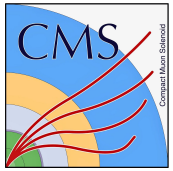


Government Relations & The DC Trip in the 2023 P5 Era

Kiley Kennedy, on behalf of the USLUA Government Relations Subcommittee
Princeton University
14 December 2023

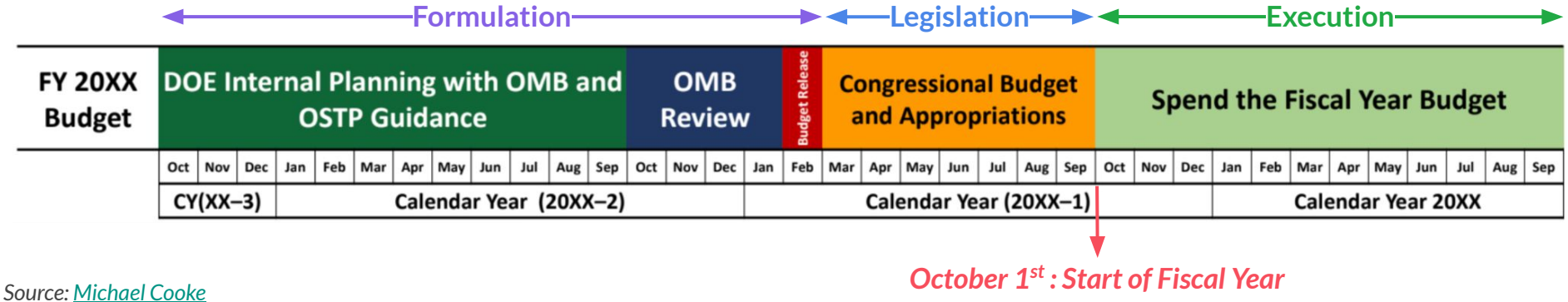
Overview

- **Part I –** The US Federal Funding Process
- **Part II** – The DC Trip
- **Part III** – Advocacy in the 2023 P5 Report Era

Part I
The US Federal Funding Process

Federal Budgeting and Funding in a Nutshell

- ➔ **Formulation**: Executive Branch prepares the President's Budget Request (PBR)
  - White House Office of Management and Budget (OMB) works with executive branch agencies (DOE, NSF) to develop budget proposals based on funding levels and priorities
- ➔ **Legislation**: Congress enacts laws that control spending
  - Each chamber develops its own budget resolutions and bills, which may differ from PBR
  - Bill must be passed by both chambers and signed by the President
- ➔ **Execution**: Executive Branch agencies carry out program



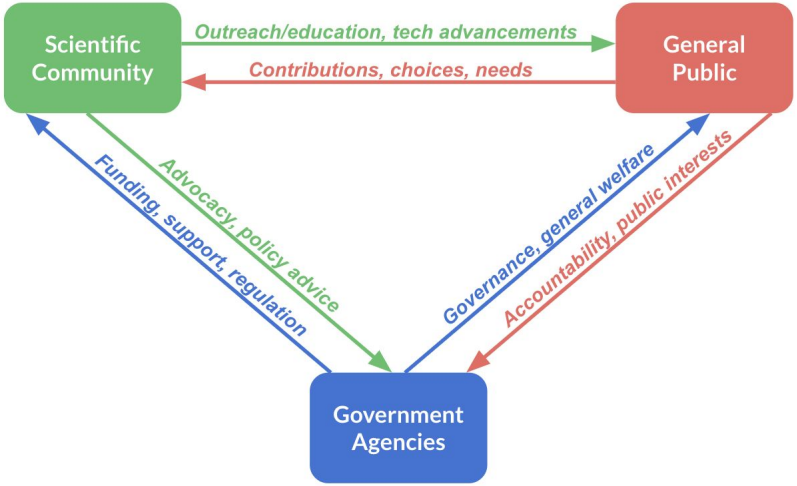
Source: Michael Cooke

Is High Energy Physics “Political”?

- ➔ We (scientists) are embedded in a complex web of varying interests, understanding, and power
- ➔ Funding levels can depend on the interplay of a variety of evolving factors, reflecting the dynamic nature of the government budgeting processes:
  - Political leadership
  - Public sentiment
  - Technological advancement
  - Economic climate
  - Legislation
- ➔ In order to effectively advocate for our research, we need to recognize that many people see our work through a political lens

