



# High Energy Physics Research Program

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**Office of High Energy Physics**

# Outline

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- **Intro**
  - Why are we here?
  - What do we hope to achieve?
- **HEP Research Program**
  - General structure and organization
- **P5 Plan and implications for HEP Research**
  - Research budget
  - Research priorities
  - Timelines
- **Outro**
  - Roadmap for the rest of the agenda



# Inaugural HEP PI Meeting

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- **HEP has not (in recent memory) held an “all PI” meeting. Why are we doing it now?**
  - Release of P5 report was expected to generate a lot of questions
  - office travel budgets in recent years + advent of comparative review process have limited site visits
  - Snowmass “frontier” PI meetings viewed as largely successful
- **What are the goals for this meeting?**
  - Communicate DOE response to P5
  - Communicate DOE funding opportunities
  - Provide venue for PI’s to:
    - Discuss program details with managers
    - Discuss big picture with HEP management
    - Explore options for projects, new proposals...

# We Rely on PIs

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- **PI's are the representative of the institution that gets the award and the manager of that award**
  - We rely on PIs to be effective managers
- **We want you to be successful in carrying out your research**
  - PIs have broad flexibility to carry out their program within the scope of the grant award
    - We can work with you to make adjustments if needed
- **If there are any local issues that arise we expect you to solve them**
  - In case of serious issues, changes in senior personnel, changes in roles or responsibilities of the research group:
    - Contact your program manager and/or grant monitor
- **The few, the proud, the brave can be called to higher management roles (more on this later)**

