U.S. DEPARTMENT OF ENERGY | Office of Science

FY 2018 Budget Exercise
DOE Office of Science

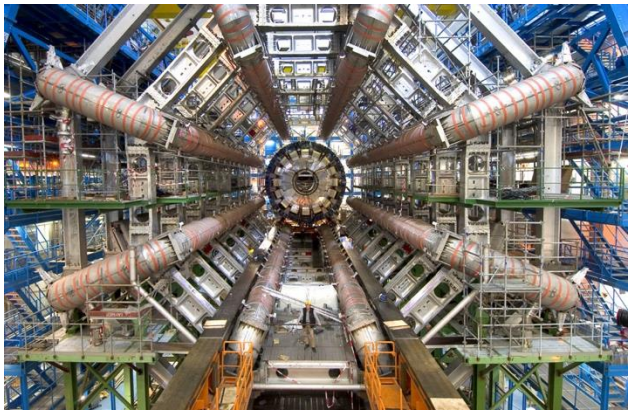
HEPAP Meeting, August 12, 2016

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

Department of Energy Mission Areas

Energy

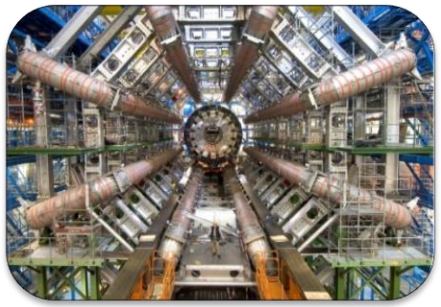
Science



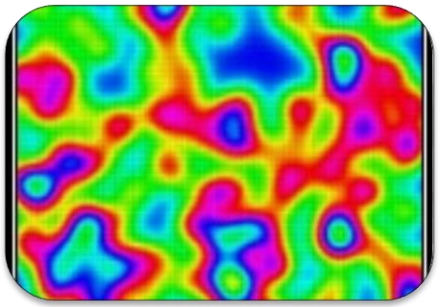
Nuclear Safety and Security

Environmental Cleanup

Office of Science FY16 - $5.35B

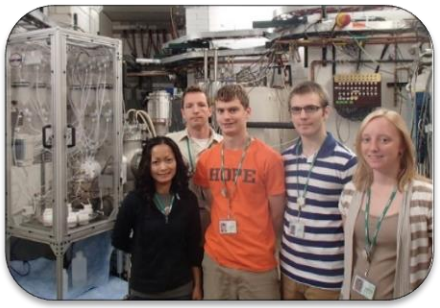


Largest Supporter of Physical Sciences in the U.S.



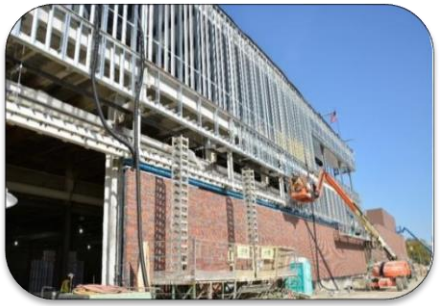
Research: 42%, $2.2B

~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

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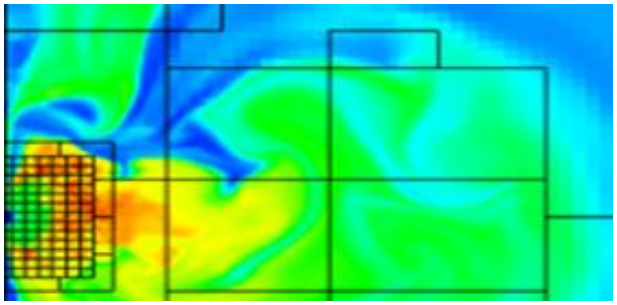
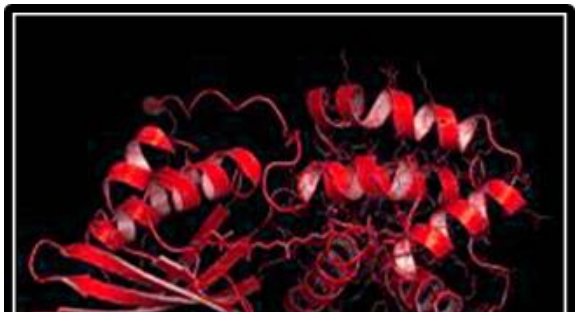
Office of Science Programs

