



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Office of Science Update

BERAC

27 October 2016

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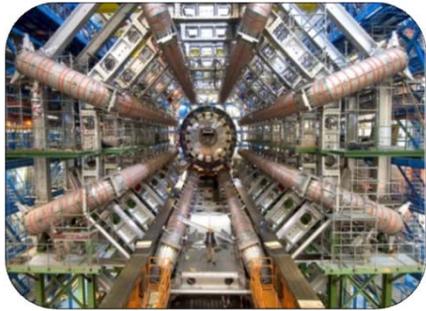
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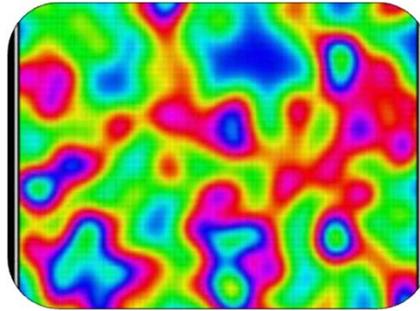
U.S. DEPARTMENT OF
ENERGY

Office of
Science

Office of Science FY2016 - \$5.35B



Largest Supporter
of Physical Sciences
in the U.S.*



Research:
42%, \$2.2B



Facility Operations:
38%, \$2.02B



Construction:
13.5%, \$723M



Funding to >300
institutions including
all 17 DOE Labs



~40% of Research to
Universities



> 20,000 Scientists
Supported



>35,000 Scientific
Facility Users**

* 43% of all physical sciences, 30% of computer science and math

** from all 50 states and DC



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FY 2017 Appropriations Marks

	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

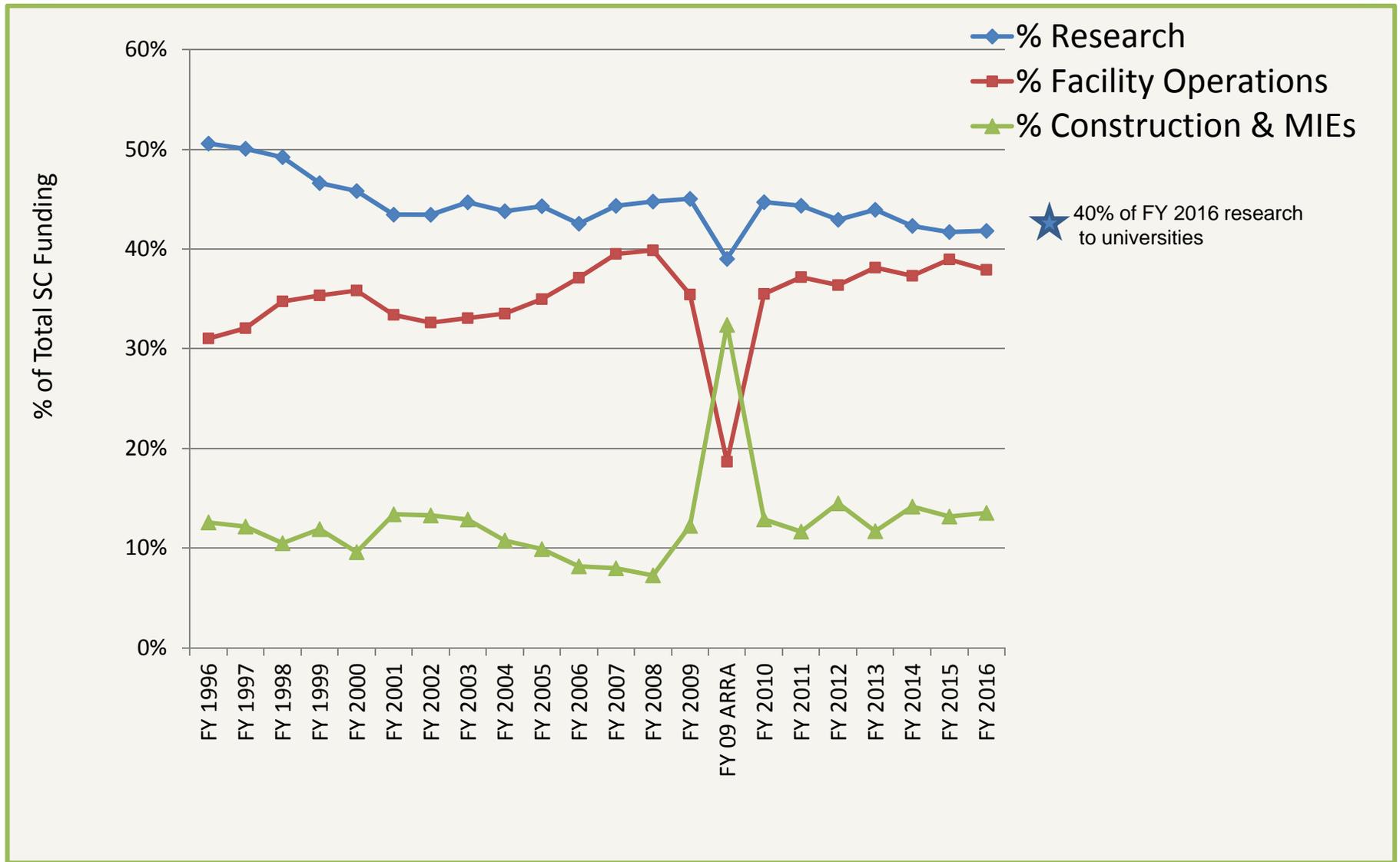
+3% over FY16 enacted, some differences of opinion



What's Beyond FY 2017?

