# DOE Office of Science Computing Facility Operational Assessment Program

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# Objective

- The DOE Office of Science is required to conduct an Operational Assessment (OA) Review of the efficiencies in the **steady-state operations** of each of the DOE Office of Science High Performance Computing (HPC) Facilities.
- OMB requirement for capital planning once an asset is procured and operational
- Focuses on the measurement of **customer results, business and strategic results, financial performance, and innovation**.

# Scope

- First operational review of the Office of Science Facilities
- Serves as a baseline for subsequent years
- Asked to provide input on the appropriateness and value of:
  - the performance measures put forth by the facilities for Operational Assessment (OA)
  - the criteria suggested for those measures
  - the current facility baseline values.
- The OA review is asked to provide constructive feedback on what areas each facility should focus on for improvement.

# HPC Facilities reviewed

- Oak Ridge National Laboratory Leadership Computing Facility (OLCF), which includes NCCS
- NERSC
- The Molecular Science Computing Facility (MSCF) part of the Environmental Molecular Sciences Laboratory (EMSL) at the Pacific Northwest National Laboratory (PNNL), and the Leadership Computing Facilities
- Starting next year: Argonne National Lab

# 1.1 Customer satisfaction

- Center score on the user survey
  - emphasize the importance of the user survey
- Observation: very low user participation (~10%)
  - NERSC has a large user base (~3000) so it is still a fair number
  - OLCF has a small user base (~300) so it translates to about 30 users
  - MSCF has exceptionally high use participation but the survey is for all of EMSL facilities and comprises of only 10 questions

# 1.2 Problem resolution

- Consultants
- Tracking system
- Reply time
- Escalation
- etc…
- All Centers are doing extremely well
- The Centers are expected to resolve at least 80% of the problems within 3 days.

# 1.3 User support

- Centers' integrated approach to helping users
  - Web documentation
  - Tutorials
  - Training days
  - Meetings
  - Teleconferences
  - etc..

# 2. Business Results

- Center business results are measured in three ways:
  - Resource availability
  - Resource utilization
  - Capability usage.
- For each of the above metrics each Center computes measures using formulas that reflect their mission and operations policies, developed with the concurrence of the Program Office.

# 3. Strategic Results

- DOE Strategic Goal 3.1 or 3.2
- The Centers are evaluated on how well you, the users, do your science
  - Science output (papers, presentations, etc.)
  - Science accomplishments (the Center keeps track of the progress  of each project)

# 4. Financial Performance

- Operational Cost Effectiveness
  - Identify the ways that the Centers save money
- Risk Management
  - How the Centers deal with systems failure
  - Mitigation plan
  - etc.

# 5. Innovation

- Infusing,HPC Best Practices
  - The Centers strive to be leaders in HPC technology and in the importation as well as the dissemination of HPC best practices
- Technology Transfer
  - partnership with computer and scientific software vendors
  - educational activities and workshops
  - contributions to open source software efforts
  - etc…