



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Update DOE Office of Science

HEPAP Meeting, December 1, 2016

Cherry A. Murray
Director, Office of Science
www.science.energy.gov

- SC Programs
- Budget Cycle Update
- Transition

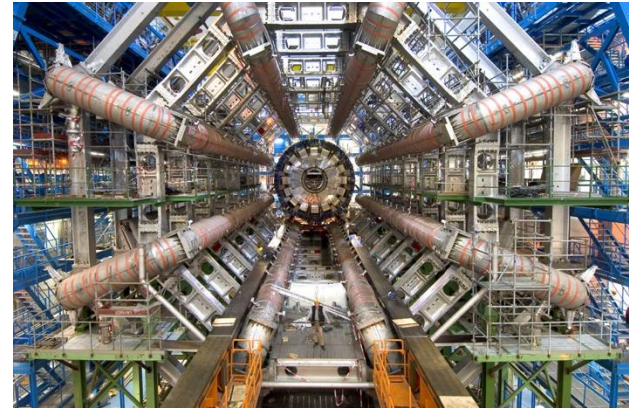


Department of Energy Mission Areas

Energy



Science



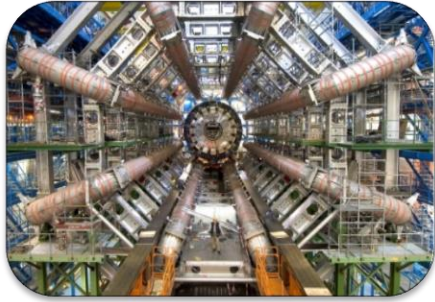
Nuclear Safety and Security



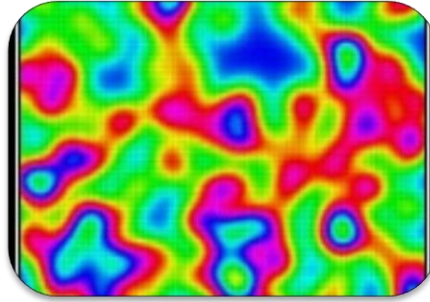
Environmental Cleanup



Office of Science FY16 - \$5.35B



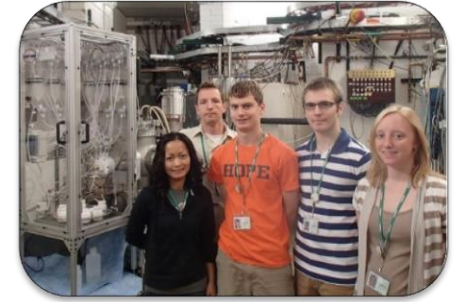
Largest Supporter of Physical Sciences in the U.S.



