U.S. DEPARTMENT OF ENERGY

Office of Science

Work for Others Program

Interagency Work

U.S. Department of Energy

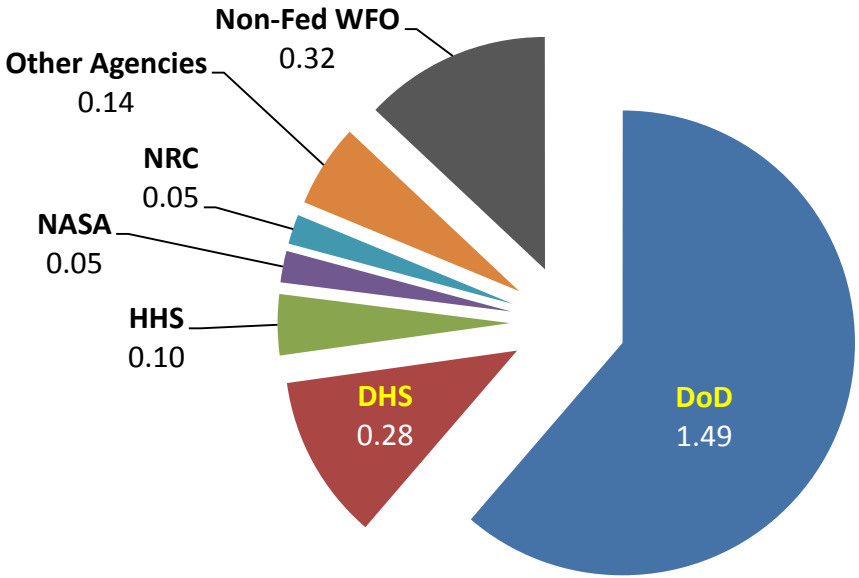
October 2014