Public Engagement with Science

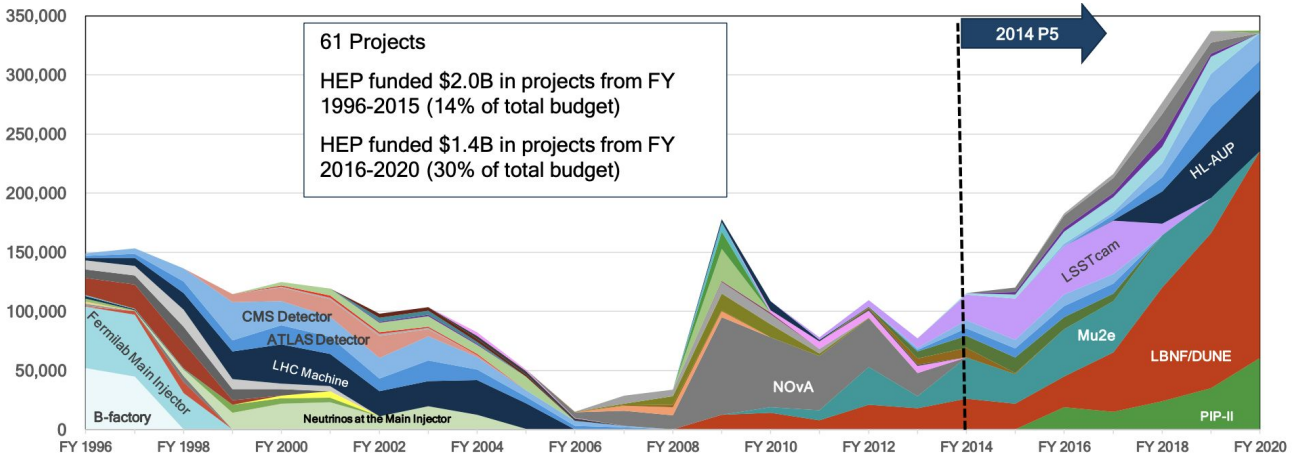
(Disclaimer: highly simplified & non-exhaustive)



Why Advocacy?

Advocacy: ***the act or process of supporting a cause or proposal*** – *Merriam-Webster*

- ➔ High Energy Physics research is supported by taxpayers via congressional appropriations
- ➔ Direct communication with US Congress is critical to:
  - ◆ Inform elected representatives about the impact of HEP funding in the US and globally
  - ◆ Explain the status of our projects and future plans/goals
  - ◆ Demonstrate that we are good stewards of taxpayer funds



Source: HEPAP Talk by R. Rameika, 12/7/2023

Recent Legislation Impacting HEP Funding

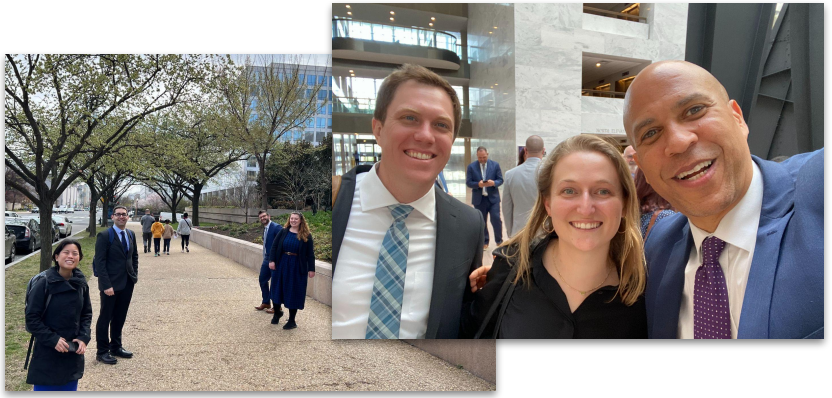
- ➔ CHIPS and Science Act of 2022 – **Authorizes but does not appropriate funding**
  - ◆ Doubles NSF budget over five years
  - ◆ Expands fundamental research at the DOE Office of Science
- ➔ Inflation Reduction Act of 2022
  - ◆ > $300M for high energy physics construction → significant portion to HL-LHC
- ➔ Fiscal Responsibility Act of 2023
  - ◆ Holds non-defense FY24 spending at FY2023 levels with a 1% percent *reduction* if there is a continuing resolution in place on January 1, 2024 (this is currently the case)
  - ◆ Rescinds some unspent IRS and COVID relief funding, including those related to DOE science programs
- ➔ Further Continuing Appropriations and Other Extensions Act, 2023-2024
  - ◆ Continuing resolution provides funding at FY23 levels until ~mid-January for most programs

Constrained funding will lead to increased pressure on science + research budgets

Part II
The DC Trip

HEP Annual Advocacy Effort – The "DC Trip"

- Joint effort between UEC, USLUA, and SLUO, with support from APS DPF, **on behalf of entire US HEP Community**
  - Recent uptick in support and interest from BNL, ANL
- Team of 40-70 travel to DC for ~3-5 days of meetings
  - Completely voluntary – typically reimbursed for travel + lodging expenses, but not time



