HEP DC Trips 2017

US HEP User Community Outreach & Advocacy to the Federal Government

Breese Quinn, Univ. of Mississippi

USLUA Annual Meeting
11/03/17

What is HEP Outreach?

- **High Energy Physics Outreach – communicating information about HEP to people outside of HEP**
- **Who?**
  - **Is the audience? Is the communicator?**
- **What?**
  - **Information is shared?**
- **Where &**
- **When**
  - **Is best to do it?**
- **How?**
  - **Through which methods?**
- **Why?**
  - **Are you bothering? What is the purpose, goal?**

HEP Outreach Categories

- **Education (specifically K-12)**
  - **Fermilab programs, Quarknet (~50,000 students/year)**
  - **Motivation: first attractor**
  - **Challenge: Geographically limited**

- **General Public**
  - **symmetry magazine, "Events" (e.g. Angels & Demons, Higgs discovery, WPPM videos)**
  - **Motivation: societal vision and values, responsibility**
  - **Challenge: field of HEP relatively abstract**

HEP Outreach Categories

- **Other Science Fields**
  - **Almost non-existent (e.g. AAAS meetings)**
  - **Motivation: broader informed support, enabling tools and techniques**
  - **Challenge: we're too insular**

- **Government Relations (GR)**
  - **Annual DC Trip, related smaller efforts**
  - **Motivation: $$$, key component of US scientific leadership**
  - **Challenge: clearly demonstrated benefit**

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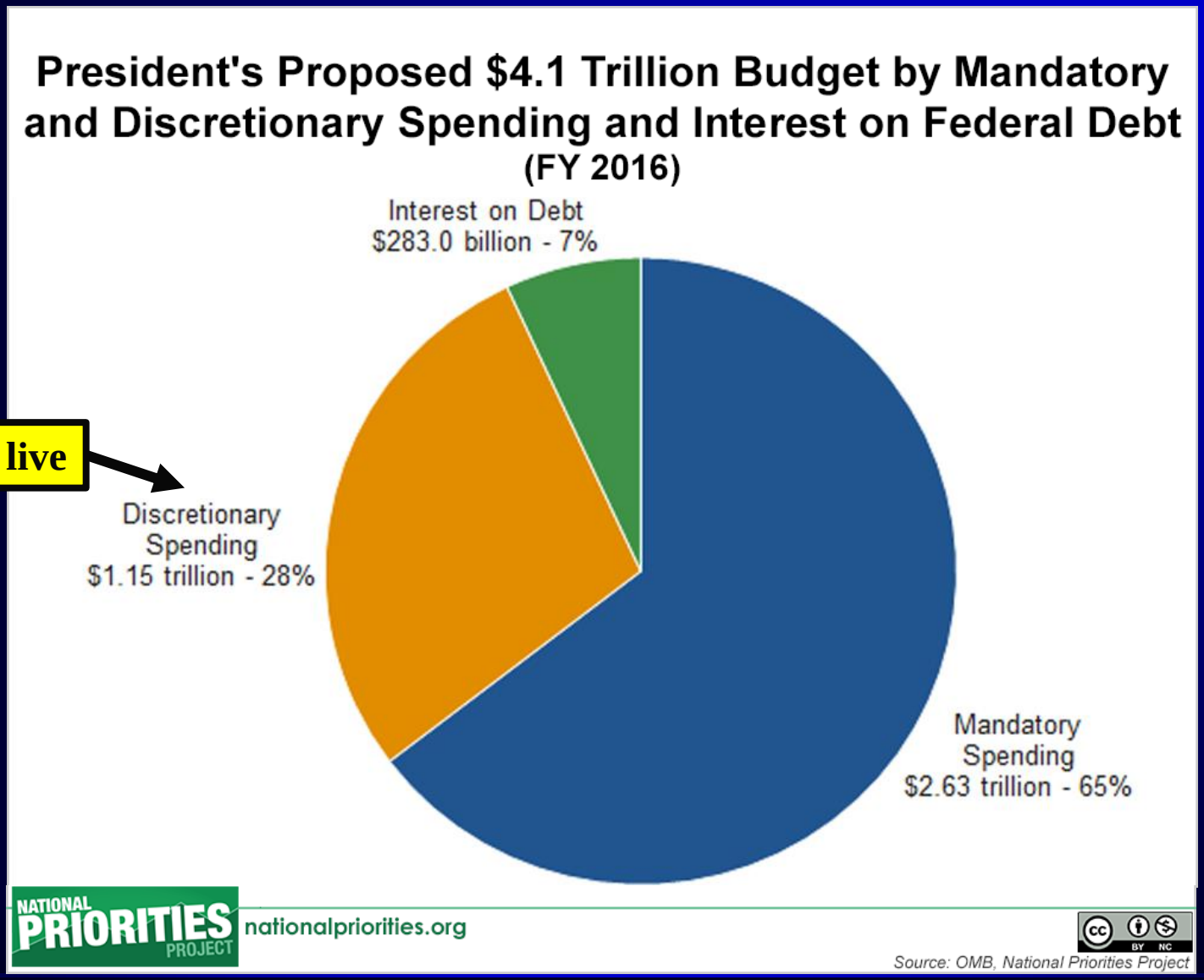
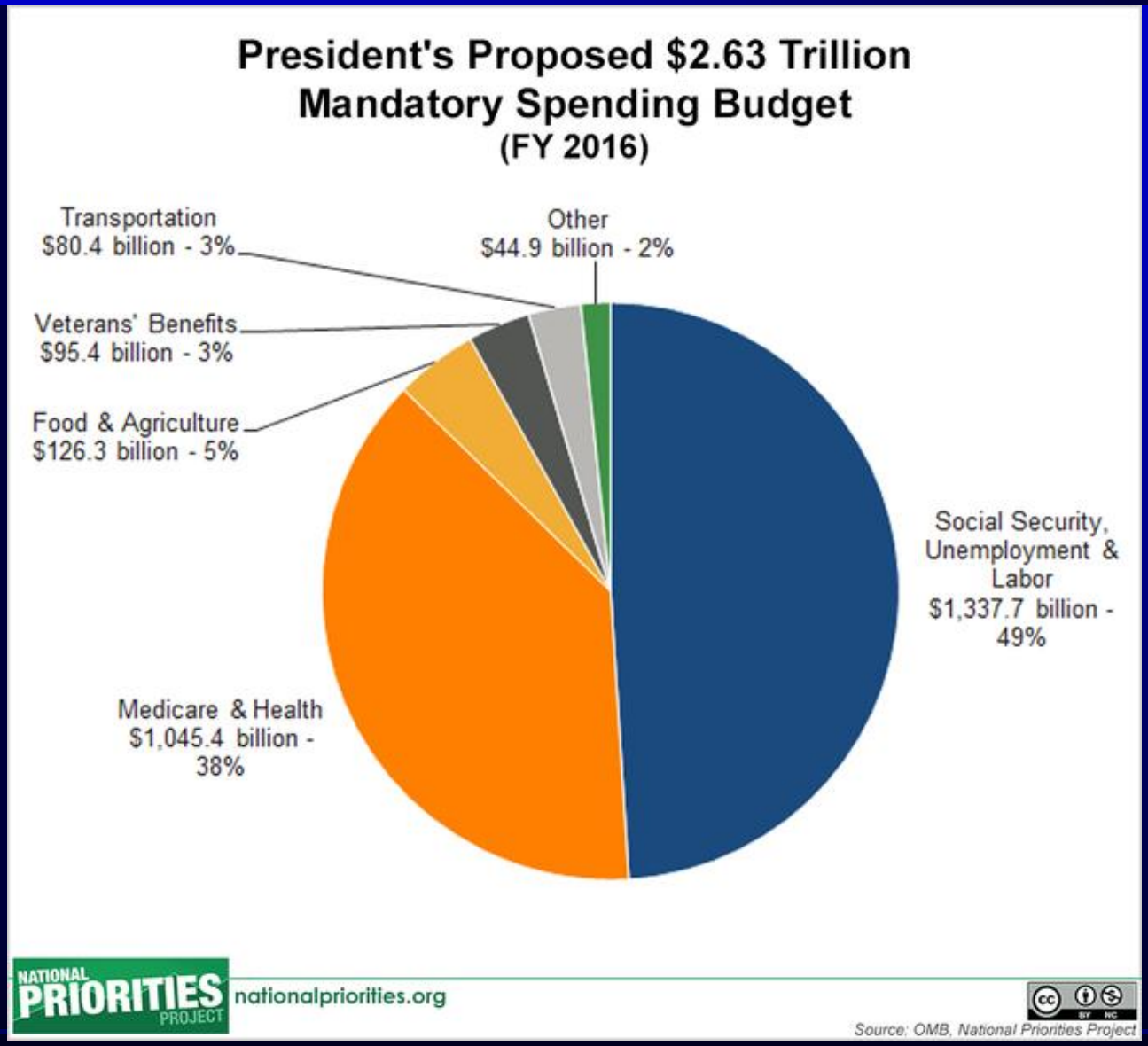
WHY?: Budget Context