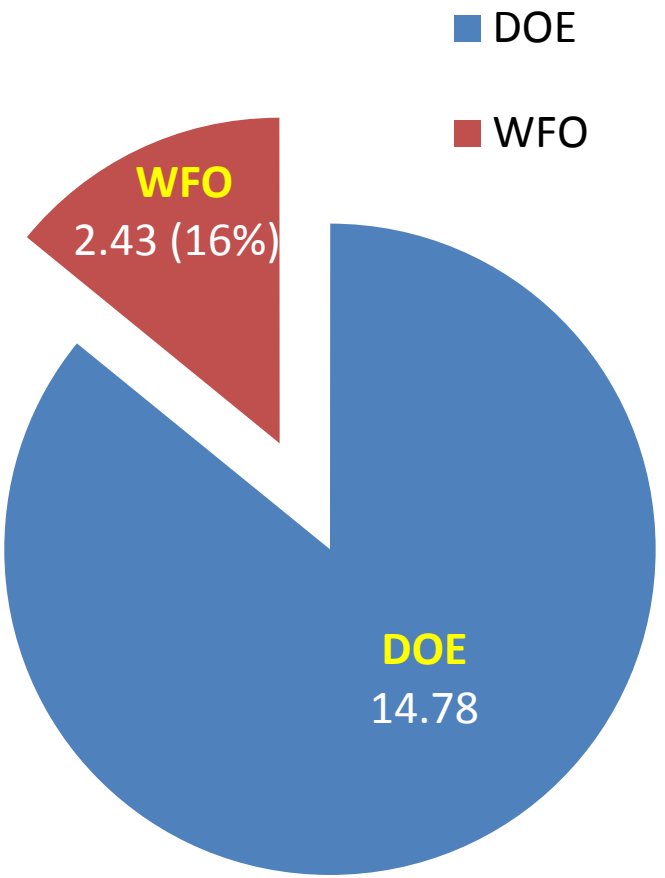
U.S. DEPARTMENT OF ENERGY

Office of Science

WFO Cost by Major Sponsor

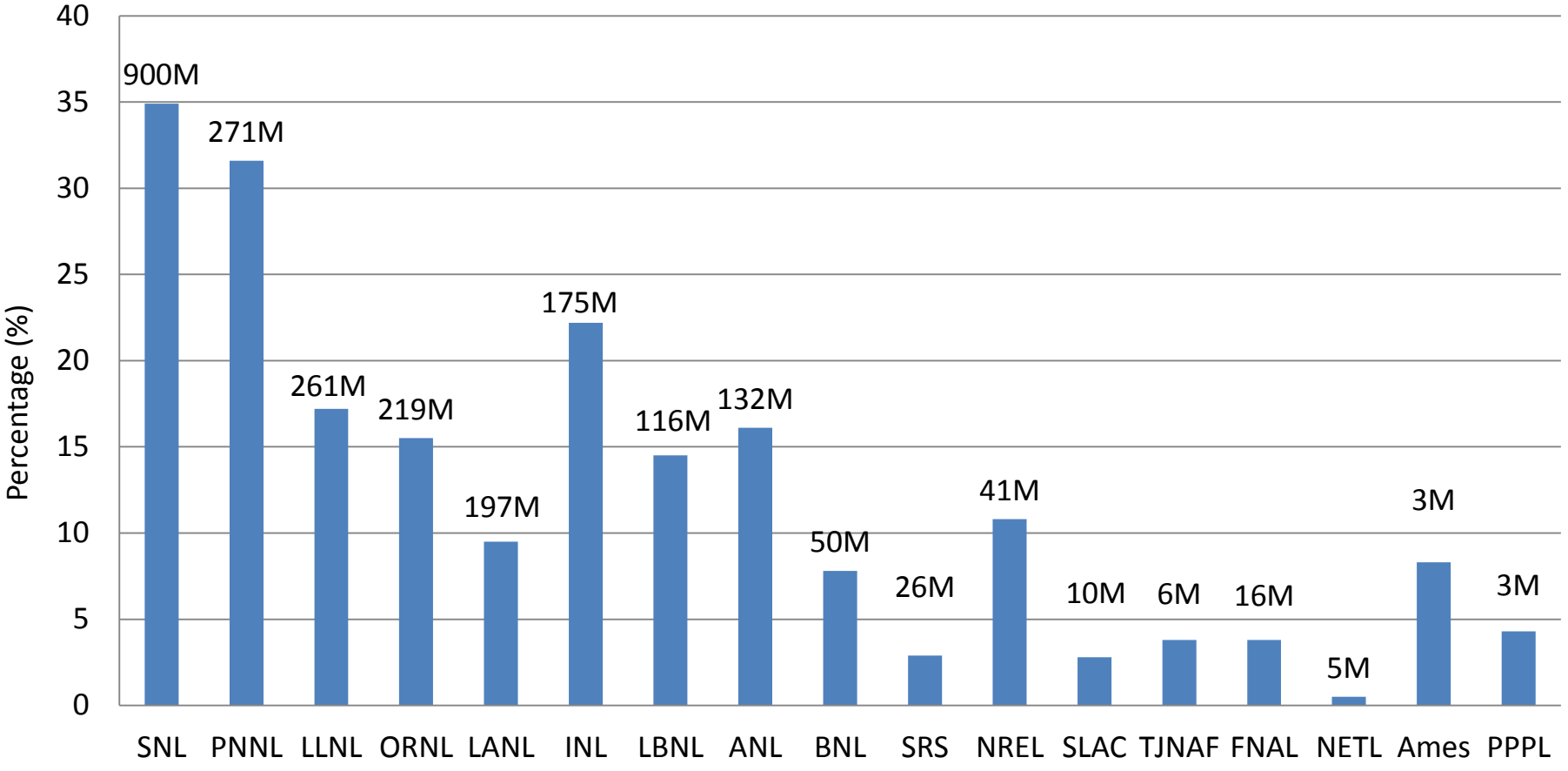
FY 2013 ($ in billions)