Research: 42%, \$2.2B



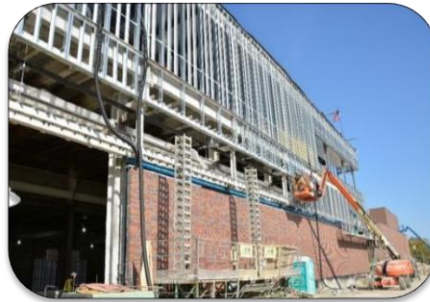
~40% of Research to Universities



> 20,000 Scientists Supported



Funding at >300 Institutions including all 17 DOE Labs



Construction: 13.5%, \$723M

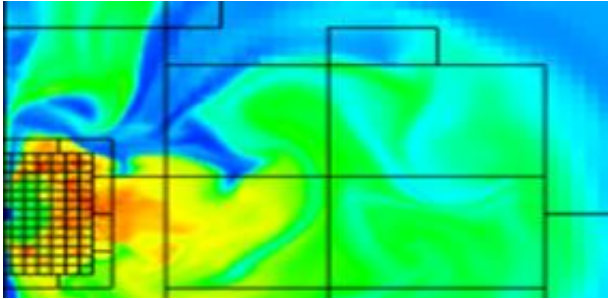


Facility Operations: 38%, \$2.02B

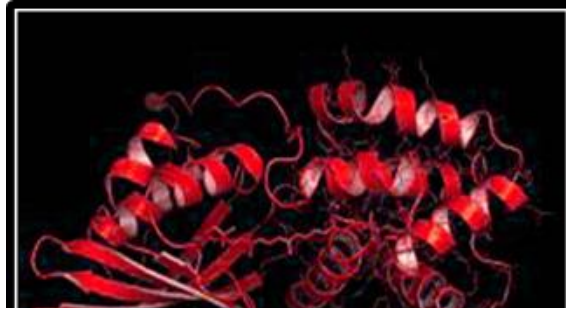


>30,000 Scientific Facility Users

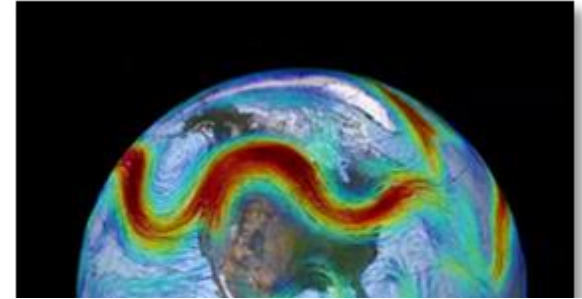
Office of Science Programs



**Advanced Scientific Computing
Research**
FY2016 \$621M



Basic Energy Sciences
FY2016 \$1849M



**Biological and Environmental
Research**
FY2016 \$609M

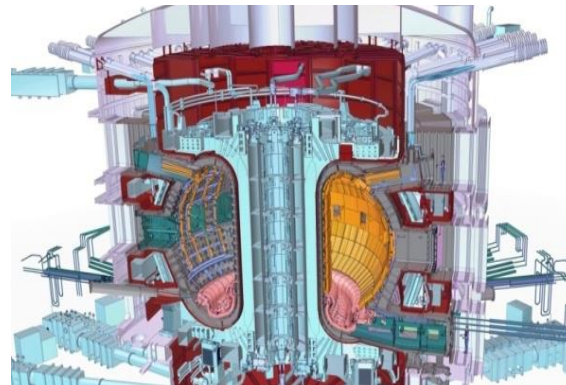
High Energy Physics

FY2016 \$795M



Fusion Energy Sciences

FY2016 \$438M



Nuclear Physics

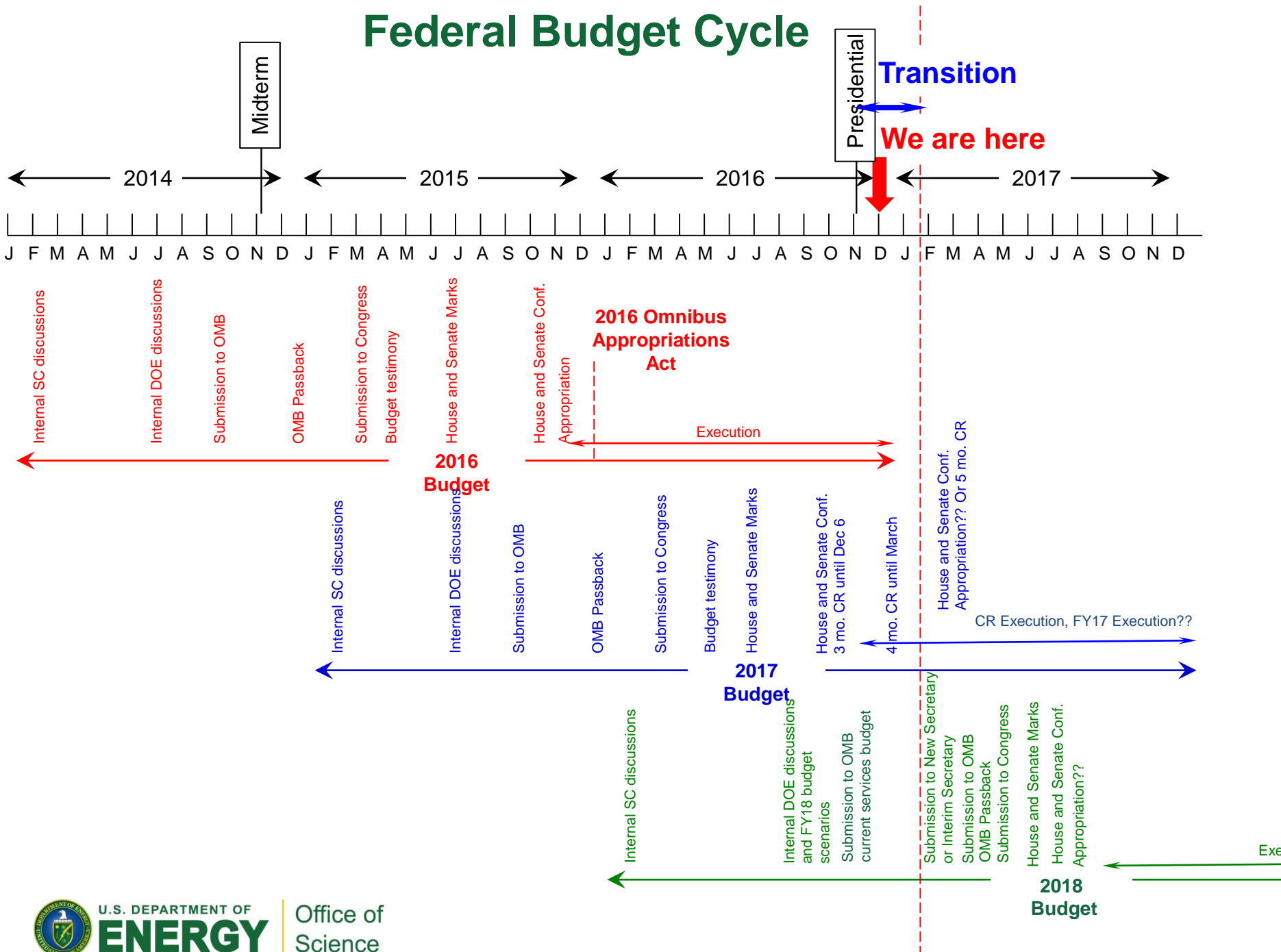
FY2016 \$617M



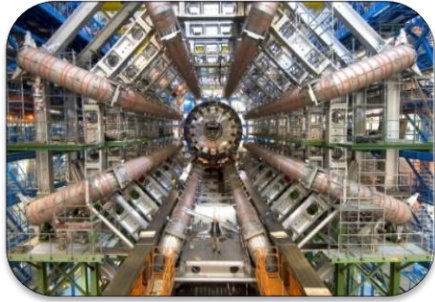
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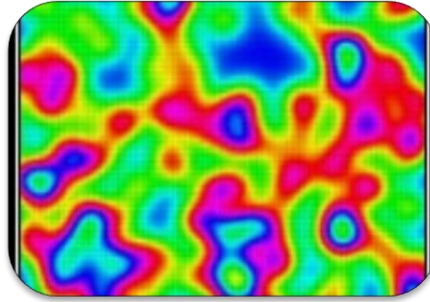
Federal Budget Cycle



Office of Science FY17 Request: \$5.67B, +6.1%



Largest Supporter of Physical Sciences in the U.S.



Research: 42%, \$2.4B



~40% of Research to Universities



> 20,000 Scientists Supported



Funding at >300 Institutions including all 17 DOE Labs



Facility Operations: 36%, \$2.06B



>35,000 Scientific Facility Users






\$1.8B Mission Innovation


Without \$100M mandatory, \$5.57B, +4%, Flat at \$5.35B in CR, no new starts

High Energy Physics

Understanding how the universe works at its most fundamental level

- Particle Physics Project Prioritization Panel (**P5**) report in May 2014 presents an actionable long-term strategy for U.S. particle physics that enables discovery and maintains the U.S. position as a global leader in particle physics.
- **Five intertwined science drivers**, compelling lines of inquiry that show great promise for discovery:

-  Use the **Higgs boson** as a new tool for discovery
-  Pursue the physics associated with **neutrino mass**
- Identify the new physics of **dark matter**
-  Understand **cosmic acceleration**: dark energy and inflation
- **Explore the unknown**: new particles, interactions, and physical principles

	Energy Frontier	Intensity Frontier	Cosmic Frontier
Higgs Boson	●		
Neutrino Mass		●	●
Dark Matter	●	●	●
Cosmic Acceleration			●
Explore the Unknown	●	●	●

- Science drivers identify the scientific motivation while the **Energy, Intensity, and Cosmic Research Frontiers** provide a useful categorization of experimental techniques

http://science.energy.gov/~media/hep/hepap/pdf/May-2014/FINAL_P5_Report_053014.pdf



FY17 Appropriations Marks, 4-14-16

	FY 2016 President's Request	FY 2016 Enacted Approp.	FY 2016 Current Approp.	FY 2017 President's Request	FY 2017 House Mark	FY 2017 Senate Mark
ASCR	620,994	621,000	621,000	663,180	621,000	656,180
BES	1,849,300	1,849,000	1,849,000	1,936,730	1,859,972	1,912,630
BER	612,400	609,000	609,000	661,920	595,000	637,000
FES	420,000	438,000	438,000	398,178	450,000	280,110
HEP	788,000	795,000	795,000	817,997	823,009	832,997
NP	624,600	617,100	617,100	635,658	620,000	635,658
WDTS	20,500	19,500	19,500	20,925	20,925	20,925
SLI	113,600	113,600	113,600	130,000	122,397	130,000
S&S	103,000	103,000	103,000	103,000	103,000	103,000
PD	187,400	185,000	185,000	204,481	184,697	191,500
University Grants (Mandatory)	...	...	...	100,000	...	...
SBIR/STTR (SC)	...	...	...	...	...	...
Total Budget Authority and Obligations, Office of Science	5,339,794	5,350,200	5,350,200	5,672,069	5,400,000	5,400,000
SBIR/STTR (DOE)	...	...	...	...	...	...
Rescission of Prior Year Balances	...	-3,200	-3,200	...	...	...
Total, Office of Science	5,339,794	5,347,000	5,347,000	5,672,069	5,400,000	5,400,000



FY17 Appropriations Marks, 4-14-16

Bipartisan Support for Basic Science

- **Science - \$5.5B (+3%) for both marks compared to FY16 enacted but some differences of opinion**
 - HEP fared well
 - FY16 Enacted \$795M
 - FY17 Request \$818M
 - Senate Mark \$833M
 - House Mark \$823M

Transition SC Budget Planning

Scenarios extended for FY 2017 – FY 2022

- OMB Transition Budget Scenario – Current Services
 - 2016 appropriated +2% growth per year in outyears (FY18 4.2% higher than FY16 enacted, 0.04% higher than FY17 Request)
 - Identification and prioritization of the activities that are delayed, suboptimal or cannot be sustained

- Internal ‘Requirements’ Scenario – Aspirational, for discussion with new Secretary, new Administration and new Congress after Inauguration
 - 2016 appropriated +7% growth per year in outyears (consistent with Senate authorizations mark for doubling of science budget in ten years) + over-target request for acceleration of Exascale
 - Optimize funding levels for construction and operations
 - Include all requirements, such as full ITER first plasma funding, Exascale Initiative acceleration, P5 projects, science support for Mission Innovation, ...

SC Transition

- DOE Transition Team Lead Tom Pyle, President of American Energy Alliance, named Nov. 21
- Kelly Mitchell, Multi Automatic Tool and Supply Co., outreach VC of MI Republican Party, named to join team on Nov 28, Travis Fisher, AEA named Nov. 30.
- Pyle arrived at DOE HQ Monday, Nov. 28
- Transition briefings when the team has more members.
- January 17 – Steve Binkley becomes acting SC-1 as well as SC-2 until a new Office of Science Director is nominated and confirmed.

-END-