Where we live

Budget Context



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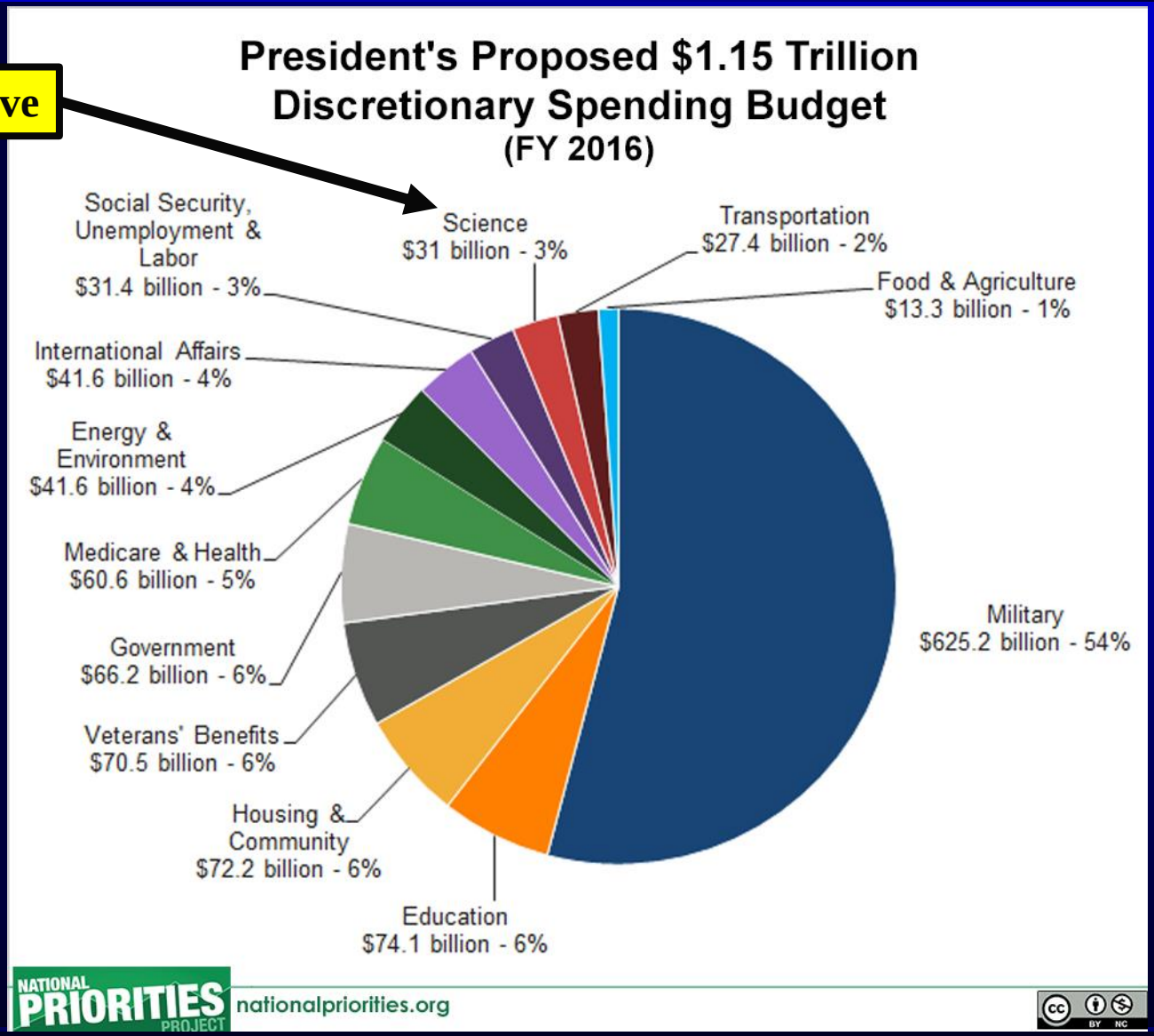

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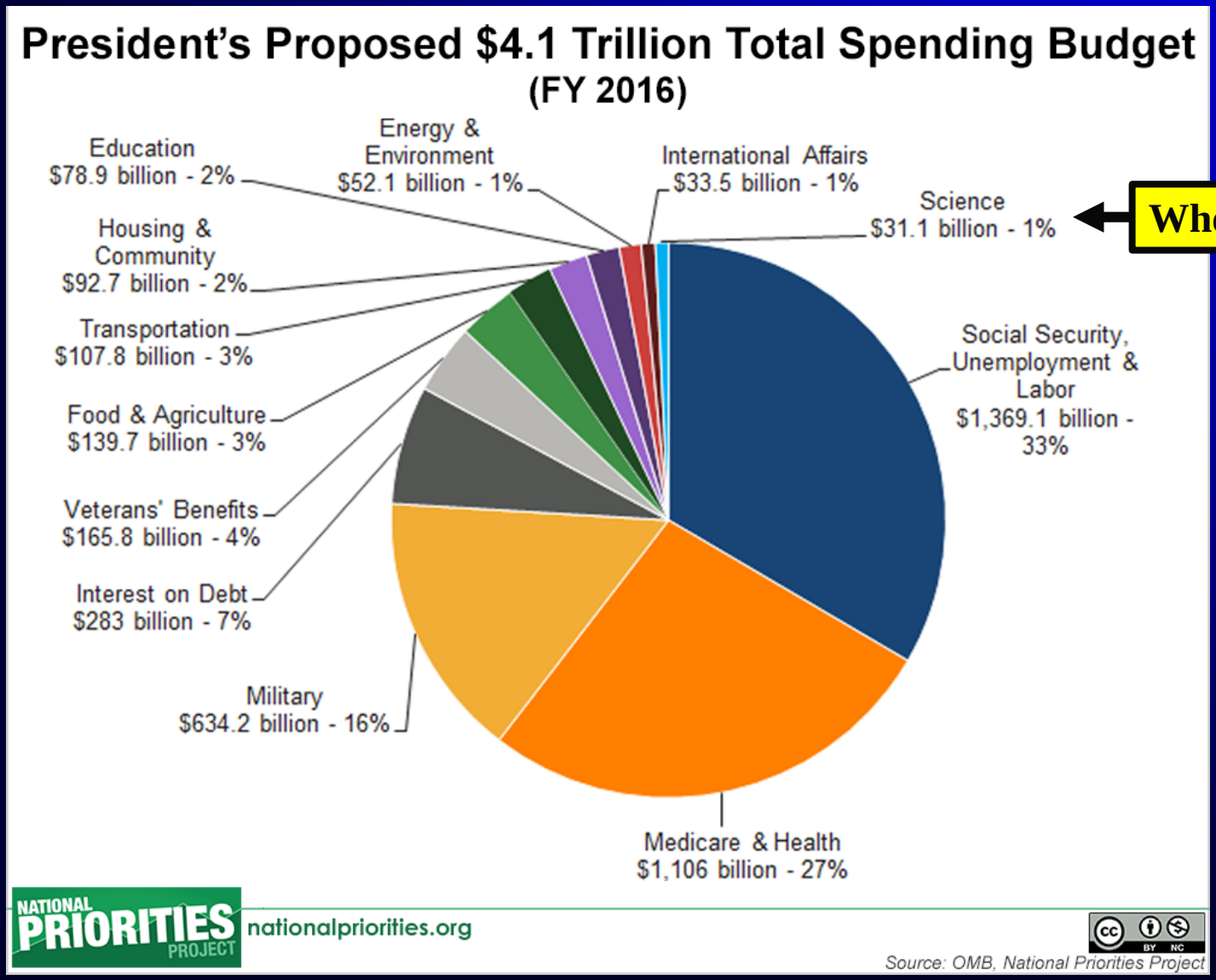