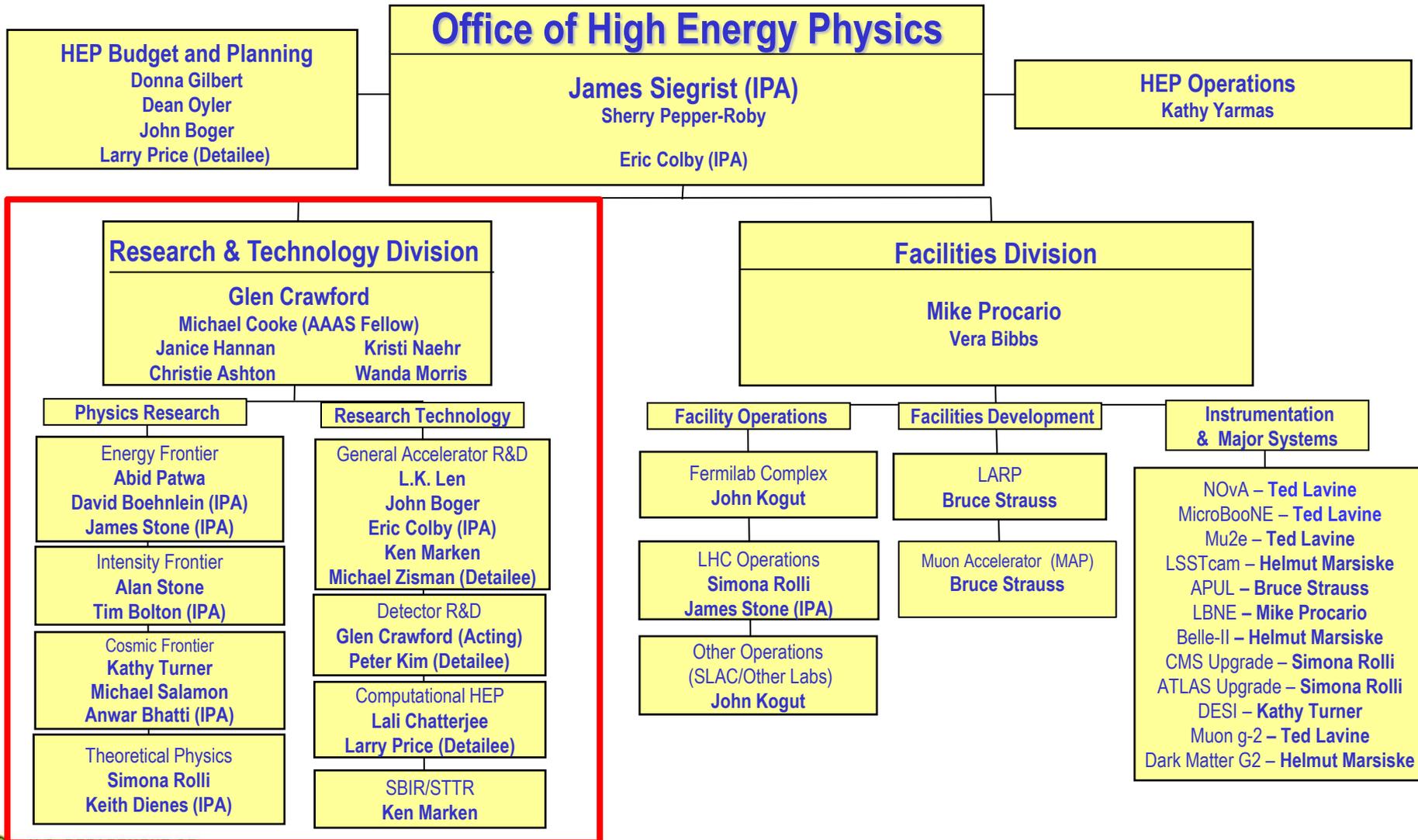
# DOE HEP 101

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- **DOE is a Mission Agency and Office of Science and HEP are embedded in that system**
  - Each part of the agency has goals and objectives that flow from its mission and a strategic plan
  - Our HEP mission is “to understand the universe at its most fundamental level.”
  - The strategic plan to achieve that mission has two essential components:
    - The scientific priorities, defined by the field (via HEPAP/P5)
    - The implementation strategies chosen by the agencies
      - Note that DOE and NSF have in general somewhat different goals, objectives, and strategies. This is a good thing.
- **You just heard about the science priorities and the initial DOE implementation concepts. The rest follows by deduction...**
  - For example, one of the criteria for proposal funding decisions is “programmatically considerations”: this means program priorities and plans