2023 trip led by Adam Lyon + Kevin Pedro

- Meetings:
  - **Legislator** (most common) – in pairs, meet with up to 541 legislative offices *(100 Senate, 435 House, 6 Non-Voting)*
  - **Committee** – in small groups, meet with relevant Appropriations Subcommittee offices *(e.g. House Research and Technology, Senate Space and Science)*
  - **Executive Agencies** – in groups of ~10-15, meet with OMB, OSTP, DOE (Offices of Science + HEP), NSF

Our Advocacy Goals

"The Ask"

The U.S. particle physics community asks for your support of the P5 report's strategic plan by providing FY2024 appropriations that include:

$1.290B for High Energy Physics within a budget of $9.5B for the Department of Energy's Office of Science, consistent with the bipartisan DOE Science for the Future Act, and $11.9B for the National Science Foundation

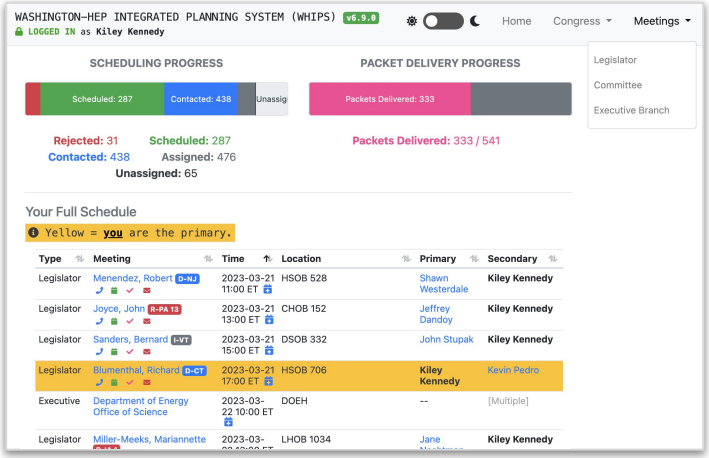
This level of funding, consistent with the CHIPS and Science Act, will advance the P5 priority projects, operations of existing and recently completed large facilities, and completion of small and medium-sized projects. This funding level is especially important to increase support for scientific researchers at universities and national laboratories throughout the nation who are exploring the Higgs Boson, dark matter, dark energy, neutrinos, and the yet-to-be-discovered forces that govern the origin and evolution of our universe.

- ➔ Goals and priorities set by the latest P5 Report
- ➔ Convey the nature, excitement, and importance of the physical sciences, and HEP in particular
- ➔ Establish and build relationships with every congressional office
  - ◆ Especially members who sit on key (sub)committees (e.g. Appropriations; Science, Space, and Technology)

Organization + Materials

WHIPS – *Washington-HEP Integrated Planning System*

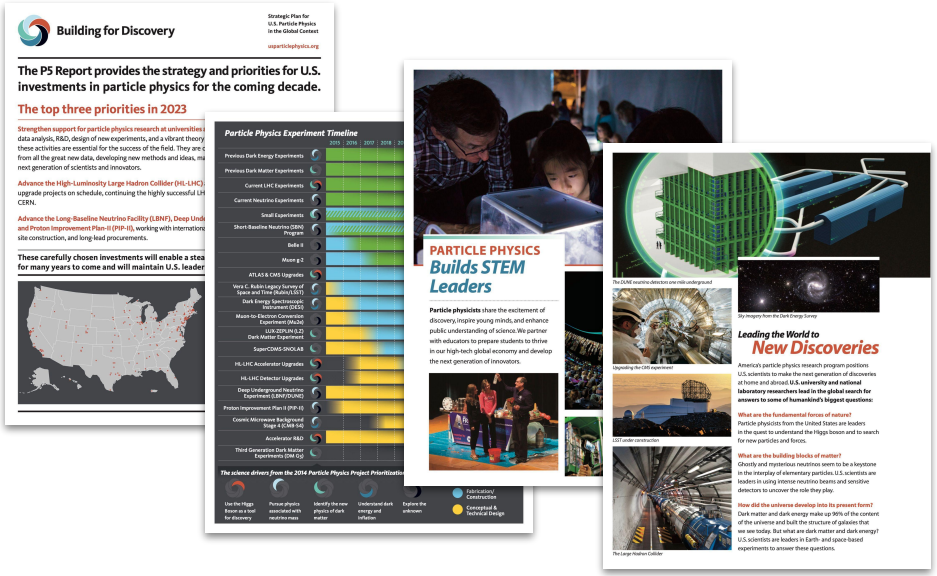
- ➔ Centralized platform for planning, executing, and documenting HEP advocacy efforts
- ➔ Logistics, Institutional Memory, Materials



