U.S. DEPARTMENT OF ENERGY

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Advanced Scientific Computing Research

BER/NERSC Requirements Gathering Workshop

September 11 & 12, 2012

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Topics for Discussion

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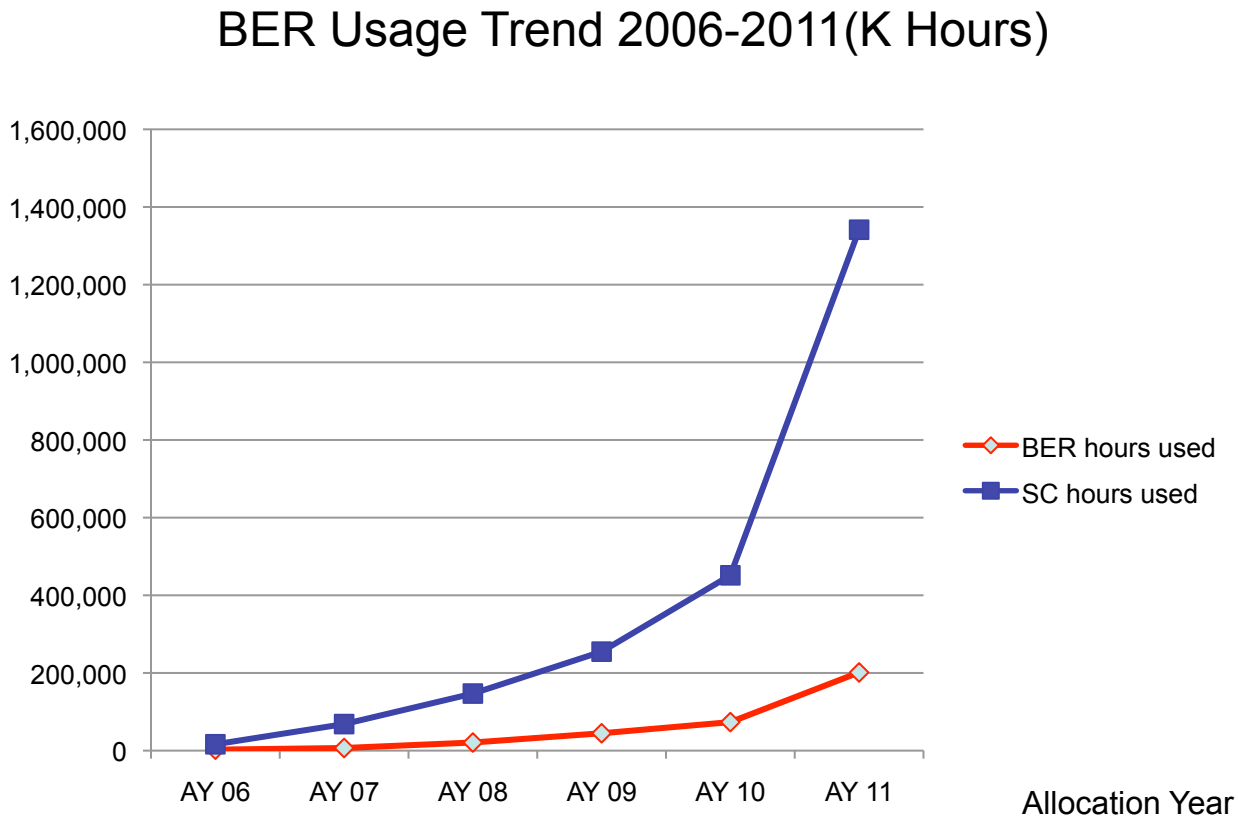
- Goal and Outcome of this Workshop
- Other approaches to NERSC requirements gathering
- Benefits of SC/HQ-centric requirements gathering for NERSC resources in the context of Programmatic mission needs
- NERSC requirements gathering workshop schedule
- Past NERSC Requirements WS's and NERSC Follow-on Actions

Goal/Outcome of This Workshop

- The mission of NERSC is to accelerate the pace of scientific discovery by providing supercomputing capabilities, applicable software and middleware, expert consulting services, data analysis, visualization, and storage, and communications services for research sponsored by the Office of Science.
- The goal of this workshop is to accurately characterize and document BER's needs for NERSC resources for the next 3-5 years and give input to:
  - NERSC-8 requirements and
  - NERSC Five-Year Plan
- The tangible outcome of the workshop will be a report that includes both the HPC and data requirements and a supporting narrative.

This workshop will help ensure that NERSC continues to provide world-class support for BER's scientific discovery.

BER Usage Trend



Cray XE-6 (Hopper Equivalent Hours)

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BER Request-Initial Allocation-Usage-Charge