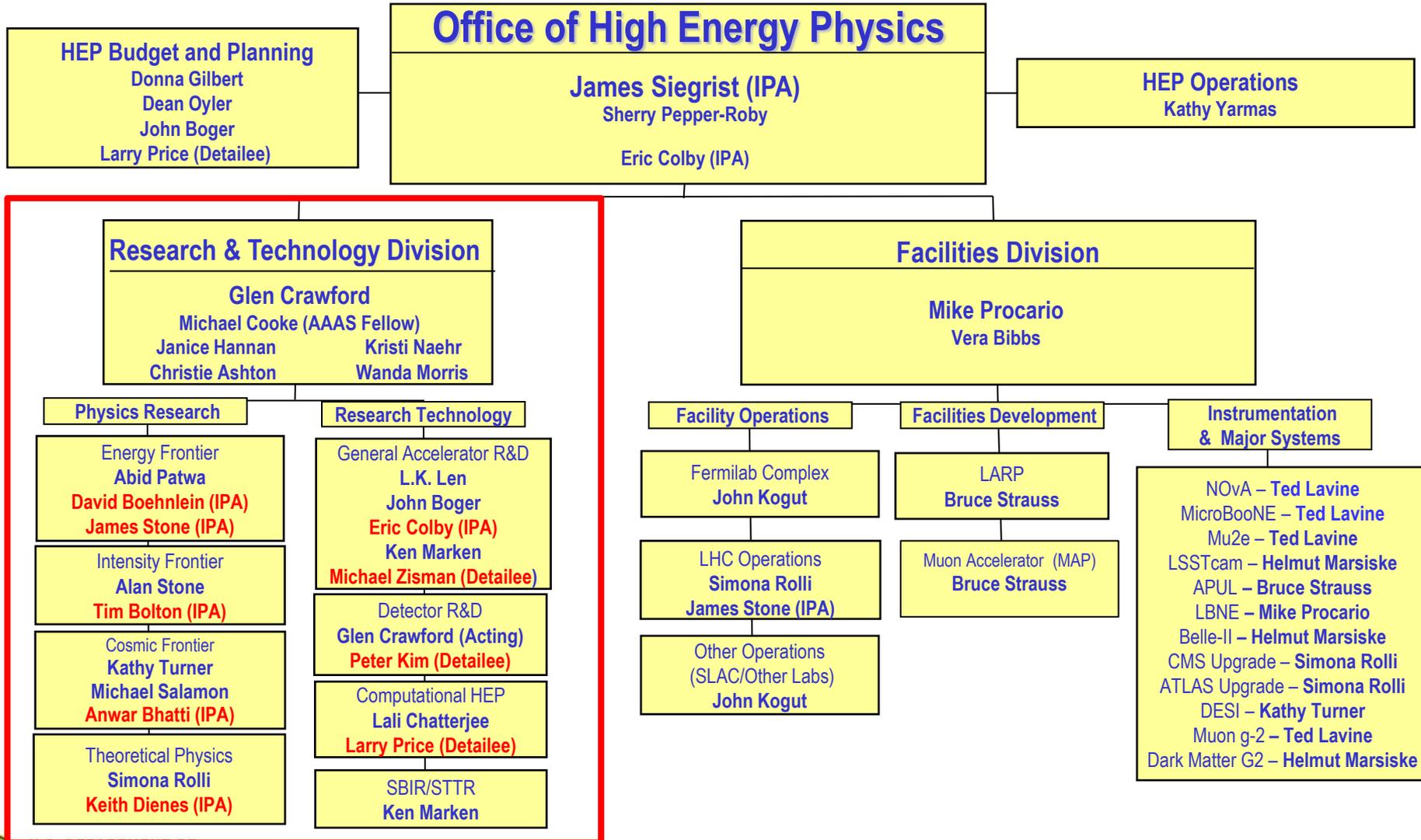
# HEP Organization Chart



U.S. DEPARTMENT OF  
**ENERGY**

Office of Science

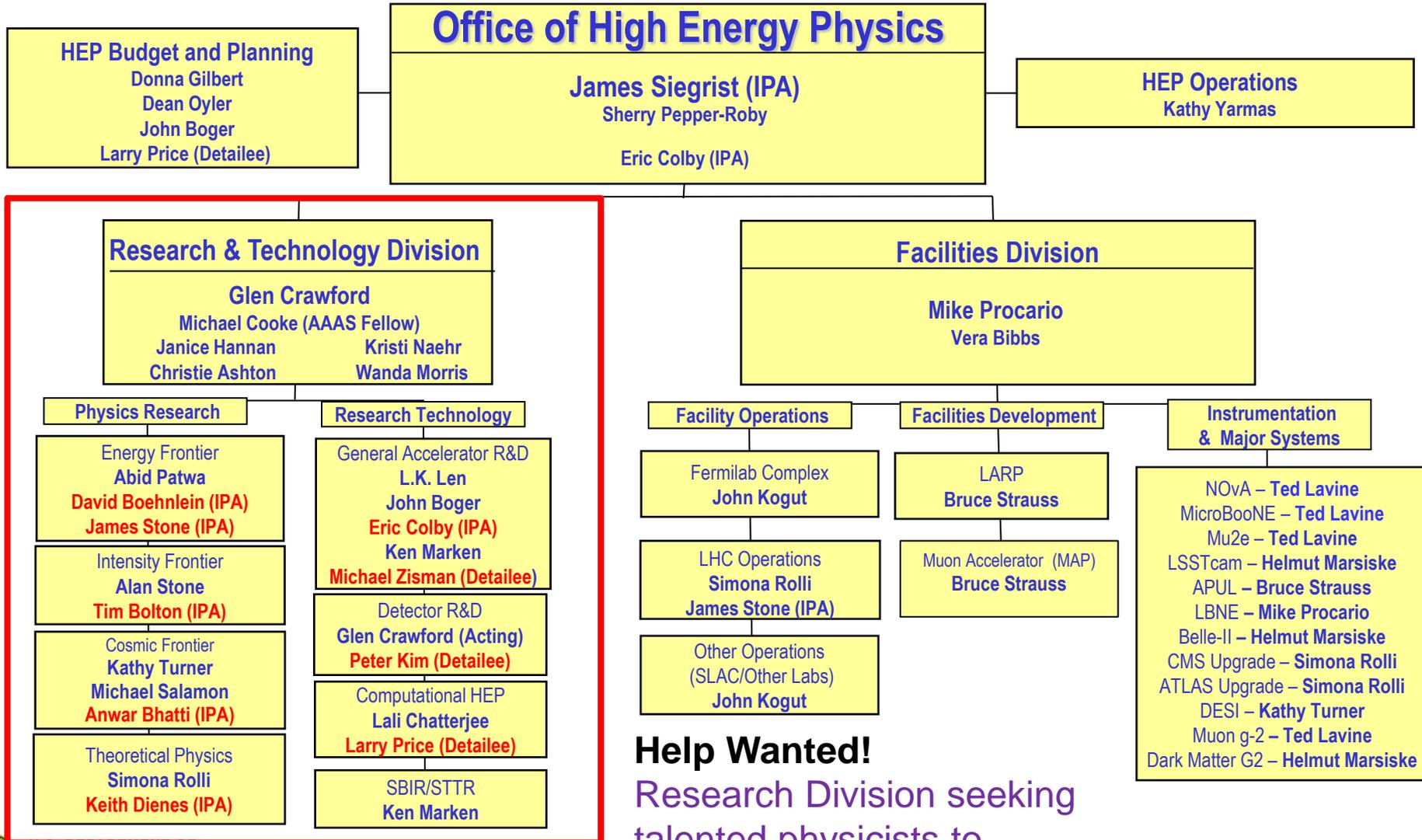
# HEP Organization Chart



U.S. DEPARTMENT OF  
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# HEP Organization Chart