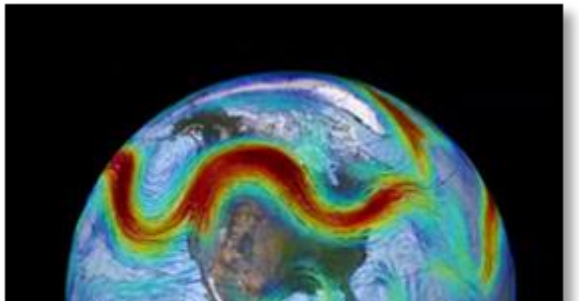


Advanced Scientific Computing Research
FY2016 $621M



Basic Energy Sciences

FY2016 $1849M



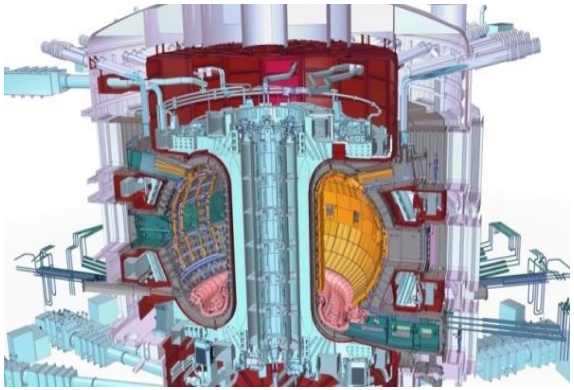
Biological and Environmental Research
FY2016 $609M

High Energy Physics

FY2016 $795M

Fusion Energy Sciences

FY2016 $438M



Nuclear Physics

FY2016 $617M

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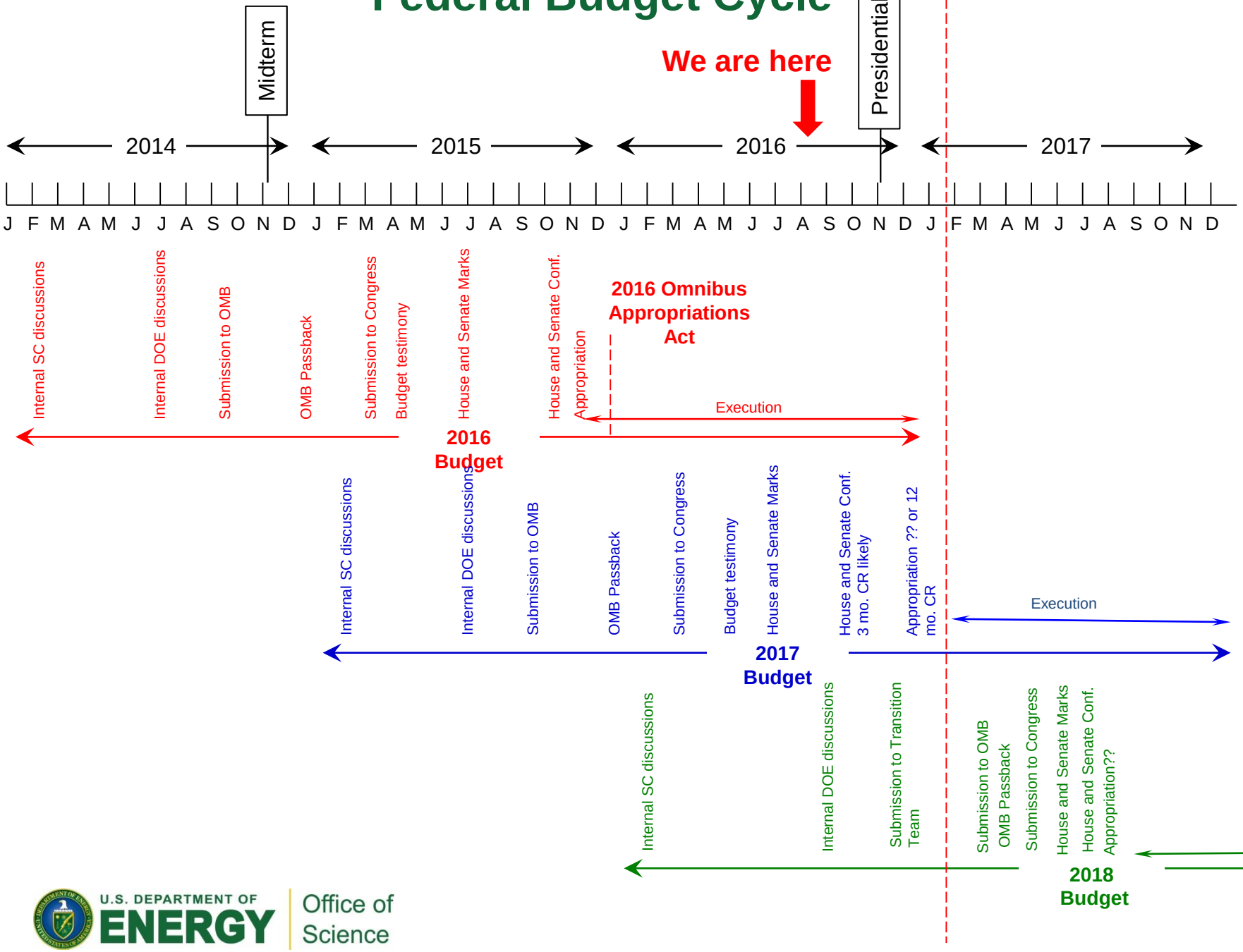
Federal Budget Cycle