Developed and maintained by Justin Vasel + Fernanda Psihas

Materials – *"The Packet"*

- ➔ P5 priorities, physics motivations, experiments, facilities, applications, outreach, and much more
- ➔ Adapt materials for each meeting



Led by Michael Cooke (DOE) + the UsParticlePhysics.org Content Group

2023 DC Trip By the Numbers

43
Participants

287
Meetings with Congressional Offices

40+
Meetings with Key Appropriations Staff

438
Congressional Offices Contacted

333
Packets Delivered

4000+
Connections tracked by WHIPS

A big success! Especially considering this was the first in-person trip since 2019

How Can We Do Better? (*A Cutflow Perspective*)

We are generally met with positive feedback across the political spectrum, especially regarding Snowmass/P5. There are always ways we can make our advocacy more effective…

Challenge	2023 Efficiency	Ways to Maintain and Improve
Contact Offices	438/541 = 81%	Increase DC trip participation (more funding)
Meet with Offices	287/438 = 66%	- Increase number of participants (more time and effort to schedule a meeting, more flexibility) - Increase districts represented (e.g. more participants from different districts)
Sign DOE Office of Science Dear Colleague Letter	(123 House + Unclear Senate) /287* → >~ 50%	Improved communications training, continue to build on effective messaging strategies
Sponsor DOE Office of Science Dear Colleague Letter	4/123 = 3%	Build continued, consistent, and reliable relationships with a few offices that prioritize science research

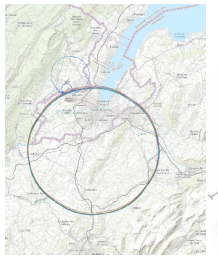
➔ There are also likely more opportunities to analyze and learn from data collected in WHIPS

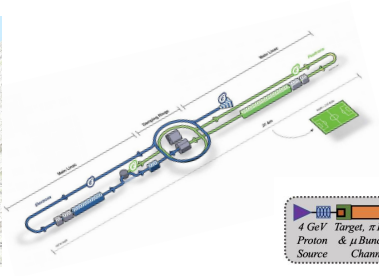
** This number is slightly unfair, since members of Appropriations Committees do not sign these*

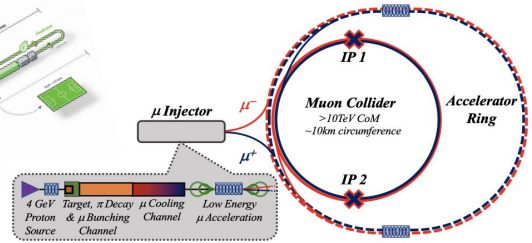
Part III
Advocacy in the 2023 P5 Era

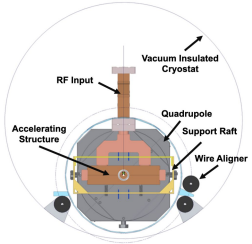
A Collider Zoo!

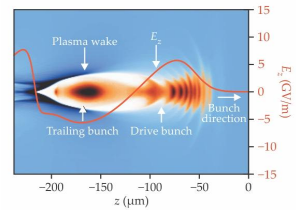
➔ The 2023 P5 Report puts forth an ambitious and exciting pathway to support multiple future collider efforts