WFO Percentage/Cost by DOE Laboratory

FY 2013



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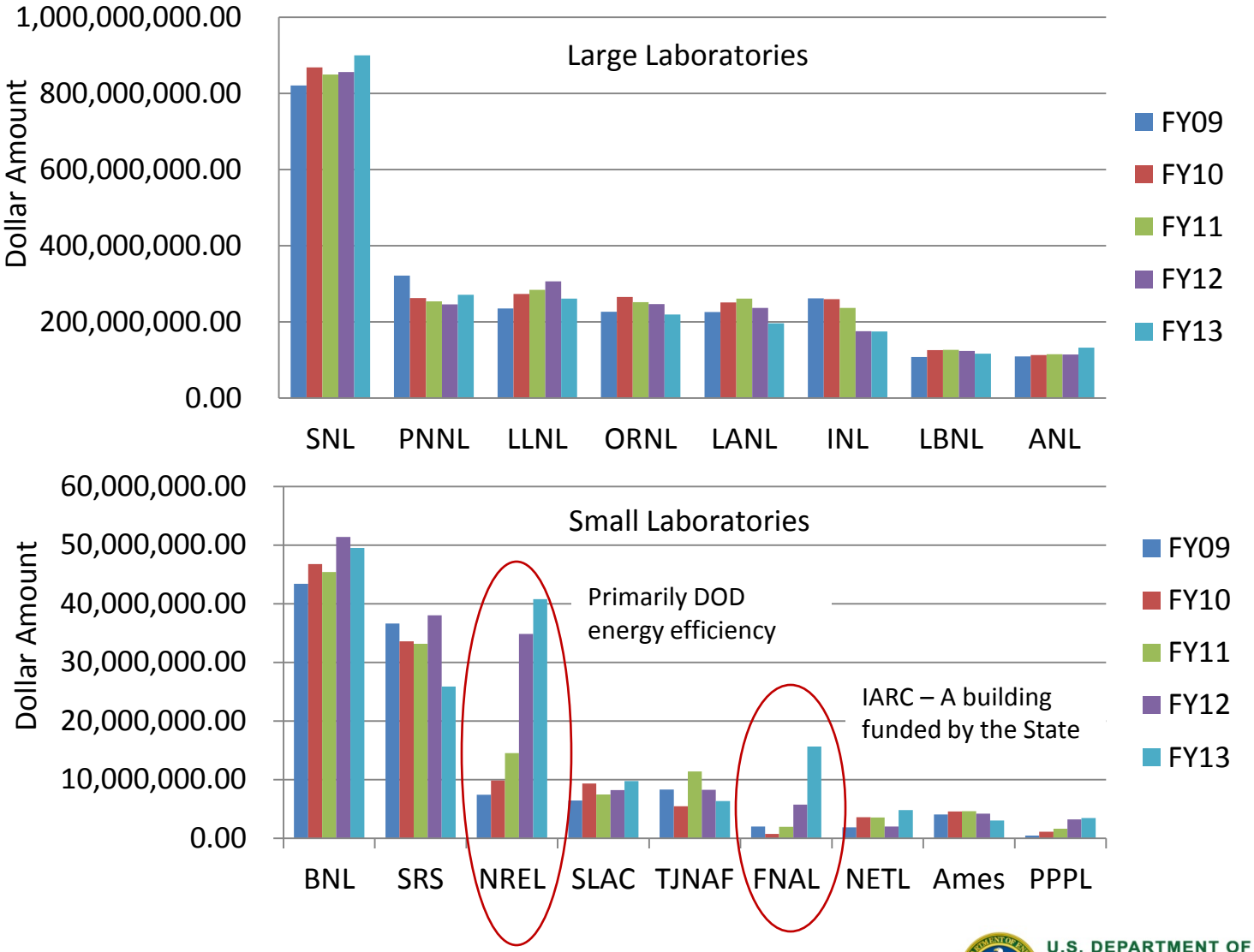
Trends: Total WFO Cost by Laboratory

FY 2009 – FY 2013



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The Benefits of WFO

- ***For the taxpayer:*** Avoids the need to duplicate Federal facilities.
- ***For the country (agencies, private sector, universities):*** Provides highly specialized and/or unique laboratories and facilities, services, or technical expertise when private sector facilities are inadequate.
- ***For DOE:*** Enhances core capabilities and the science and technology (S&T) base at the DOE laboratories; nourishes cross-fertilization of ideas, approaches, and a vibrant intellectual environment.
- ***For agency sponsors:*** Allows leverage of world-class S&T capabilities and access to very multi-disciplinary approach to problem-solving. Safe, secure, & classified environments.