**Help Wanted!**  
 Research Division seeking  
 talented physicists to  
 implement P5 plan.



U.S. DEPARTMENT OF  
**ENERGY**

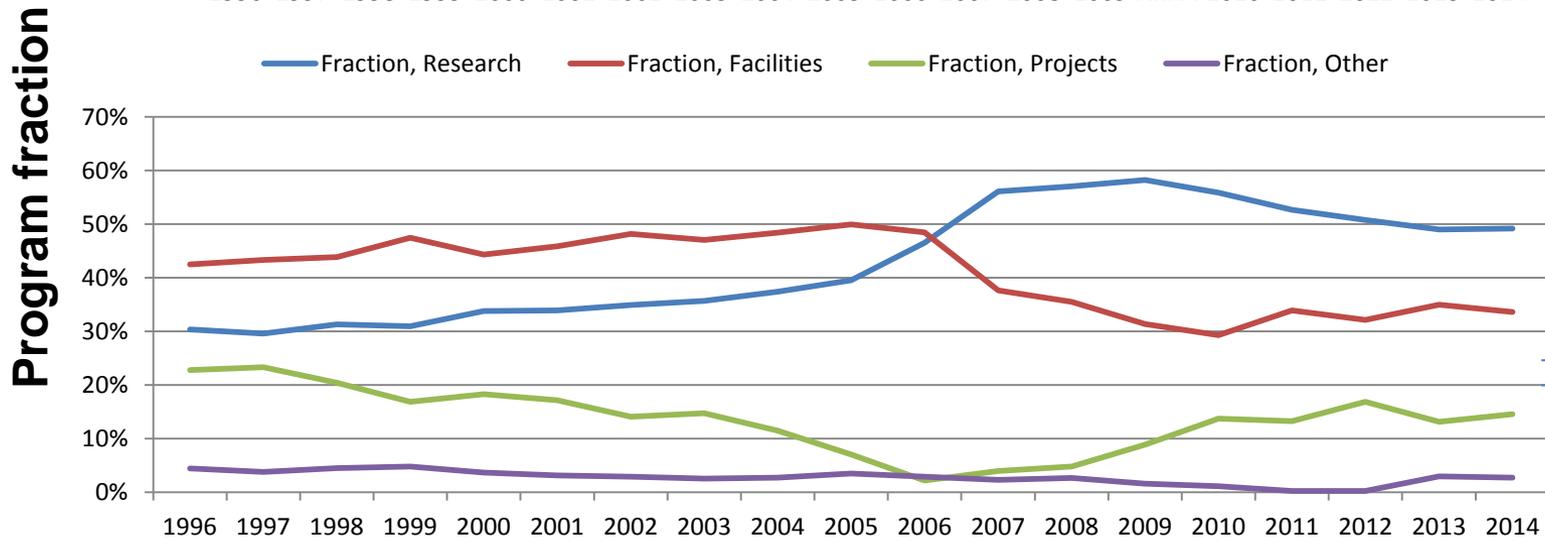
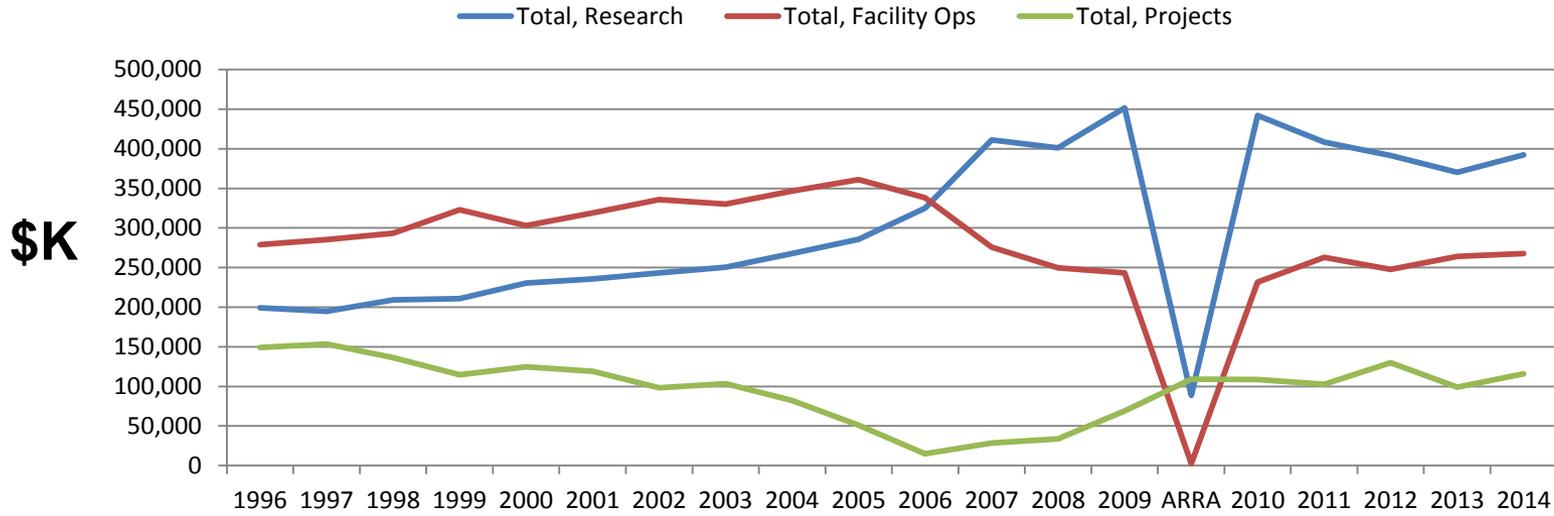
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# HEP Research Program

