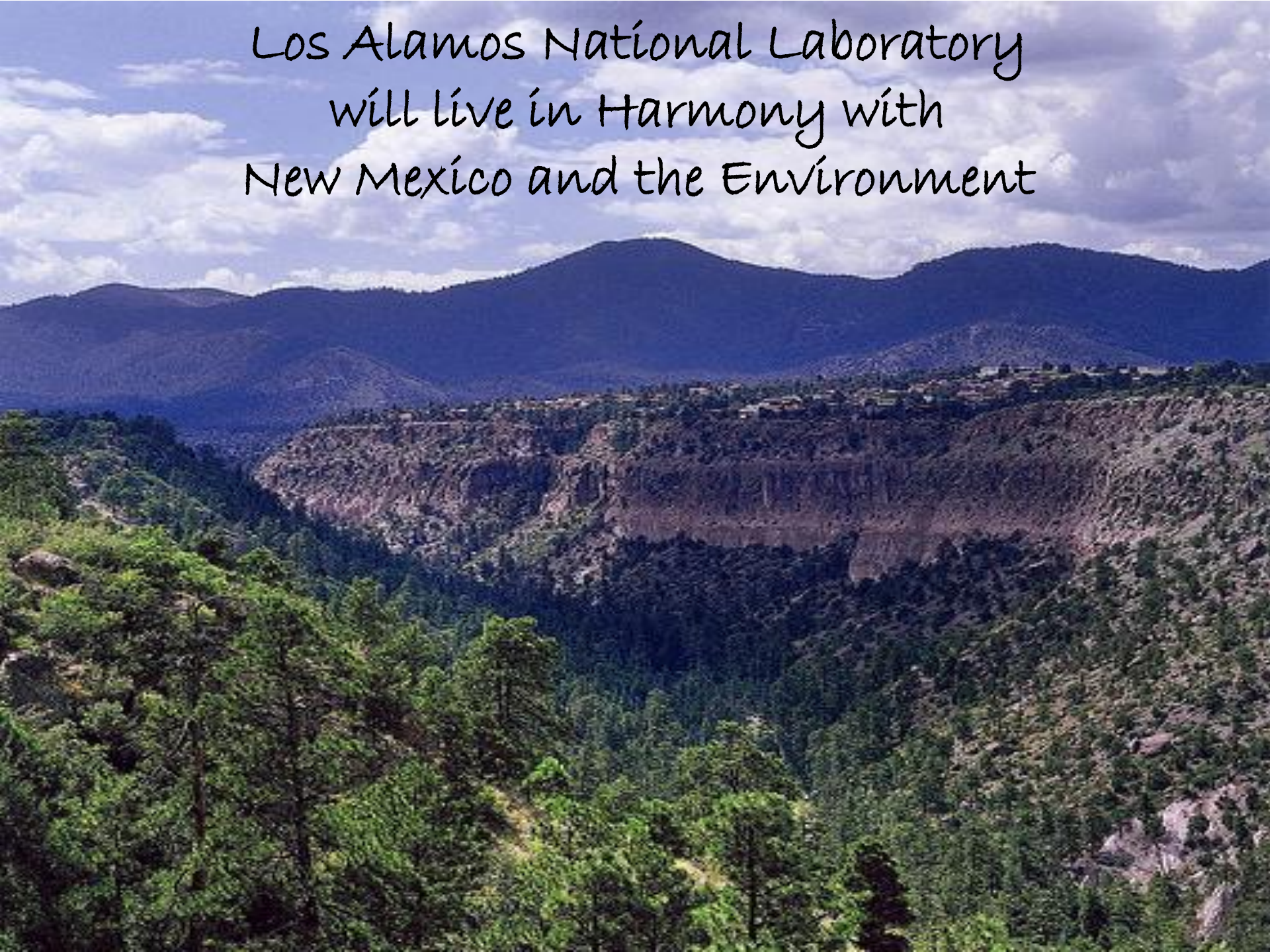
- **Soil and Groundwater Remediation**
  - Groundwater and storm water monitoring and controls, Cañon de Valle Capital Project investigation, remediation, and completion of groundwater and surface water corrective measures; town-site cleanup; TA-21 cleanup; various aggregate area cleanups; Threemile Canyon cleanup; Mortandad chromium project starts in 2016; and critical landfills Capital Projects (MDAs A, G, and T) would start in 2015 with assumed baseline remedies (but remedy approval may be altered by regulator)
  - Demolition of buildings 21-257, two water towers, DP West slabs, and Waste Water Treatment Plant. FY 2018 baseline development of TA-54 subprojects at Areas G and L and project start in Area L
  - TA-21 will be completed to support mesa cleanups well ahead of TA-54 TRU disposition completion
  - Agreement in Principal with NMED for oversight, NRDA and Los Alamos Pueblo Program activities