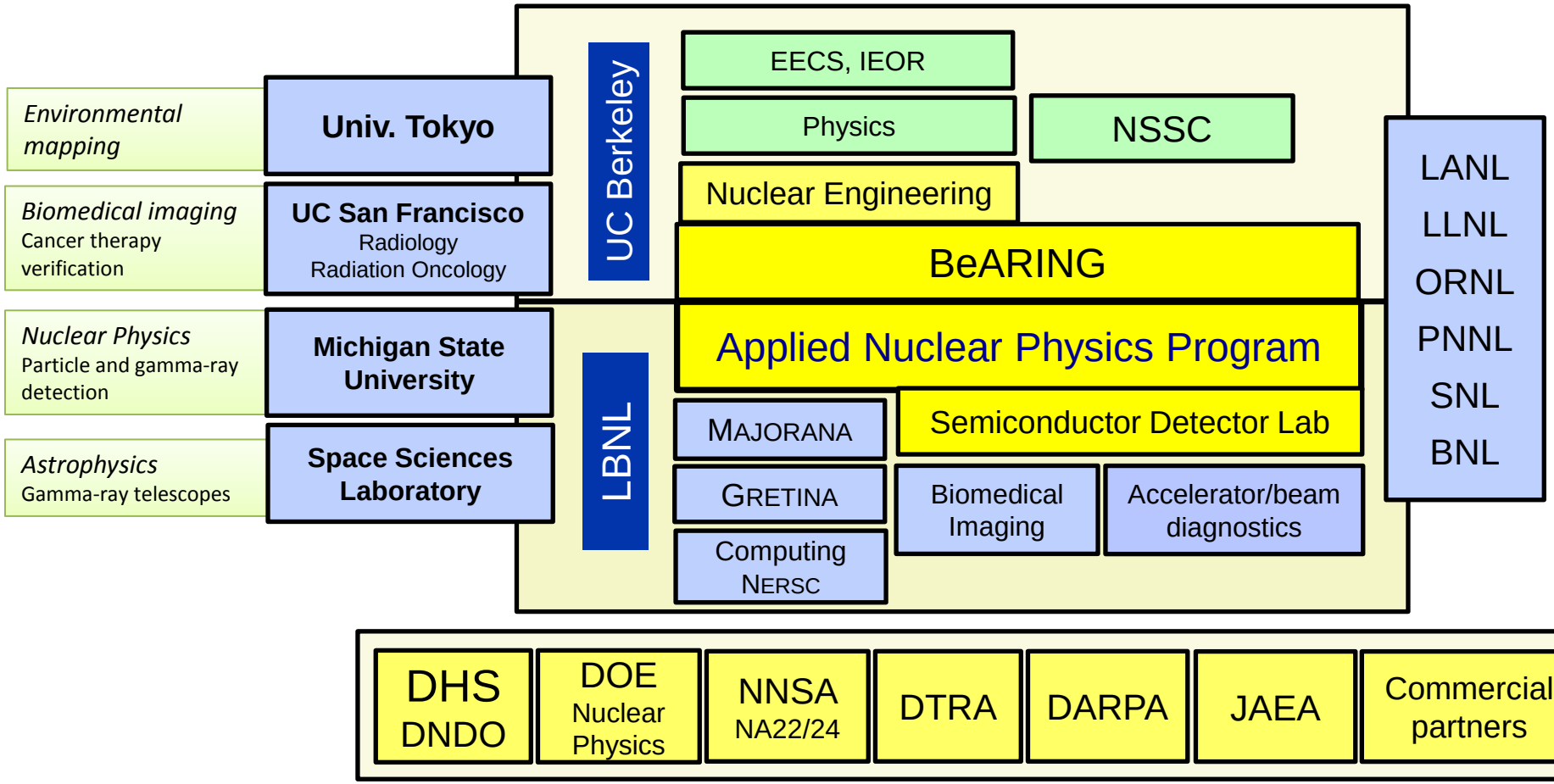
National Security Capabilities are Leveraged