- OMB Outlook: OMB inflators are 2% per year
- Senate Outlook: Durbin-Alexander Amendment to Senate S.2012 – North American Energy Security and Infrastructure Act of 2016 – is a bipartisan amendment that increases the budget of the Office of Science by 5% annual real growth per year for 5 years, or about 7% average growth per year

SC Investments in Research, Facilities, and Construction



11-30-2015: The Launch of Mission Innovation



On November 30, 2015, in Paris, President Obama and global leaders, announced “**Mission Innovation**,” an initiative to accelerate clean energy innovation, address global climate change, provide affordable clean energy to consumers, and create commercial opportunities.



Details of Mission Innovation (MI)

- **MI** is a worldwide initiative of countries that have committed to double their clean energy R&D investment over five years (FY 2016 to FY 2021) including the top five most populous nations – China, India, the United States, Indonesia, and Brazil.
- Within DOE, new funding in FY 2017 for Mission Innovation will be strategically focused on early stage research and development, which offers the greatest opportunity for breakthroughs and transformative changes and has proven to yield the highest return on investment.

Mission Innovation Participating Countries



-  Australia
-  Brazil
-  Canada
-  Chile
-  China
-  Denmark
-  France
-  Germany
-  India
-  Indonesia
-  Italy
-  Japan
-  Mexico
-  Norway
-  Saudi Arabia
-  South Korea
-  Sweden
-  United Arab Emirates
-  United Kingdom
-  United States



Mission Innovation

	FY 2016	FY 2017
Program	Enacted Approp.	President's Request
Advanced Scientific Computing Research	109,505	144,841
Basic Energy Sciences	631,541	862,399
Biological & Environmental Research	374,847	426,330
Fusion Energy Sciences	461,577	419,764
Total	1,577,470	1,853,334

Growth from Previous Year	275,864
% Growth from Previous Year	17.5%
% of Total SC Budget	29.5% 33.3%

Strategic Planning Drives Budget Priorities

During the past 3 years, FACA and other activities determined research and facility priorities

- **Within the past 3 years, 5 of the 6 Federal Advisory Committees have delivered new long-range plans for both research and facilities; the 1 remaining plan is due soon.**

Advanced Scientific Computing Advisory Committee (ASCAC)

- *“Synergistic Challenges in Data-Intensive Science and Exascale Computing,”* March 2013
- *“The Top Ten Exascale Research Challenges,”* February 10, 2014
- *“Exascale Computing Initiative Review,”* August 2015

Basic Energy Sciences Advisory Committee (BESAC)

- *“Report of the BESAC Subcommittee on Future X-ray Light Sources,”* July 25, 2013
- *“Challenges at the Frontiers of Matter and Energy: Transformative Opportunities for Discovery Science,”* November 2015. A follow-on to *“Five Challenges for Science and the Imagination,”* 2007
- *“BESAC Report on Facility Upgrades,”* June 9, 2016

Biological and Environmental Research Advisory Committee (BERAC)

- *“Grand Challenges for Biological and Environmental Research: A Long-Term Vision,”* December 2010
- *“BER Virtual Laboratory: Innovative Framework for Biological and Environmental Grand Challenges,”* February 2013
- *Update of “Grand Challenges for Biological and Environmental Research: A Long-Term Vision,”* due Fall 2016/Spring 2017

Fusion Energy Sciences Advisory Committee (FESAC)

- *“Report of the FESAC Subcommittee on the Priorities of the Magnetic Fusion Energy Science Program,”* March 2013
- *“Report on Strategic Planning: Priorities Assessment and Budget Scenarios,”* December 2014

High Energy Physics Advisory Panel (HEPAP)/ Particle Physics Project Prioritization Panel (P5)

- *“Building for Discovery: Strategic Plan for U.S. Particle Physics in the Global Context,”* May 22, 2014
- *“Accelerating Discovery: A Strategic Plan for Accelerator R&D in the U.S.,”* April 2015

Nuclear Science Advisory Committee (NSAC)

- *“Reaching for the Horizon: The 2015 Long Range Plan for Nuclear Science,”* October 2015
- *“Meeting Isotope Needs and Capturing Opportunities for the Future: The 2015 Long Range Plan for the DOE-NP Isotope Program,”* July 2015