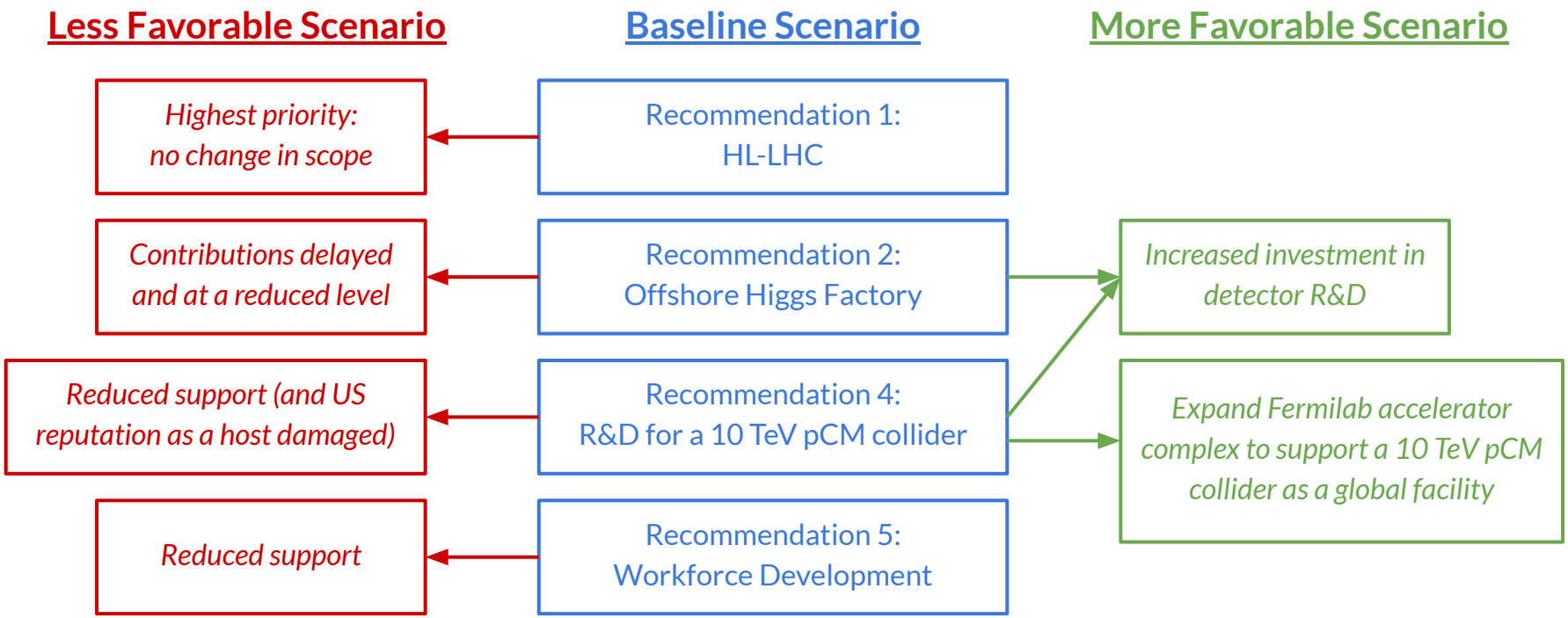






➔ While we can certainly express our particular excitement about one or more of these directions, we should be careful not to disparage the efforts of our colleagues in *outward-facing contexts*

The P5 Report Budget Scenario Breakdown*



➔ Future energy frontier experiments are particularly sensitive to budget fluctuations

*Highly simplified

Additional Budget Assumptions + Considerations

Less Favorable Scenario

Assumes budget increases of 2% per year during FY24-33

Continuing resolution in FY24 is worse than this

Baseline Scenario

Assumes the following budget for HEP:

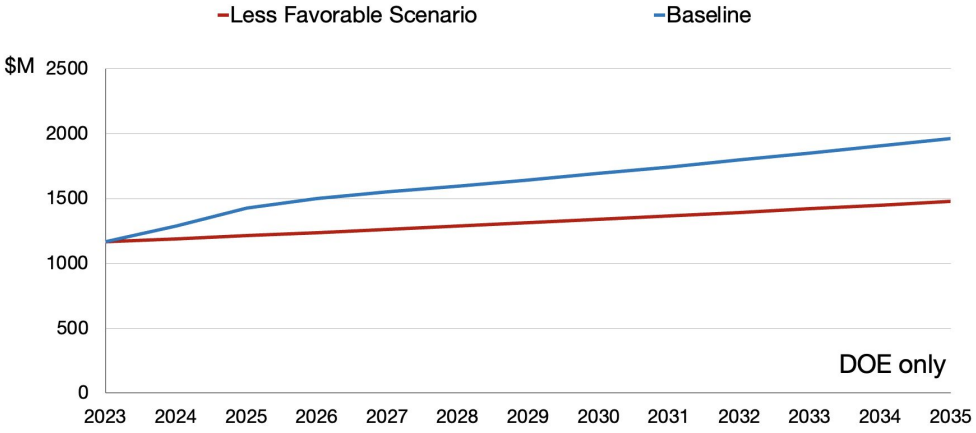
FY23-27 – specified in the CHIPS and Science Act of 2022, with increases

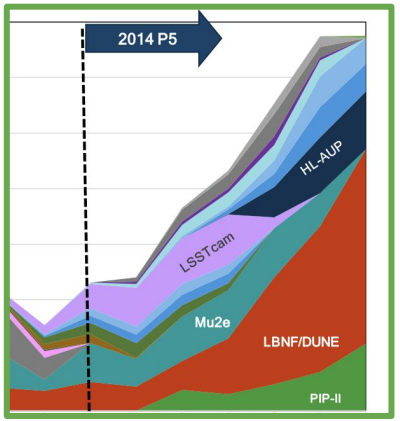
FY28-33 – subsequent increases by 3% per year

More Favorable Scenario

We can still be optimistic (!!!) given the enormous success immediately following the 2014 P5 Report

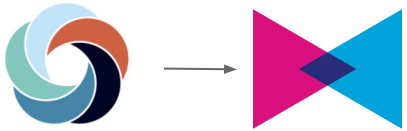
Effective advocacy effort especially important this year