- Department of Defense
  - **Self-Assembled Monolayers on Mesoporous Supports (SAMMS)** Developed at PNNL for DOE to selectively bind mercury from contaminated groundwater, but can be tailored to bind to other materials of interest, e.g., removal of carbon dioxide in Navy submarines.
  - **BLU-129/B Precision Bomb** developed by DOD, LLNL, and industry partners via the Joint DOD/DOE Munitions Technology Development Program was first delivered to theater in Afghanistan in 2011. The technologies were outgrowth of SNL's nuclear weapon component responsibilities, and a product of SNL's Modified Miniature Synthetic Aperture Radar (MiniSAR) system, "Copperhead", that was mounted on unmanned aerial vehicles to uncover IED's in Afghanistan and Iraq.
- Department of Homeland Security
  - **Direct, real time vapor measurement of low volatility explosives**, the "holy grail" of explosives detection [e.g., real-time ultra-trace (sub-ppt) vapor detection] was developed by PNNL as extension of expertise in fundamental ion chemistry.
  - **Better prediction of the impacts on the energy sector from a catastrophic events** (e.g., improvised nuclear device) builds on ANL's computer modeling and analytical capabilities.

Scientific Facilities Support the National S&T Enterprise

- Advanced Photon Source at ANL:
  - NIH has funded multiple beamlines through grants to various universities.
  - Two partnering NIH institutes (NIGMS and NCI) supported the construction of two insertion device and one bending magnet beamline which provides world leading microcrystallography capabilities (enabled the structure determination efforts that lead to Brian Kobilka being awarded the 2012 Nobel Prize in Chemistry)
  - NIH recently provided $2.0 M for the purchase of a high performance detector for the second insertion device beamline
- National Synchrotron Light Source II at BNL:
  - NIH is funding the design and construction of three beamlines at NSLS-II to serve the needs of the life sciences community
- Advanced Light Source at LBNL:
  - NIH and DOE co-funded two beamlines used for combined cystallography, small angle X-ray scattering and soft X-ray tomography
  - NIH funds annual operations for two beamlines used for macromolecular crystallography
  - 13% of ALS users are funded by NIH and 11% by NSF

The Labs are the Great Integrators: Applied Physics at LBNL



The Whole is More than the Sum of the Parts

- DOE/EERE funding at PNNL (1990s) developed initial hydropower facilities and modeling capabilities and, following an LDRD investment in sensor technology, built the early "sensor fish."
- As DOE funding declined, ACOE's, BPA 's and other utilities' funding ramped up ($10-25M/year) to support the environmental studies required to continue operating dams on the Columbia and Snake rivers.
- These agencies built three substantial capabilities that now support DOE/EERE's goals for sustainable hydropower. PNNL's focus is on biological design criteria for new hydropower turbines.

The moral of the story…

- These hydropower and fish passage capabilities would never have been developed on the levels of funding available from DOE-EERE, and would have been lost altogether during the years the program was zeroed out.
- These capabilities would not be nearly as robust and useful *to all sponsors* if the lab had depended on *any single* source of funding.
- These capabilities also draw from database servers at EMSL and battery development capabilities developed to support DOE's grid and transportation programs but are important to the acoustic tags for fish sensors.