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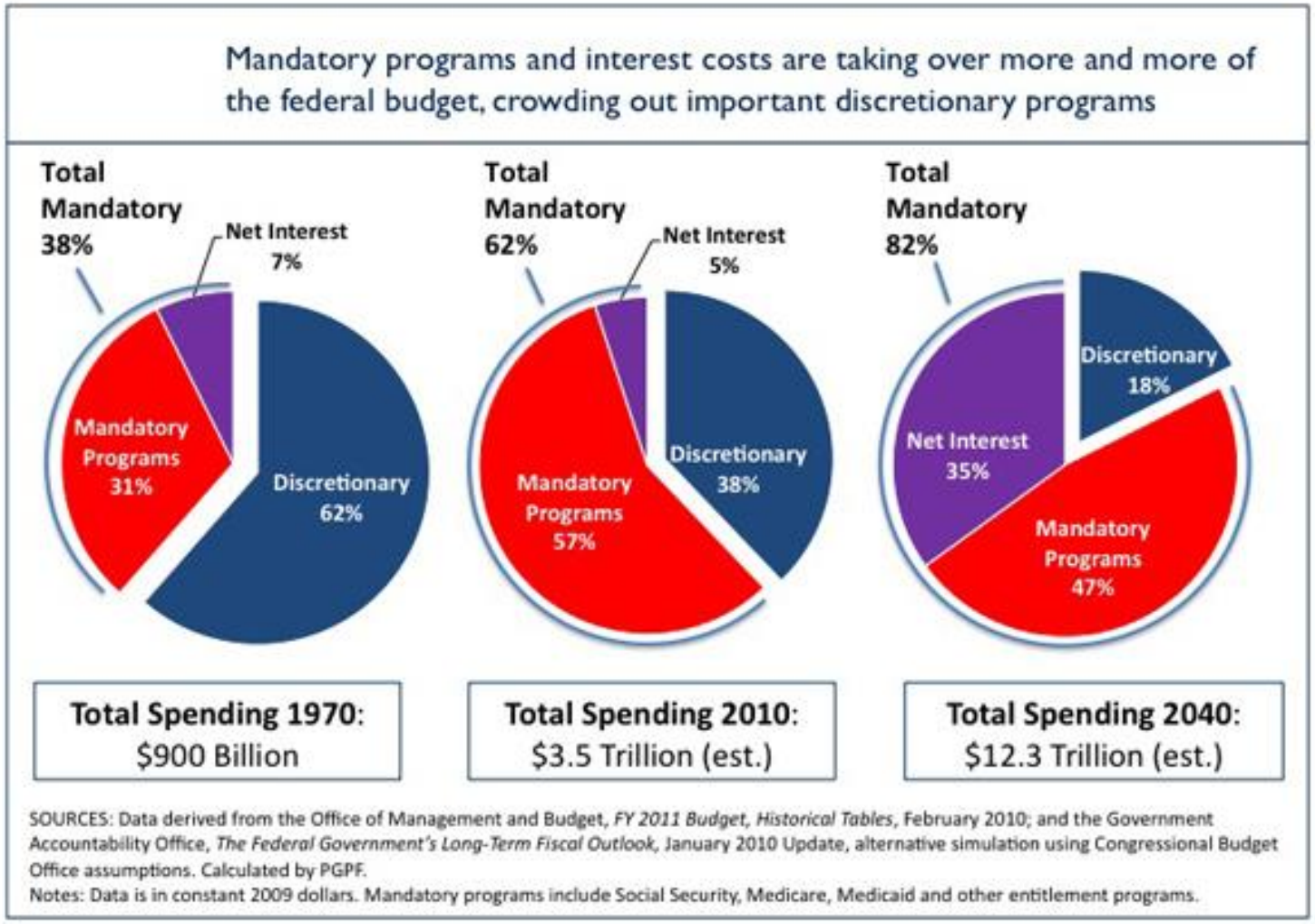
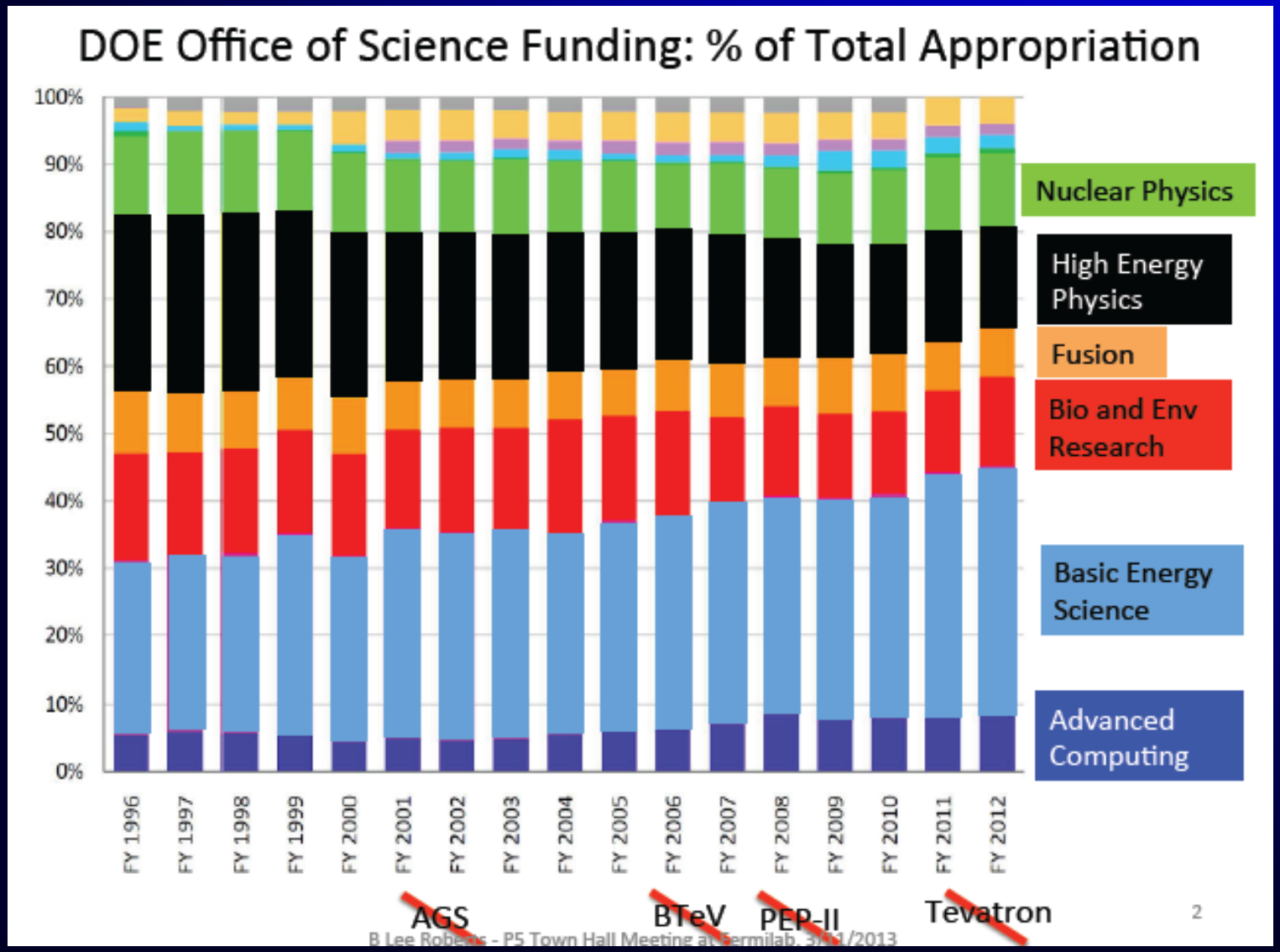