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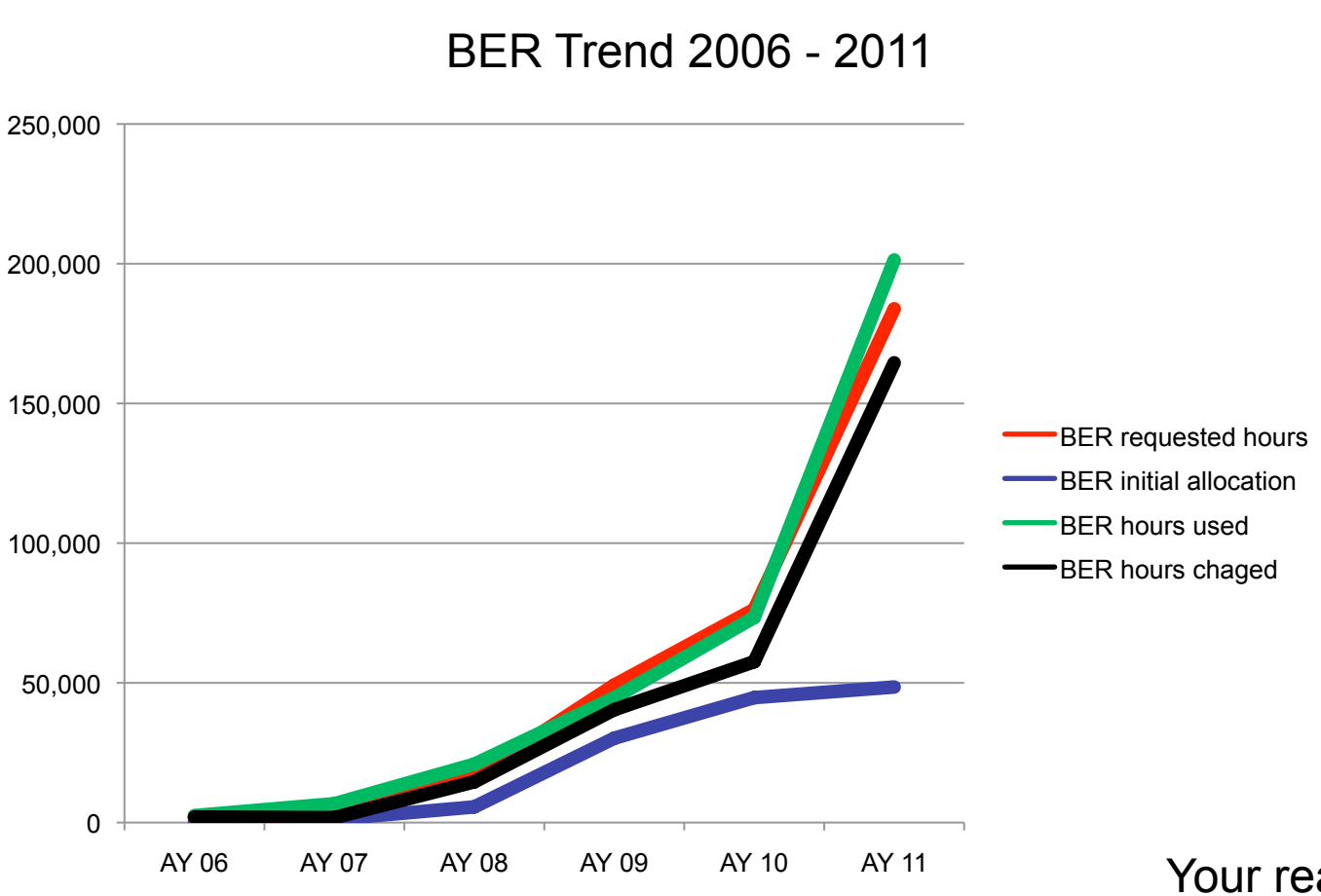

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Your real needs in 2015- 2018

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* http://www.nersc.gov/about/NUG/nugex_members.php

Benefits of Conducting NERSC Requirements Workshops in Three-Year Cycle

- SC Programs' need for NERSC resources are increasing rapidly, and their requirements are also changing more rapidly than before.
- Requirements gathering workshops in the DC area in the three-year cycle can capture rapidly changing Program-specific needs for NERSC resources better.
- We can document SC programmatic needs for NERSC resources that may not be captured in the existing five-year cycle planning tools.
- SC Program Offices will have direct input on the requirements and can provide forecasts of needs aligned with mission priorities.
- Scientists can get direct feedback on Program mission priorities.
- NERSC Staff can help quantify scientists' needs interactively.
- The new workshops will augment the existing, user-oriented requirements documents.

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Program/NERSC Requirements Gathering Workshops

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- **Program's active involvement is critical in all phases of the workshop: in pre-workshop planning, conducting the workshop, and writing the final report – Program Owns the Workshop**
- **Timeframe and location: Two – three workshops/year, in the DC Area.** BER May and HEP Nov 2009; BES February and FES August 2010; ASCR January 2011,. NP May 2011; **BER September, 2012**
- **NERSC Facilitators (NERSC staff) have the knowledge of end products; and translate Program's needs in quantitative ways; can help Scientists articulate and quantify their needs if necessary; and help Program and NERSC Management forecast Program's future needs.**
- **Program Office representatives Susan Gregurick, Dorothy Koch, and Renu Joseph have been working very closely with NERSC Program Manager and Workshop Facilitators.**
- **NERSC prepares templates for "Business Cases"** for information gathering and report writing for participants' convenience (similar to those used in ESnet WS and the first BER/NERSC WS).
- **Prior to the workshop, participants fill out the templates** to: (1) capture information and (2) use them as a backbone of the workshop report.

Requirements WS's and NERSC Follow-on Actions

- We held the 1st BER/NERSC Requirements Workshop in May 2009.
- BER scientists told us that they wished to be able to reserve NERSC resources recurrently at specific Interval.
- NERSC Response: New Service for Franklin Dedicated Time Reservation:
  - NERSC is testing a new service which will allow users who need access to a large number of nodes to make a reservation for a certain date, time and duration.
  - http://www.nersc.gov/nusers/systems/franklin/running_jobs/reservation.php
- BER, HEP, BES, FES, ASCR, and NP WS participants told NERSC that they wanted a testbed to try new architectures and or languages.
- NERSC Response: a testbed available as part of NERSC-6.
- Offers many training courses .
- We Listen to you!

NERSC-7 Cray Cascade

NERSC-8 ??

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