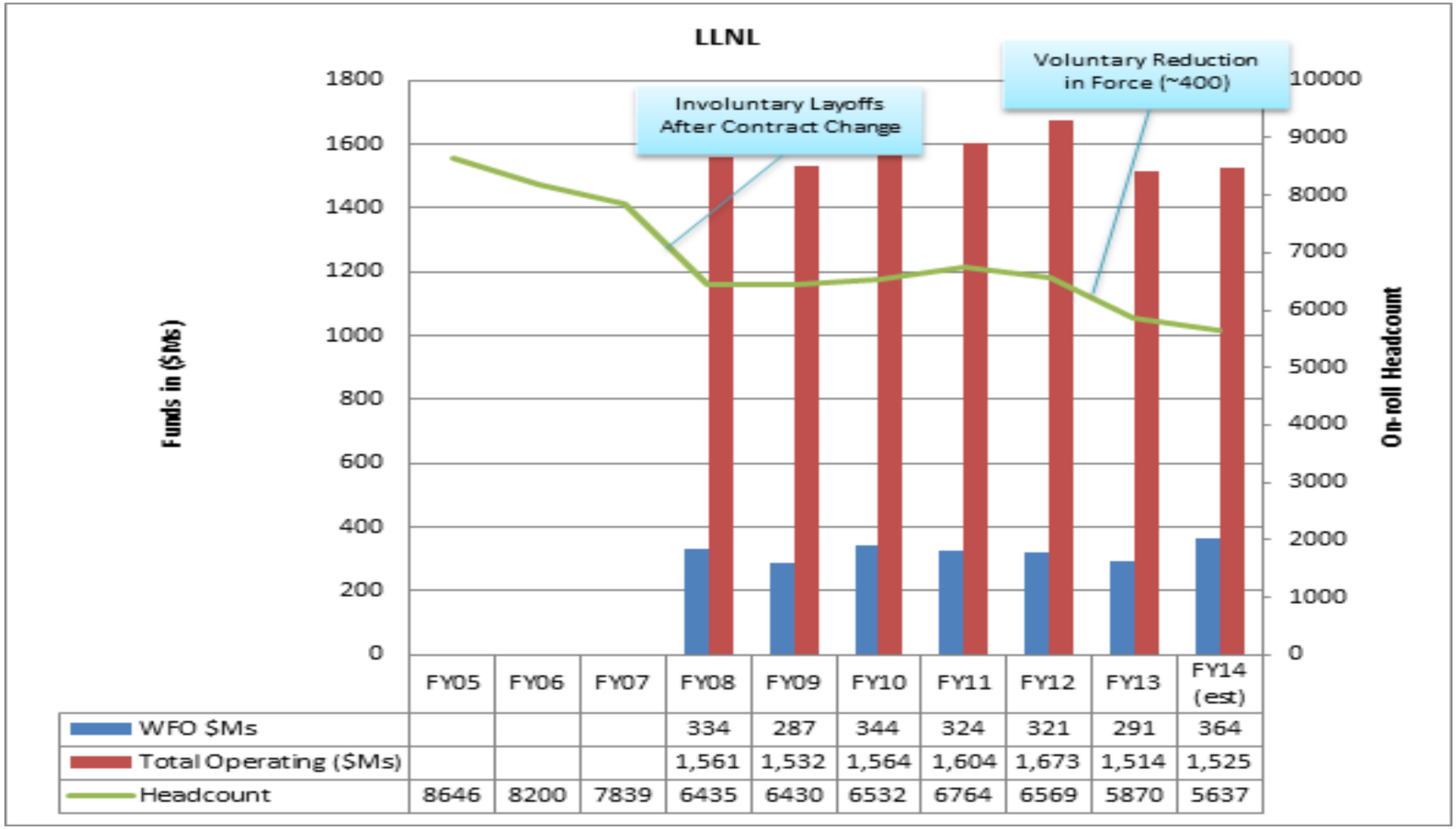
The Risks of WFO

- Potential to impact on DOE mission work, or the lab as a whole.
- Potential for projects to stray far from the central mission of the laboratory/site and result in less focused mission related work.
- Potential for legacy issues resulting from WFO customers' use of space and/or facilities.
- Potential for WFO to trigger staffing fluctuations and other disruptions in the laboratory and its local community.
- Potential to create dependency on non-DOE dollars for core capabilities.