HEP within Office of Science



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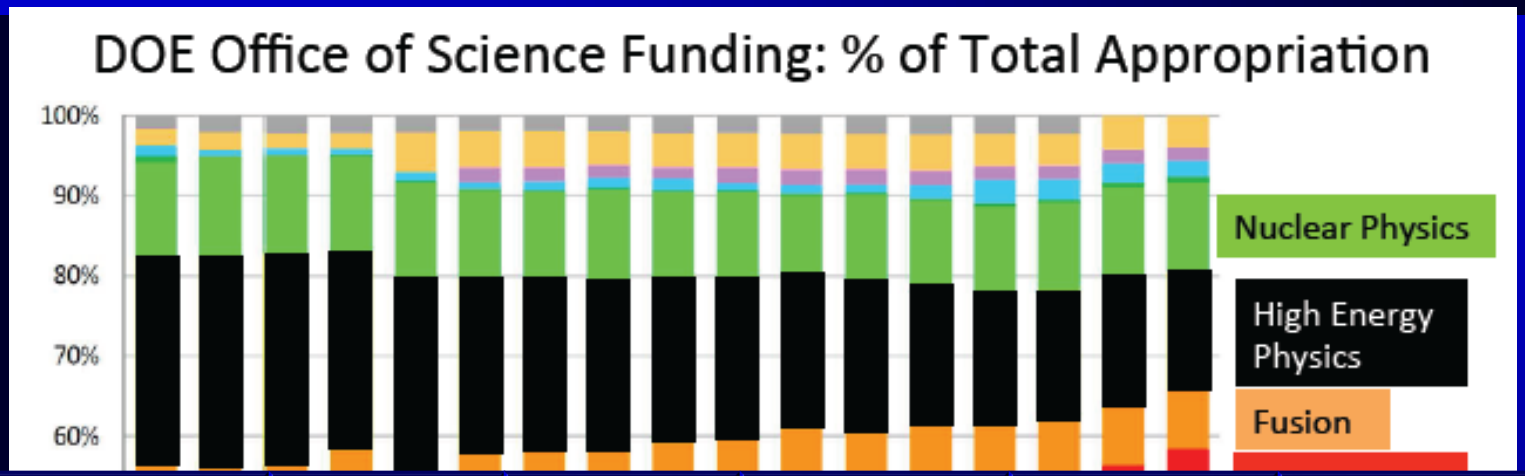

Program	FY14 Enacted	FY15 Proposed	% Change	FY15 Enacted	% Change
Office of Science	5,066	5,111	+0.9%	5,068	+0.4%
Adv Comp	478	541	+13.2%	541	+13.2%
NP	569	594	+4.3%	596	+4.7%
Fusion	505	416	-17.6%	496	-1.8%
BES	1,712	1,807	+5.5%	1,663	-2.9%
BER	610	628	+3.0%	592	-3.0%
HEP	797	744	-6.6%	766	-3.9%

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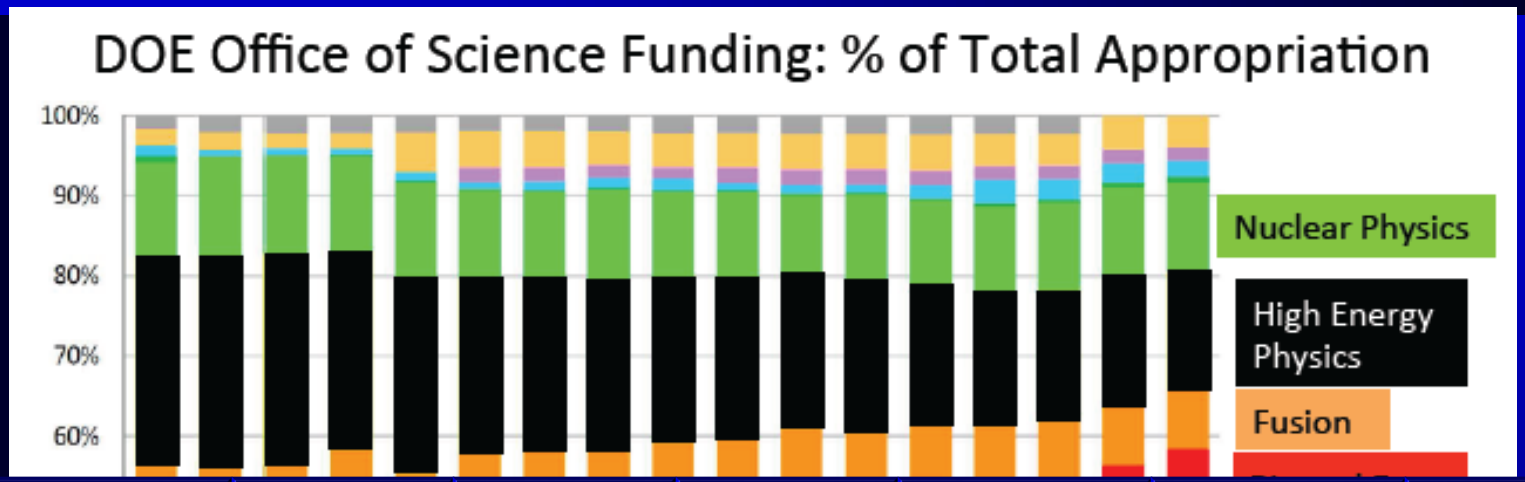

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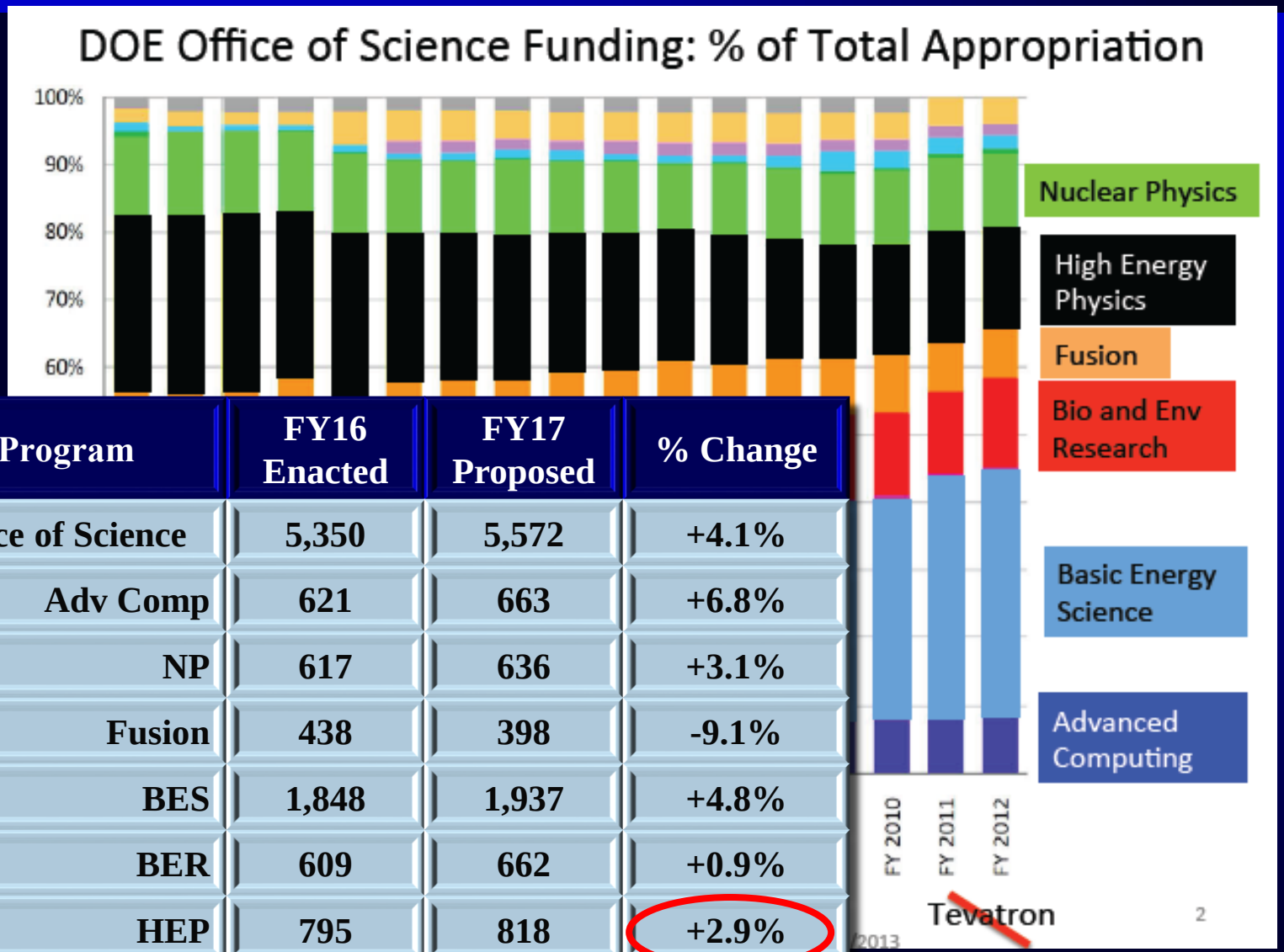
BES	1,712	1,663	1,849	+11.2%	1,849	+11.2%
HEP	797	766	788	+2.9%	795	+3.8%
NP	569	596	625	+4.9%	617	+3.6%
BER	610	592	612	+3.4%	609	+2.9%
Fusion	505	496	420	-13.3%	438	-11.7%