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- **Context: overall HEP budgets have been declining for over a decade (at least in level of effort if not total dollars)**
  - However Research budgets grew dramatically in mid-2000's (mostly due to growth in Technology R&D) and only now are starting to come back down (see next slide)
  - P5 recommendation to increase investment in new facilities and experiments while maintaining Research >40% of the HEP budget will be challenging but looks do-able
    - Some of this will come from redirection of Technology R&D efforts into new projects
    - Some of this will come from redirection of lab research programs to better align with P5 priorities
    - Some of this will come from ramping out of activities that were not recommended by P5 in any scenario
      - Depending on the situation modest R&D efforts may still be supported
      - Program Managers will discuss details in Breakout sessions

# Research / Facilities / Projects



# HEP Research Priorities

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- **Support a robust theoretical research program**
- **Support ongoing experimental research in the portfolio**
  - Subject to periodic reviews of science productivity and impact
- **Support physics studies and R&D for future facilities and experiments prioritized by P5**
  - Pre-CD0, *project-oriented* R&D efforts supported by the relevant Research subprogram. Post-CD0 efforts should be largely supported “on-project”
  - Generic R&D efforts supported by Technology R&D programs
    - Further discussions in Accelerator R&D breakout (today) and Detector R&D session (tomorrow)
- **Support students, postdocs, early career scientists**
  - In both regular research grants and special FOAs such as ECA

# Relevant P5 Recommendations

- **These priorities will be executed with a view to the relevant P5 Recommendations:**
  - **Recommendation 6:** *In addition to reaping timely science from projects, the research program should provide the flexibility to support new ideas and developments.*
    - Appropriately balance current and future programs
  - **Recommendation 7:** *Any further reduction in level of effort for research should be planned with care, including assessment of potential damage in addition to alignment with the P5 vision.*
    - Avoid further reductions in Research level of effort wherever possible, except for efforts inconsistent with P5 plan
  - **Recommendation 9:** *Funding for participation of U.S. particle physicists in experiments hosted by other agencies and other countries is appropriate and important but should be evaluated in the context of the Drivers and the P5 Criteria and should not compromise the success of prioritized and approved particle physics experiments.*
    - Projects not currently in the US HEP portfolio should be carefully evaluated before making commitments, with an understanding of potential impacts on the portfolio
    - When in doubt, refer to the 5 Drivers and P5 criteria

# Timelines

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- **Notional timelines for new projects were laid out in the P5 report (Figure 1) based on current understanding of budgets and technical readiness**
  - This was intended to be illustrative, not a detailed schedule
    - Density analysis of Figure 1 is not a useful exercise
- **Actual timelines for new projects are bound to be different**
  - We will take that into account as best we can
  - Projects of sufficient scale will still have to follow DOE budget and project rules (see Topical Discussion #3 tomorrow)
  - Requests for R&D funding that exhibit a realistic understanding of these factors are more likely to succeed
- **Proposal timelines are fixed by the calendar of funding opportunities and grant awards**
  - See following talk for details

# Outline of the Rest of the Meeting

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- **Funding Opportunities**
  - All the technical details about DOE proposal requirements ; how proposals are reviewed; different kinds of funding opportunities
- **Program Manager Breakouts (Frontiers, Theory, Technology R&D)**
  - Overview of research subprograms and priorities for those subprograms
  - Opportunities for one-on-one meetings with program managers
  - Note: Detector R&D session Tue PM; Stewardship covered in Accel R&D
- **Project Presentations**
  - Hear about research and R&D opportunities from leaders of those efforts
- **Topical Discussions**
  - Short presentations with extended Q&A on general interest topics identified by participants:
    - University program issues
    - Grants FAQ
    - DOE Budget process
- **Feedback welcome!**
  - What worked, what didn't, what you would like to see
  - Will review in Tue PM “wrap up” session