Environmental Stewardship Framework



50 Year Environmental Stewardship Plan

- **Demonstrates the Lab's commitment to protecting human health and the environment by using this long-term strategy to:**
  - Clean-up the past
  - Control the present
  - Live a sustainable future
  - Communicate transparently
- **Aligns long-term site stewardship goals across programs**
- **Provides an ongoing scorecard of LANL performance against requirement standards**
- **Drives change and improves the ability for DOE to operate and introduce new missions while being a good neighbor**
- **Currently using the Plan to anticipate, recognize, evaluate, and control/mitigate emerging environmental challenges**
- **Community and regulator participation**
  - Addresses community interests
  - Provides technical justification for decisions on regulated actions


Los Alamos National Laboratory
will live in Harmony with
New Mexico and the Environment

Backup Slides

Department of Energy Budget

(Discretionary $ in millions)	FY 2011 Current	FY 2012 Enacted	FY 2013 Request	FY13 % Δ / FY12 Enacted $	FY13 % Δ / FY12 Enacted %
Energy	**3,563**	**3,752**	**4,368**	**616**	**+16.4%**
Applied Energy	**3,288**	**3,372**	**3,901**	**529**	**+15.7%**
Energy Efficiency & Renewable Energy	1,772	1,810	2,337	527	+29.1%
Electricity Delivery & Energy Reliability	138	139	143	4	+2.8%
Fossil Energy	573	564	651	86	+15.3%
Nuclear Energy	806	859	770	- 88	-10.3%
Advanced Research Proj Agency-Energy	180	275	350	75	+27.3%
Energy Information Administration	95	105	116	11	+10.8%
Science	**4,897**	**4,874**	**4,992**	**118**	**+2.4%**
Nuclear Security (NNSA)	**10,526**	**11,000**	**11,536**	**536**	**+4.9%**
Weapons Activities	6,866	7,214	7,577	363	+5.0%
Nuclear Nonproliferation	2,281	2,296	2,459	163	+7.1%
Naval Reactors	986	1,080	1,089	9	+0.8%
Office of Administrator	393	410	411	1	+0.3%
Nuclear Cleanup	**5,836**	**5,880**	**5,828**	**- 52**	**-0.9%**
Environmental Management	5,668	5,710	5,650	- 60	-1.1%
Legacy Management	171	170	178	8	+4.9%
Provision & Regulation	**63**	**60**	**59**	**- 0**	**-0.2%**
Mission Support	**630**	**728**	**724**	**- 5**	**-0.6%**
Other balances	- 2				
Loan Programs Office/CEFA	**180**	**6**	**9**	**3**	**+50.0%**
Subtotal, NNSA	**10,526**	**11,000**	**11,536**	**536**	**+4.9%**
Subtotal, Non-NNSA	**15,167**	**15,300**	**15,980**	**680**	**+4.4%**
Subtotal, Department of Energy	**25,693**	**26,300**	**27,516**	**1,216**	**+4.6%**
Rescission of Balances		----	- 361		
Total, Department of Energy	**25,693**	**26,300**	**27,155**	**855**	**+3.2%**

EM Funding by State

Dollars in thousands

State	FY 2012 Current Enacted	FY 2013 Cong. Request	Percent of Total
California	12,587	14,744	0.3%
Colorado	4,703	1,990	0.0%
Idaho	401,011	413,169	7.3%
Kentucky	154,107	153,498	2.7%
Nevada	69,366	68,655	1.2%
New Mexico	425,515	462,118	8.1%
New York	99,885	81,717	1.4%
Ohio	295,308	227,980	4.0%
South Carolina	1,368,849	1,353,576	23.9%
Tennessee	435,918	437,764	7.7%
Utah	31,000	30,941	0.5%
Washington	2,281,003	2,287,757	40.3%
Other*	134,565	138,214	2.4%
Subtotal, EM	5,713,817	5,672,123	100%
Offsets	(3,381)	(22,123)	
Total, EM	**5,710,436**	**5,650,000**	

*** Includes Headquarters Program Direction, Program Support, Technology Development, and DOE-sponsored Facilities (per P.L. 112-74)**