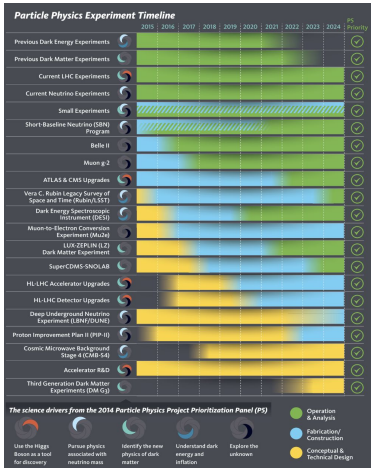


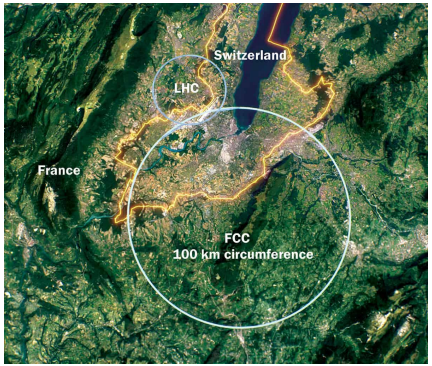
Congressional Messaging: Challenges + Opportunities

How can we translate the evolution of the science drivers from 2014 to 2023?



How can we most effectively communicate the success of the 2014 P5 with the project continuity of the 2023 P5?





How can we market explicitly "offshore" facilities to representatives who primarily focus on issues directly impacting their district?

How can we clearly explain the need for different collider technologies?

How can we package <u>Area Recommendations</u> in a way that conveys their importance to the success of the US HEP program?

What data-driven messaging and communication strategies can we bring to our advocacy materials?

Ingredients to Success in the Next Decade of HEP Funding

DC Trip Preparation

- ❏ Clear, cohesive, and straightforward messaging that directly builds on the 2014 P5
- ❏ A catalog of updated advocacy materials that are easily adaptable to different scenarios
- ❏ A comprehensive (science) communication training program
- ❏ Sustained documentation, support materials, and institutional knowledge

DC Trip Participants

- ❏ An enthusiastic cohort of early career researchers, especially those from congressional districts that are not typically represented
- ❏ A solid group of highly experienced advocates who possess critical institutional knowledge and established Hill connections, and who deeply understand the 2023 P5 report messaging strategy and context

The HEP Community

- ❏ A strong sense of support (both moral and financial) for trip participants

Outlook

- ➔ Legacy of the 2014 P5 Report: The HEP DC Trip is generally recognized as one of the most highly effective advocacy campaigns. We have the opportunity to continue this impressive effort
  - ◆ Prof. Breese Quinn: *"We have worked hard to successfully earn the reputation of being the 'gold standard' of program planning, not just in science, but more broadly. We have profited from that reputation immensely."*
- ➔ The 2023 P5 Report sets up an ambitious and bold trajectory for HEP. Advocacy is critical for the continued robust funding of our field – we can (and should) aspire to a physics program built on the "**more favorable**" scenario
  - ◆ To enable this, the HEP community must actively engage with the federal funding and legislative processes
  - ◆ It is critical to establish and nurture relationships across the legislative and executive branches of government
- ➔ Looking ahead, there is a lot of work to be done!
  - ◆ Develop the new 2023 P5 messaging strategy and materials
  - ◆ Increase DC Trip participation to pre-pandemic levels, with expanded communications training
  - ◆ Expanding our advocacy – engagement with other federal agencies, local offices, state/municipal governments, etc

Are you interested in getting involved or learning more? Please fill out this form or email kileykennedy@princeton.edu

Thank You!

Backup

Inter-Agency Partnerships

➔ In addition to our partnerships with the DOE and NSF, the 2023 P5 emphasizes the importance of building relationships with other US agencies (e.g. **Dept. of State**, **Dept. of Defense**)

2.5

International and Inter-Agency Partnerships

Major facilities like Fermilab in the US, CERN in Europe, and KEK in Japan have led the worldwide effort to advance accelerator-based studies of particle physics. These facilities have enabled many groundbreaking experiments, and their continued leadership roles as host laboratories for future accelerators, cutting-edge experiments, and hubs for international collaborations are important for progress in the field.

Successful completion of the recommended major projects depends on significant coordination and collaboration among US agencies and international partners. Large international projects such as a Higgs factory and DUNE require not only DOE and NSF, but also the US Department of State and other entities in the federal government to work with global partners to establish the complex frameworks involved.

More broadly, these investments lead to valuable partnerships with other DOE Science offices, other US agencies such as the Defense Advanced Research Projects Agency (DARPA) and the National Nuclear Security Agency (NNSA), academia, and industry. These partnerships are dynamic drivers of innovation and progress in accelerators that benefit both particle physics and the nation. They help build a national workforce that can develop and execute major accelerator projects (Section 6.8).