HEP within Office of Science



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WHO?: Executive

- President
- Office of Management & Budget (OMB)
- Office of Science & Technology Policy (OSTP)
- Department of Energy (DOE)
  - Office of Science (OSc)
    - Office of High Energy Physics (OHEP)
- National Science Foundation (NSF)

WHO?: Congress

- **Authorizing Committees** **(budget and oversight jurisdiction)**
  - **House Committee on Science, Space & Technology**
    - **Subcommittee on Energy (DOE)**
    - **Subcommittee on Research & Technology (NSF)**
  - **Senate Committee on Energy & Natural Resources**
    - **Subcommittee on Energy (DOE)**
  - **Senate Committee on Commerce, Science & Transportation**
    - **Subcommittee on Science & Space (NSF)**

WHO?: Congress

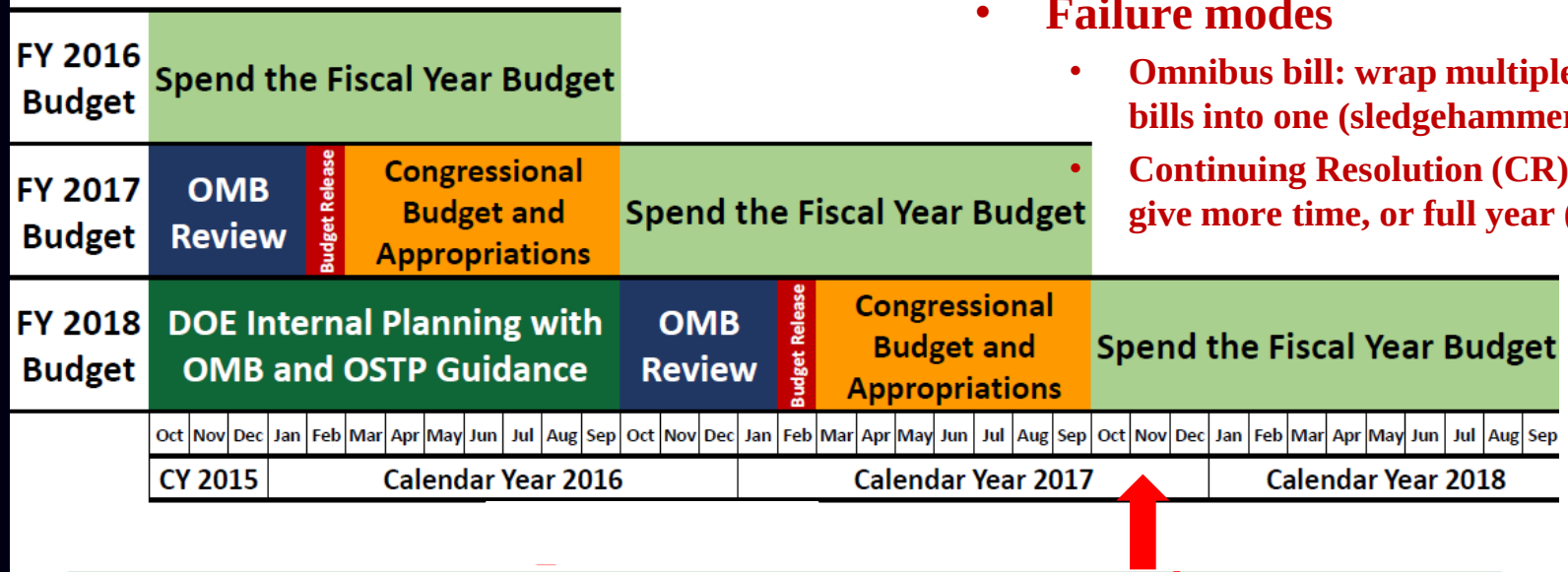
- **Appropriations Committees (allocate money)**
  - **House Committee on Appropriations**
    - **Subcommittee on Energy & Water Development (DOE)**
    - **Subcommittee on Commerce, Justice, Science & Rel. Agencies (NSF)**
  - **Senate Committee on Appropriations**
    - **Subcommittee on Energy & Water Development (DOE)**
    - **Subcommittee on Commerce, Justice, Science & Rel. Agencies (NSF)**

- **Sen & House Auth. & Approp: ~155 out of 535 members**

WHEN?: The Federal Budget Cycle

The U.S. Federal Budget Cycle

- Typically, three budgets are being worked on at any given time
  - Executing current Fiscal Year (FY; October 1 – September 30)
  - White House Office of Management and Budget (OMB) review and Congressional Appropriation for coming FY
  - Agency internal planning for the second FY from now



- **Failure modes**
  - **Omnibus bill: wrap multiple Appropriations bills into one (sledgehammer approach)**
  - **Continuing Resolution (CR): short-term to give more time, or full year (i.e. punt)**

You are here

U.S. DEPARTMENT OF ENERGY | Office of Science

HEP Civics: HEP and the Federal Budget Process - August 2016 6

WHERE?: DC Trip

- **Purpose: to visit with as many Congressional member and relevant staff offices as possible, as well as with particular representatives of the administration and funding agencies.**
- **Message: garner support for funding of physical science research in general, and HEP in particular.**
- **A few details:**
  - **Started ~35 years ago**
  - **Grown to a joint UEC/SLUO/USLUA effort – through *election* represent nearly entire US HEP user community**
  - **40-50 individuals travel to DC for a 3-day visit**
  - **Timed to fall right after President's budget proposal and beginning of Congressional budget cycle.**
  - **Share excitement for, importance of, and news from HEP.**
  - **Encourage funding support for DOE SC and NSF.**

WHAT?: Message, Packet Material

- New 2017 HEP Advocacy Material
  - In late 2016 groups started a push to make new material for the US HEP community and to be used for Users 2017 DC trip
  - A previous brochure, which was put together by the three users groups and DFP, had served this group well for many years but was getting dated
  - Text was worked on as joint effort by the users groups, DPF EC, representatives from HEPAP, representatives from DOE. Short time available meant things had to move quickly but the process was helped by the fact that we could build on older version of material
  - Want to thank Micheal Cooke (DOE) and Katie Yurkewicz (FNAL) who put in a lot of effort. Their expertise and help was invaluable.

Note: This, and following slides are from Louise Suter, 2017 UEC GR Chair and organizer of 2017 DC Trip

P5 'Two pager'

Building for Discovery

Strategic Plan for U.S. Particle Physics in the Global Context

usparticlephysics.org

The P5 Report provides the strategy and priorities for U.S. investments in particle physics for the coming decade.

The top four priorities in 2017

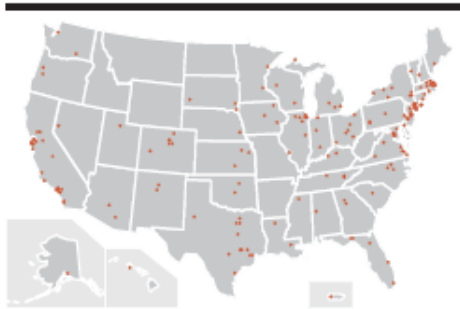
Advance the High-Luminosity LHC (HL-LHC) accelerator and detector upgrade projects on schedule, continuing the highly successful bilateral partnership with Europe. This is P5's highest-priority near-term large project.