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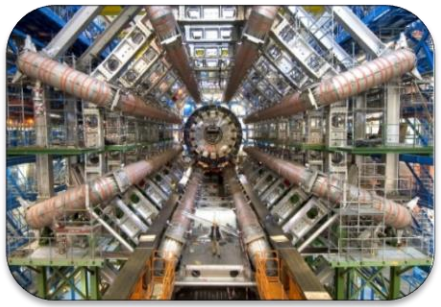
Office of Science FY17 Request: $5.67B, +6.1%



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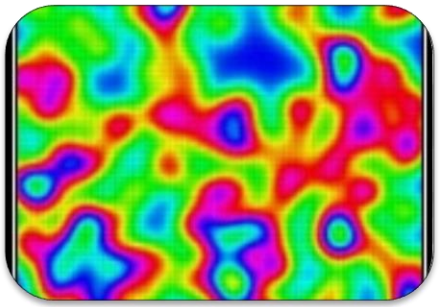

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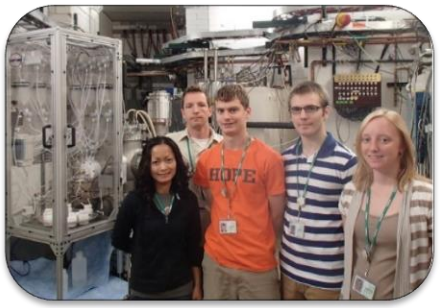

> 20,000 Scientists Supported

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Facility Operations: 36%, $2.06B

>35,000 Scientific Facility Users

$1.8B Mission Innovation

Without $100M mandatory, $5.57B, +4%

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FY17 Appropriations Marks, as of 4-14-16

- **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 'Unconstrained' Scenario - Aspirational
  - 2016 appropriated +7% growth per year in outyears (consistent with Senate authorizations mark for doubling of science budget in ten years)
    - 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, …

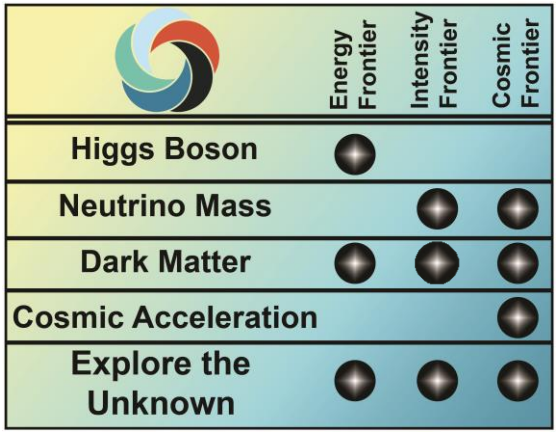
High Energy Physics

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



  - 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

END