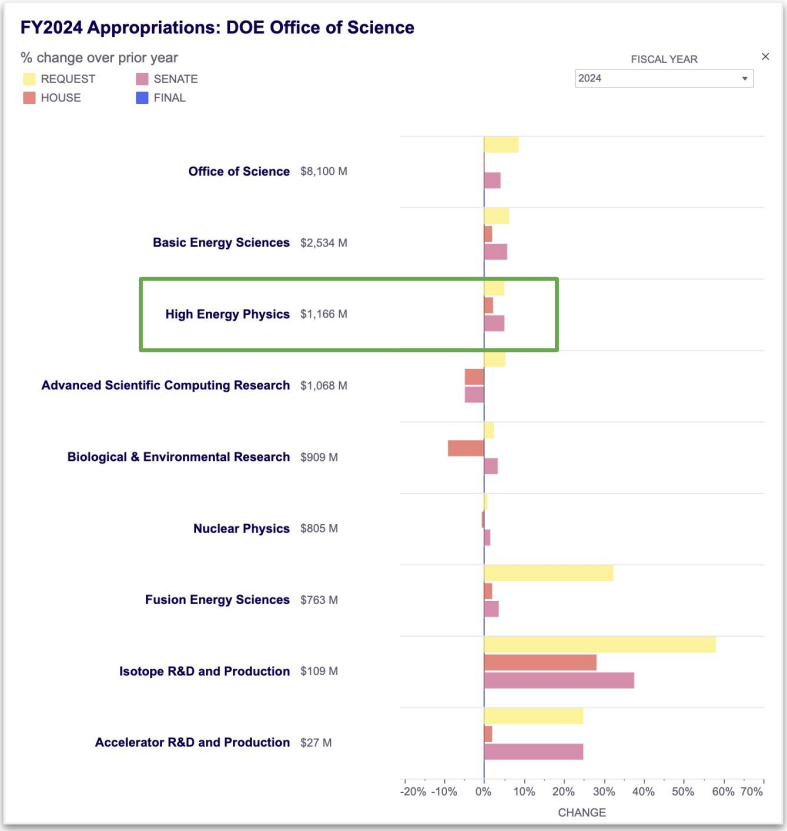
Budget Tracking Resources

➔ AIP Budget Tracker is helpful (AAAS tool *unreliable*)

PROGRAM	ENACTED	REQUEST	HOUSE	SENATE	FINAL
National Science Foundation	$9,874	$11,315	$9,630	$9,500	
Research & Related Activities	$7,839	$9,030	$7,867	$7,608	
Biological Sciences	$857	$972			
Computer & Information Science & Engineering	$1,051	$1,172			
Engineering	$809	$970			
Geosciences	$1,613	$1,802			
Integrative Activities	$547	$658			
Mathematical & Physical Sciences	$1,686	$1,836			
Office of International Science and Engineering	$69	$71			
Polar Programs		$566			
Social, Behavioral & Economic Sciences	$313	$361			
Technology, Innovation, and Partnerships	$880	$1,186			
STEM Education	$1,371	$1,444	$1,006	$1,228	
Agency Operations & Award Management	$448	$504	$472	$448	
Major Research Equipment & Facilities Constructio	$187	$305	$254	$187	
Mid-Scale Research Infrastructure	$76	$105		$95	
Antarctica Infrastructure Modernization Project	$60	$60			
High Luminosity LHC Upgrade	$33	$38			
Vera C. Rubin Observatory	$15	$8			
Leadership-Class Computing Facility		$93		$0	