Advance the Long-Baseline Neutrino Facility (LBNF) and Deep Underground Neutrino Experiment (DUNE), working with international partners to move forward with the engineering design, construction site preparation, and long-lead procurements. This is P5's highest-priority large project in its time frame.

Support the existing construction projects enabling the next major discoveries in particle physics, including the ATLAS and CMS upgrades, LSST, DESI, Mu2e, Muon g-2, LHCb, LZ, ADMX-G2, and SuperCDMS-SNOLAB.

Balance scientific research with facility operations and the carefully selected portfolio of small, medium, and large projects that together facilitate the success of the community's strategic vision.

These carefully chosen investments will enable a steady stream of exciting new results for many years to come and will maintain U.S. leadership in key areas.



Particle physics is both global and local Scientists, engineers, and technicians at more than 160 universities, institutes, and laboratories throughout the U.S. are working in partnership with their international colleagues to build high-tech tools and components, conduct scientific research, and train and educate the next generation of innovators. Particle physics activities in the U.S. attract some of the best scientists from around the world.

Recent results

Higgs boson exploration. The LHC outperformed expectations, generating as many particle collisions in 2016 as in all previous years combined and at almost double the energy. On average, about one new Higgs boson was produced per second. At this rate, the LHC will have enormous discovery potential for many years to come.

Promising neutrino results. New measurements by the NOvA experiment started addressing key questions about neutrinos, such as the arrangement of their masses and how much they mix, and the MicroBooNE experiment provided important experience with the technology for DUNE.

Dark matter. The world's best constraints on the identity of the mysterious dark matter were obtained by the LUX experiment.

Accelerator advances. There were several important developments, including operating the world's highest power beams for neutrino physics; constructing a successful prototype of the strongest accelerator magnet ever built, for use in the future High-Luminosity LHC (HL-LHC); accelerating positrons by plasma wake fields; and demonstrating multi-stage acceleration in laser-driven plasmas.

New configurations of matter. The LHCb experiment discovered new states that cannot be explained as ordinary two- or three-quark matter but instead must be made of four quarks.

Program advances in 2016

Building upon the historic bilateral U.S.-CERN agreement, signed in 2015, U.S. scientists continued their highly successful collaboration at the LHC and worked with CERN to advance the international neutrino program hosted at Fermilab.

The community moved rapidly toward a new era of neutrino physics. Development of the Long-Baseline Neutrino Facility (LBNF) and the Deep Underground Neutrino Experiment (DUNE) became truly international, providing a worldwide focus of scientific research hosted at Fermilab. A coordinated set of short-baseline neutrino experiments designed to answer perplexing questions raised by earlier experiments is proceeding.

Next-generation dark matter and dark energy experiments progressed. The selected dark matter experiments SuperCDMS-SNOLAB, LZ, and ADMX-G2 continued toward construction. The Dark Energy Spectroscopic Instrument (DESI) and the Large Synoptic Survey Telescope (LSST) construction projects continued on schedule.

Community efforts are underway to develop the next-generation cosmic microwave background facility, CMB-S4, which will probe in unique ways the physics of the very early Universe at energies far higher than can be achieved in earthbound accelerators and will also reveal neutrino properties.

Looking forward

All eyes are on the LHC as it continues higher-energy searches for new physics.

Eagerly anticipated new data from operating experiments will advance the understanding of the intertwined Science Drivers.

Japan is considering hosting the International Linear Collider (ILC), which would provide new opportunities for discovery beyond the LHC.

The vibrant U.S. particle theory community will continue to play key roles in terpreting results from current experiments, motivating future experiments, and pursuing the deepest questions about the foundations of particle physics.

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usparticlephysics.org

Most used piece on Users DC trip, used in almost every meeting.

"P5 one pager was the only piece of material that I've seen staffers read and keep outside of the carpet 90% of the times" **DC trip feedback questionnaire**

Front

Particle Physics is Discovery Science

Exploring the Universe

The challenge of particle physics is to discover what our world is made of and how it works at the smallest scales. Particle physics explores the undiscovered universe from the tiniest particles to the outer reaches of space.

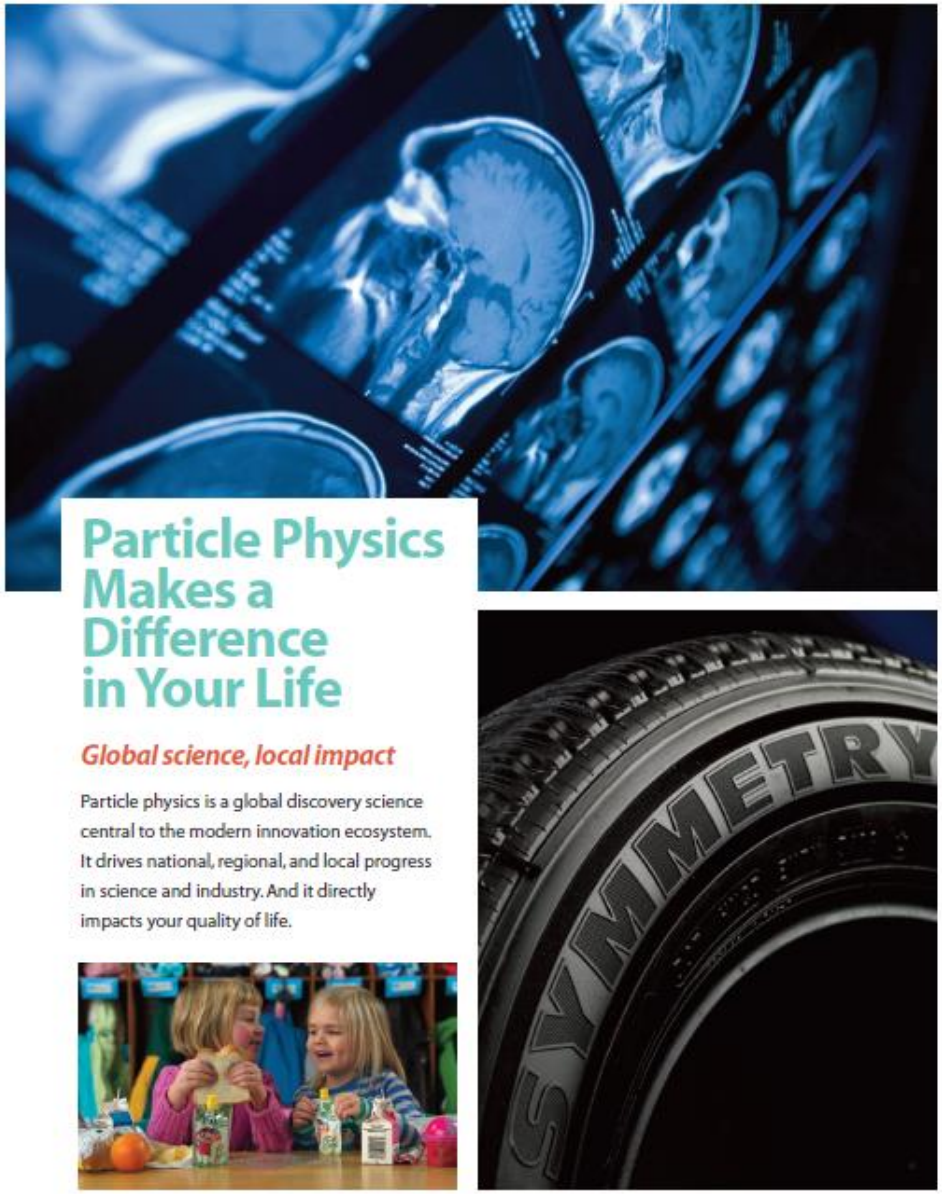
New 'Introduction to Particle Physics'

- Overview of main questions in field
- Benefits to society - leads into other booklet
- Intro into P5 - leads into other booklet

Pictures chosen to represent all P5 projects and priorities

Provided a cheat sheet to trip attendees with more details on images and text

Front



New 'Benefits to society leaflet'

- Medicine
- Sensors and security
- Competing and simulation
- Manufacturing
- STEM

Provided a cheat sheet to trip attendees with more details on images and text

HOW?: What's the drill?