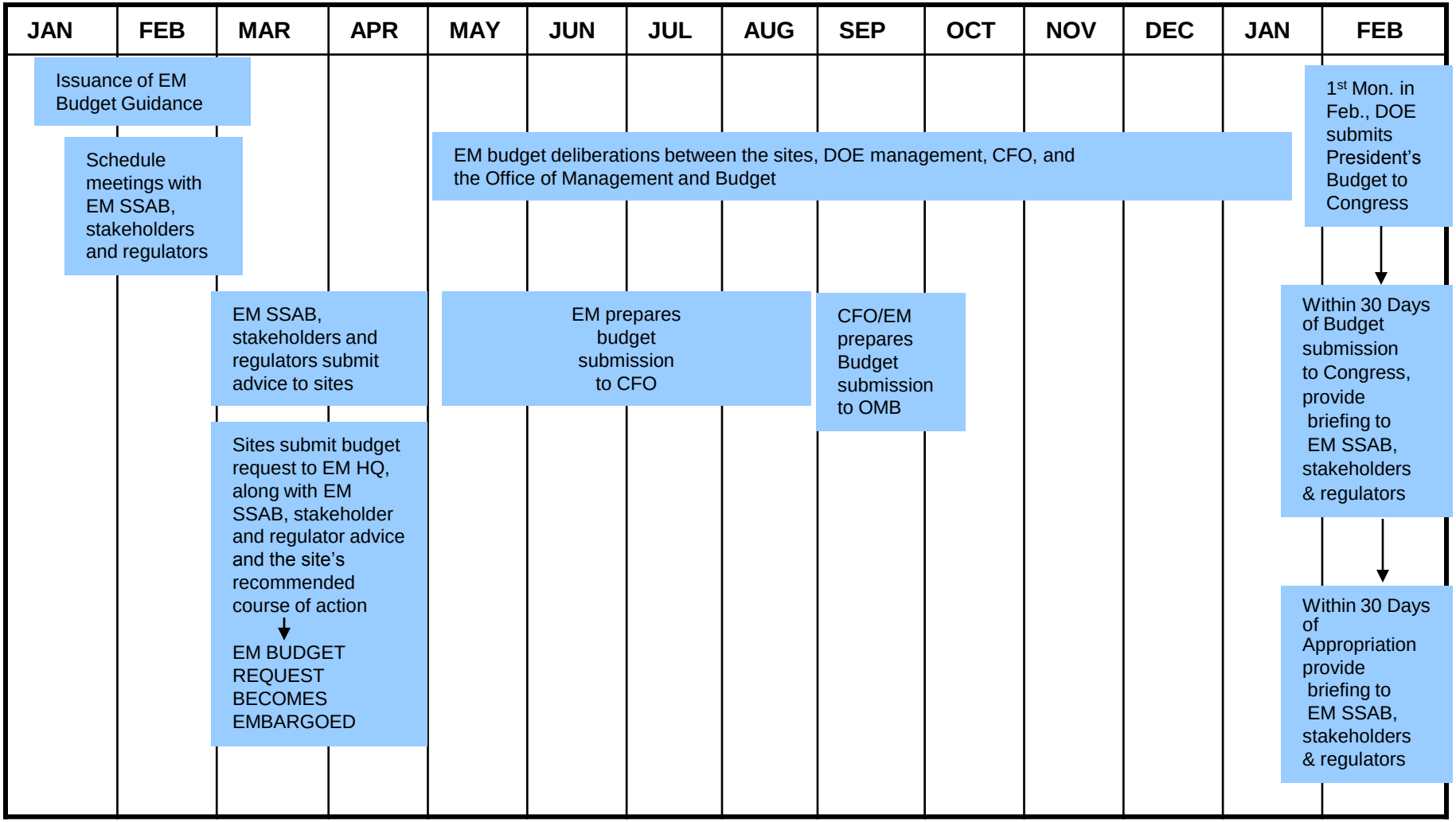
EM Funding by Site

Dollars in thousands

Site	FY 2012 Current Enacted	FY 2013 Cong. Request
Brookhaven	9,585	7,840
ETEC	9,279	9,460
Hanford	1,021,824	1,037,773
Idaho	389,800	405,397
Los Alamos	188,561	239,143
Lawrence Livermore	873	1,484
Moab	31,000	30,941
Nevada	65,545	64,641
Oak Ridge	419,758	421,250
River Protection	1,181,800	1,172,113
Paducah	143,082	142,479
Portsmouth	254,527	186,672
Savannah River	1,316,922	1,303,493
SPRU	24,000	24,000
SLAC	2,435	3,800
Sandia	3,014	5,000
WIPP	218,179	202,987
West Valley	66,300	49,877
Other	14,703	1,990
Program Direction	321,628	323,504
Program Support	20,380	18,279
TD&D	10,622	20,000
D&D Fund Deposit	-	463,000
Subtotal, EM	5,713,817	6,135,123
D&D Fund Deposit Offset	-	(463,000)
Offsets	(3,381)	(22,123)
Total, EM	**5,710,436**	**5,650,000**

Historical LANL EM Funding

Dollars in millions

Funding Profile	FY07	FY08	FY09	FY10	FY11	FY12
Base Funding	145	177	225	200	192	189
ARRA Funding	0	0	13	108	91	0
TOTAL	145	177	238	308	283	189

EM SSAB, Stakeholder & Regulator Involvement In DOE EM Budget Process