CHANGE

-100% 100%



Science Communication Resources + References

Science Communication Resources

- ➔ AAAS Science Communication Toolkit
- ➔ Forbes Tips for Communicating Science

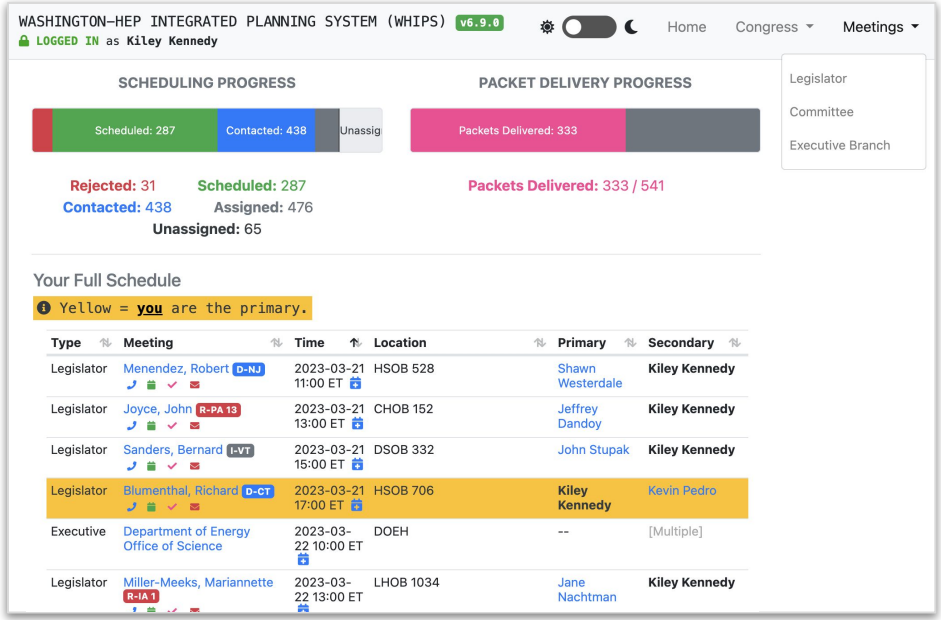
References

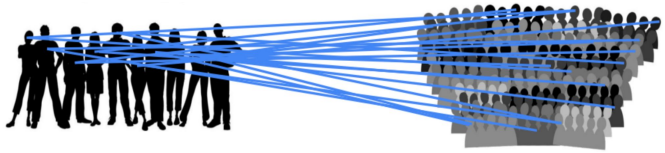
- ➔ The Importance of Science Communication
- ➔ Tips for Effective Science Communication
- ➔ Engagement of scientists with the public and policymakers to promote alternative methods

Organization – WHIPS *(Washington-HEP Integrated Planning System)*

Centralized platform for planning, executing, and documenting HEP advocacy efforts

- ➔ Logistics
  - ◆ Attendee profiles + connections
  - ◆ Members of Congress + committee affiliations
  - ◆ Meetings (Legislator, Committee, Executive)
- ➔ Institutional Memory
  - ◆ Meeting reports
  - ◆ Historical trip performance
- ➔ Materials
  - ◆ DOE and NSF grant awards data
  - ◆ Fermilab procurement data
  - ◆ SULI and CCI student internships programs data

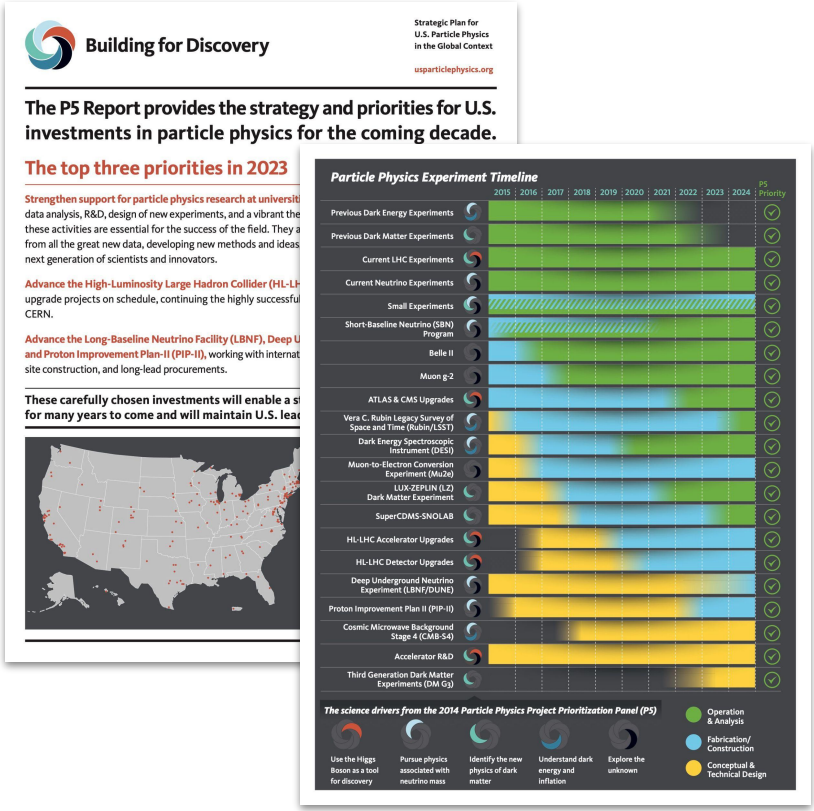




Developed and maintained by Justin Vasel + Fernanda Psihas

Organization – Materials

Led by Michael Cooke at the DOE



➔ "The Packet" contains a wide variety of information + brochures

- Physics questions, experiments + facilities, applications, outreach, and much more → Adapt materials for each meeting
- Updated annually by the UsParticlePhysics.org Content Group