- 54 attendees from UEC/USLUA
  - ~50% "young", ~40% women
- Schedule meetings
  - Sen/Rep Offices: Assigned by algorithm based on connection strength. Visit in pairs with mix of experience, background.
  - Subcommittee Staff: Very important meetings, only experienced trippers.
  - Executive: Organized by chairs.
  - > 350 meetings in 4 days – huge logistical operation!
- Training
  - Education, planning meetings, role playing, homework, final briefings
- Follow-up
  - Thank you notes, more info, specific legislation

Keys to Success: P7

- **Persistence – in making initial contact**
- **Preparation – for your visit**
- **Passion – for particle physics**
- **Positive – in everything**
- **Personal – build relationships**
- **~~Politics~~ – AVOID!**
- **Profuse – in thanks**

HOW?: How did we do?

Senate	Total Members	Scheduled Meetings	%
Congress	535	376	70
Target Committees	155	126	81
Senate	100	69	69
Target Committees	65	55	85
House	435	309	71
Target Committees	90	71	79

Senate Stats

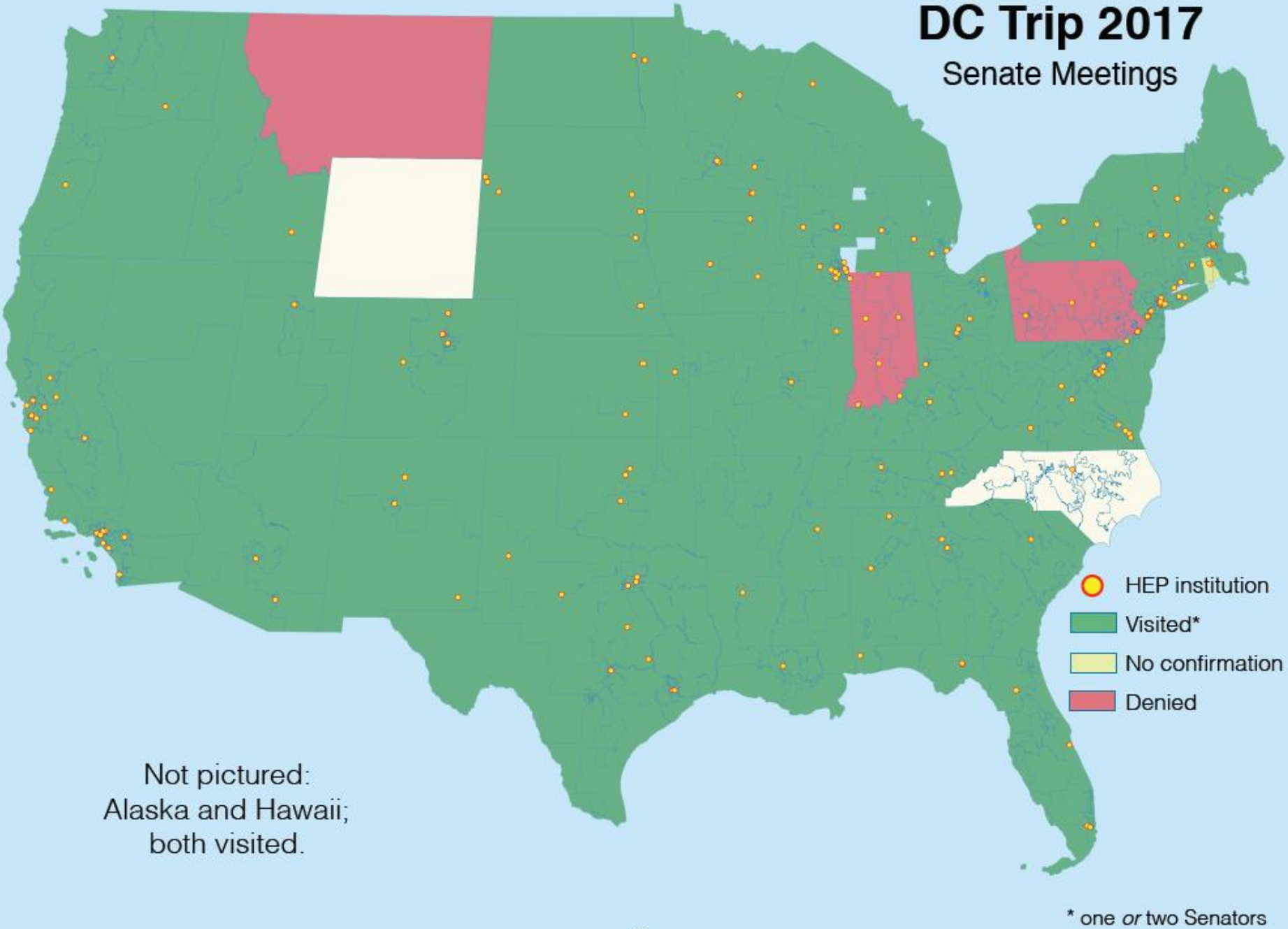
Senate	Total Members	Scheduled Meetings	%	Leadership	Subcmte Staff
Appropriations	32	27	84	CH, RM	
E&W	17	15	88	CH, RM	Yes
CJS&RA	17	15	88	CH, RM	Yes
Energy & Nat Res	22	18	82	CH, RM	
Energy	17	15	88	CH, RM	Yes
ComSciTrans	26	23	88	CH, RM	
Science & Space	13	12	92	CH, RM	Yes

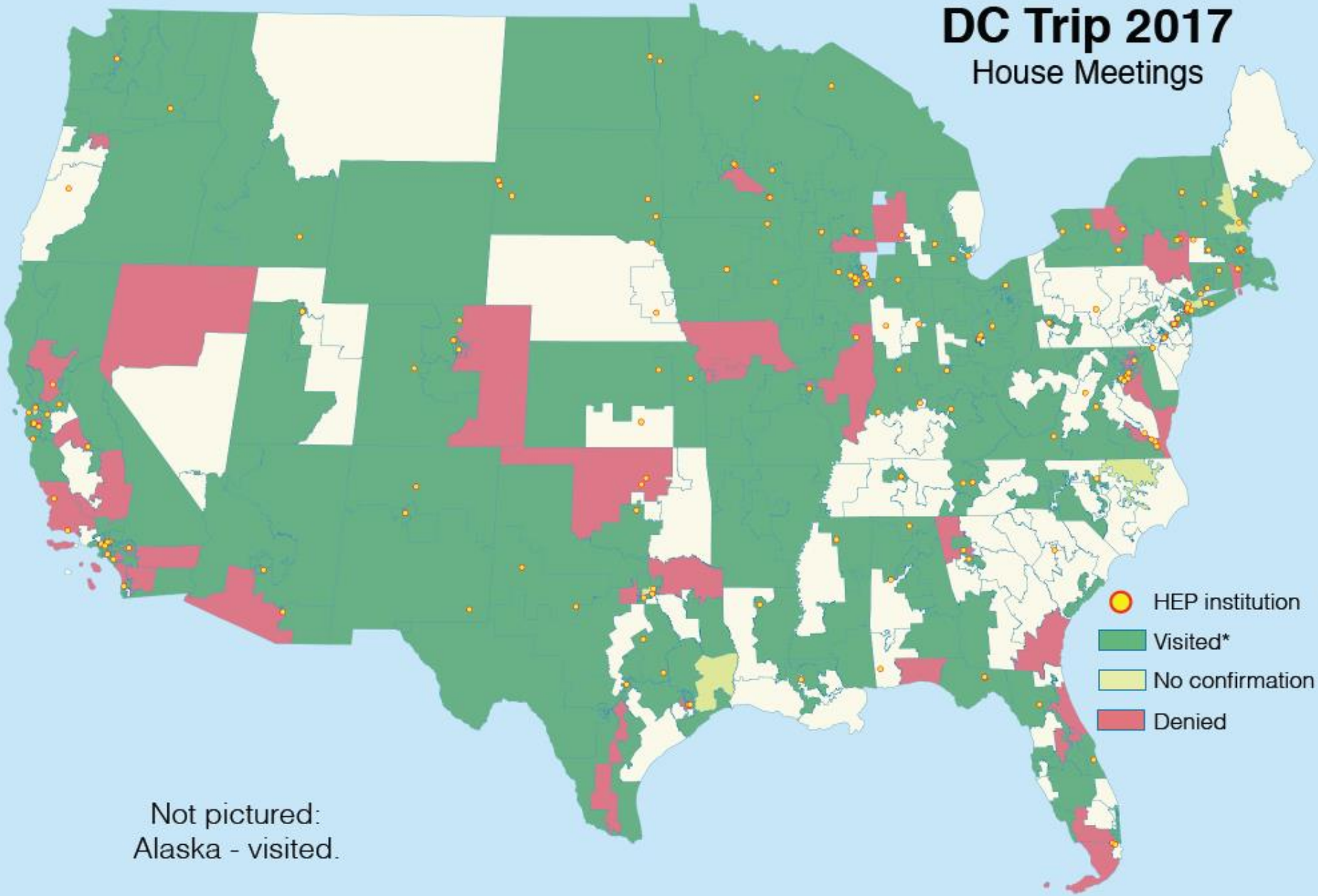
- **Notable misses:**
  - **Appropriations: Kennedy (EW, CJS), Tester (EW), Reed (CJS)**
  - **Energy & Nat Res: Wyden (Energy)**
  - **CST: Moran (SST)**

House Stats

House	Total Members	Scheduled Meetings	%	Leadership	Subcmte Staff
Appropriations	52	41	79	CH, RM	
E&W	13	11	85	CH, RM	Yes
CJS&RA	11	8	73	CH, RM	Yes
SciSpaceTech	38	30	79	CH, RM	
Energy	19	14	74	CH, RM	Yes
Res&Tech	15	12	80	CH, RM	Yes

- **Notable misses:**
  - **Appropriations: Carter (CJS), Cartwright (CJS), Fortenberry (EW), Granger (EW), Meng (CJS)**
  - **SciSpaceTech: Lucas (E,RT), Rosen (E,RT), Webster (E,RT), Takano (E), Bridenstine (E)**


DC Trip 2017
Senate Meetings
HEP institution
Visited*
No confirmation
Denied
Not pictured:
Alaska and Hawaii;
both visited.
* one *or* two Senators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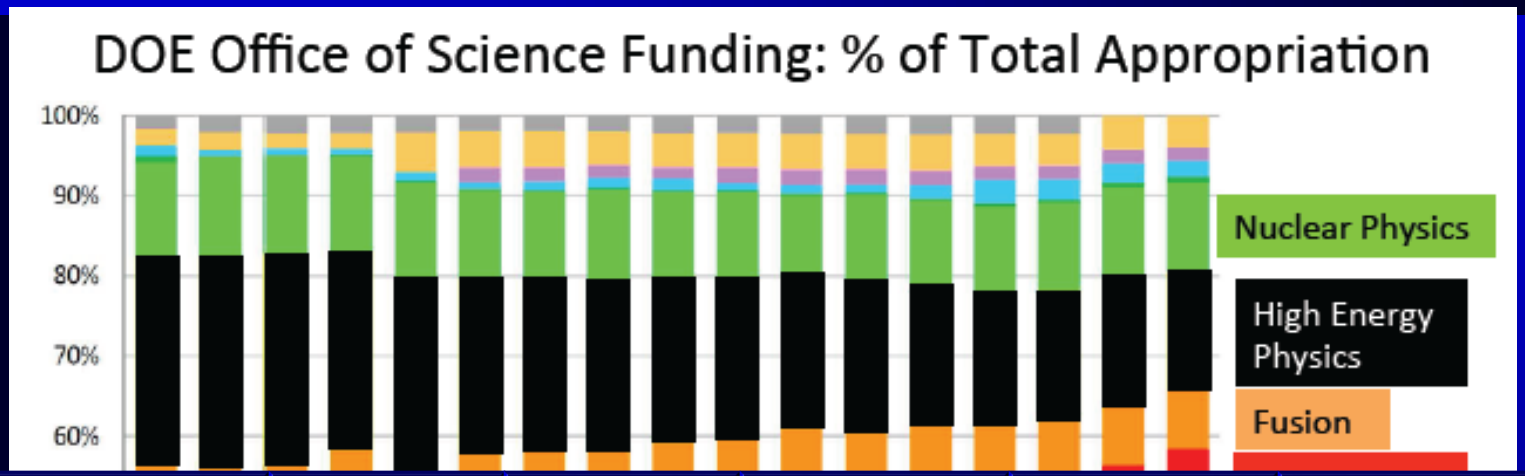
Our Ask and Our Answer

- **PASS THE FY2017 BUDGET**
  - **Congressional Appropriations bills were favorable to HEP**
  - **Energy & Water Appropriations, DOE HEP:**
    - **President Request: $818M**
    - **House: $823M**
    - **Senate: $833M**
- **FY17 Omnibus Bill Passed in May**
  - **DOE HEP: $825M**
  - **HEP only area in Office of Science to fare better in Omnibus than in PBR**

HEP within Office of Science



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Fusion	438	398	-9.1%	380	-13.2%
BES	1,848	1,937	+4.8%	1,872	+1.3%
BER	609	662	+0.9%	612	+0.5%
HEP	795	818	+2.9%	825	+3.8%

FY2018: Still not Done!

- Did not pass bills by October 1
  - PBR: $676M!!!
  - House: $825M
  - Senate: $860M
- Sent community letters to E&W Appropriations
- Mounted a small-scale Fall DC Trip with a 7 member "strike team"
  - Andrea Albert, Yangyang Cheng, Sarah Demers, Corrinne Mills, Harvey Newman, Brian Nord, Breese Quinn
  - Targeted offices/subcommittees: 57 meetings in 3 days
- Ask: PASS THE FY2018 BUDGET
  - With Senate mark of $860M
- Answer pending…
  - House/Senate Budget Agreement first step to avoiding CR and passing Omnibus

Feedback from Visits

- **EVERYONE VERY PLEASED WITH OUR FIELD!!**
  - **Our P5 process and plan are now a model for all of science**
  - **The one point that makes the biggest impression on almost everyone: ALL components of P5 plan are on-schedule and on-budget!**
  - **Very impressed with international response (US-CERN and US-UK formal agreements)**
- **Basic science still a challenge to sell in constrained economic times, but not nearly as hard as it used to be**
- **Nobody in Congress on board with steep science cuts in PBR**
- **In general, very non-partisan issue**
  - **e.g. Chairs and Ranking Members of important subcommittees work very well and very quickly together**
- **Sometimes more an issue of House vs. Senate**
  - **e.g. authorization bills HR589 (targeted) vs SR1460 (comprehensive)**
- **Lack of communication with agencies due to lack of confirmed appointees an issue**

Feedback from Visits

- **More communication**
  - **Come back more often**
  - **Get more non-Appropriators on board (basic science is on the rise, but has to go somewhere; can't just be "science for science's sake")**
  - **Need to focus on talking to leadership (political, as opposed to Committee)**
- **Very encouraging comments**
  - **We never hear "thank you" from anyone. Thanks!"**
  - **"You're doing great work – keep it up!"**
  - **"You guys are really good at delivering your message."**
  - **"You guys bring the best stuff."**
  - **"You must be talking to the right people and have the right supporters, because everyone else is getting cuts, but nobody wants to cut you!"**

Give BIG thanks to…

UEC/FSPA
Sebastian Aderhold
Rui An
Frank Chlebana
Jessica Esquivel
Midhat Farooq
Rob Fine
Wes Gohn
Sowjanya Gollapinni
Cindy Joe
Georgia Karagiorgi
Ed Kearns
Sarah Lockwitz
Carrie McGivern
Monica Nunes
Jesus Orduna
Eric Prebys
Breese Quinn
Louise Suter
Mandy Rominsky
Kanika Sachdev
Thomas Strauss
Justin Vasel
Tammy Walton
Joseph Zennamo

USLUA
Darin Acosta
Jahred Adelman
Yangyang Cheng
Souvik Das
Sarah Demers
Zeynep Demiragli
Javier Duarte
Sergei Gleyzer
Eddie Holik
Rachel Hyneman
Mazin Khader
William McCormack
Samuel Meehan
Corrinne Mills
Jane Nachtmann
Harvey Newman
Verena Outschoorn
Salvatore Rappoccio
Emmanuele Ravaioli
Brian Shuve

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Mark Kemp
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Tim Nelson
Eli Rykoff
Michael Sokoloff
Kelly Stifter
Sam Totorica