WFO Project Approval Process

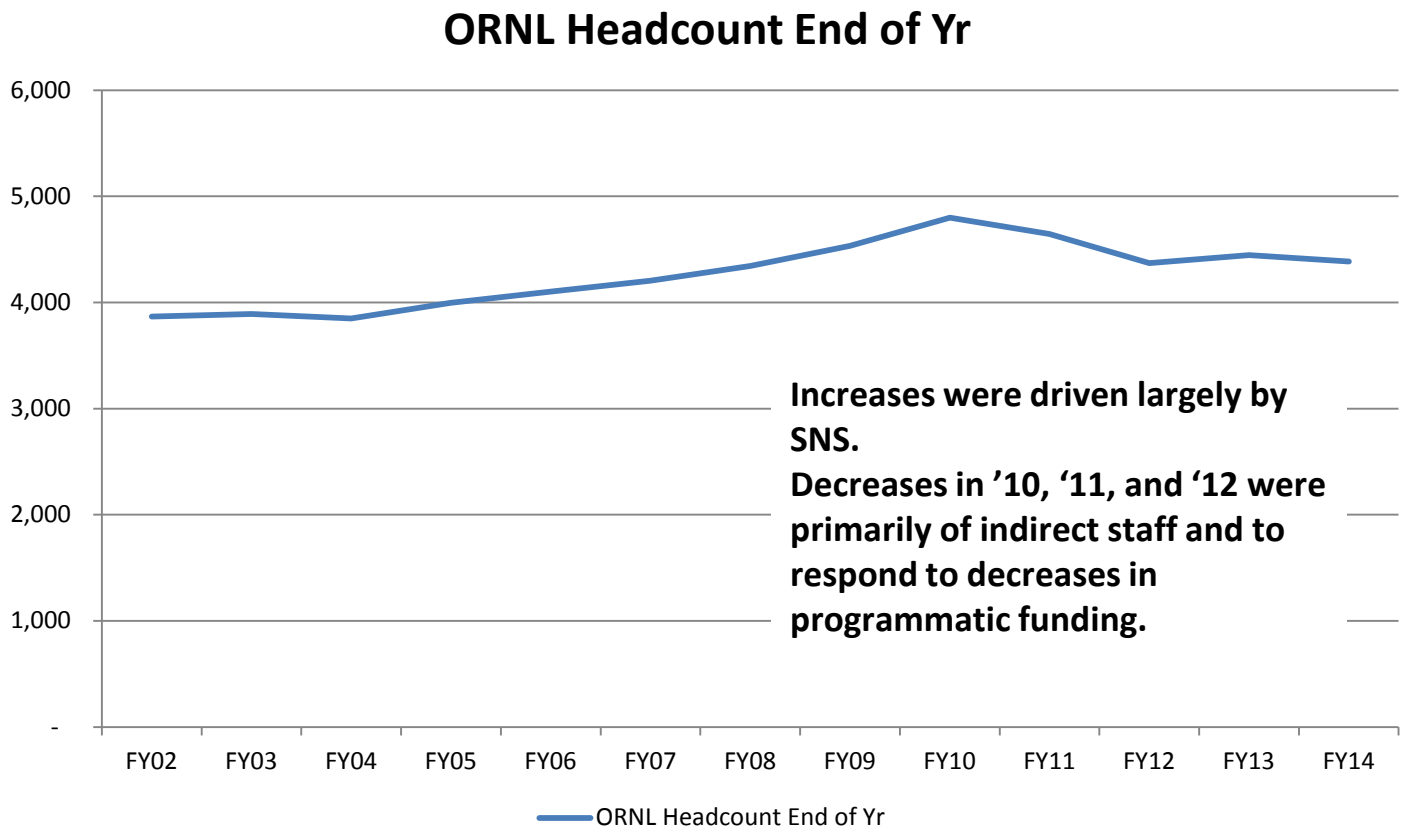
- ***Proposal Development***:
  - Sponsor presents requirements and statement of work is developed
  - Laboratory prepares a proposal, including cost estimate, schedule and deliverables and submit to the Contracting Officer and the Sponsor
- ***Proposal Review and Approval***:
  - DOE reviews proposal and starts coordination process (including HQ – only when necessary)
  - DOE CO conditionally approves project and sponsor is notified
    - Must be consistent with or complementary to missions of DOE/NNSA and the facility to which the work is to be assigned;
    - Must not adversely impact programs assigned to the facility;
    - Must not place the facility in direct competition with the domestic private sector; and
    - Must not create a detrimental future burden on DOE/NNSA resources.
- ***Funding Receipt and Project Start***:
  - DOE CO receives funding document from sponsor and reviews for completeness
  - DOE CO signs funding document and approves project
  - DOE CO authorizes the laboratory to begin work

Impact of WFO: LLNL



	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14 (est)
WFO $Ms				334	287	344	324	321	291	364
Total Operating ($Ms)				1,561	1,532	1,564	1,604	1,673	1,514	1,525
Headcount	8646	8200	7839	6435	6430	6532	6764	6569	5870	5637

Impact of WFO: ORNL

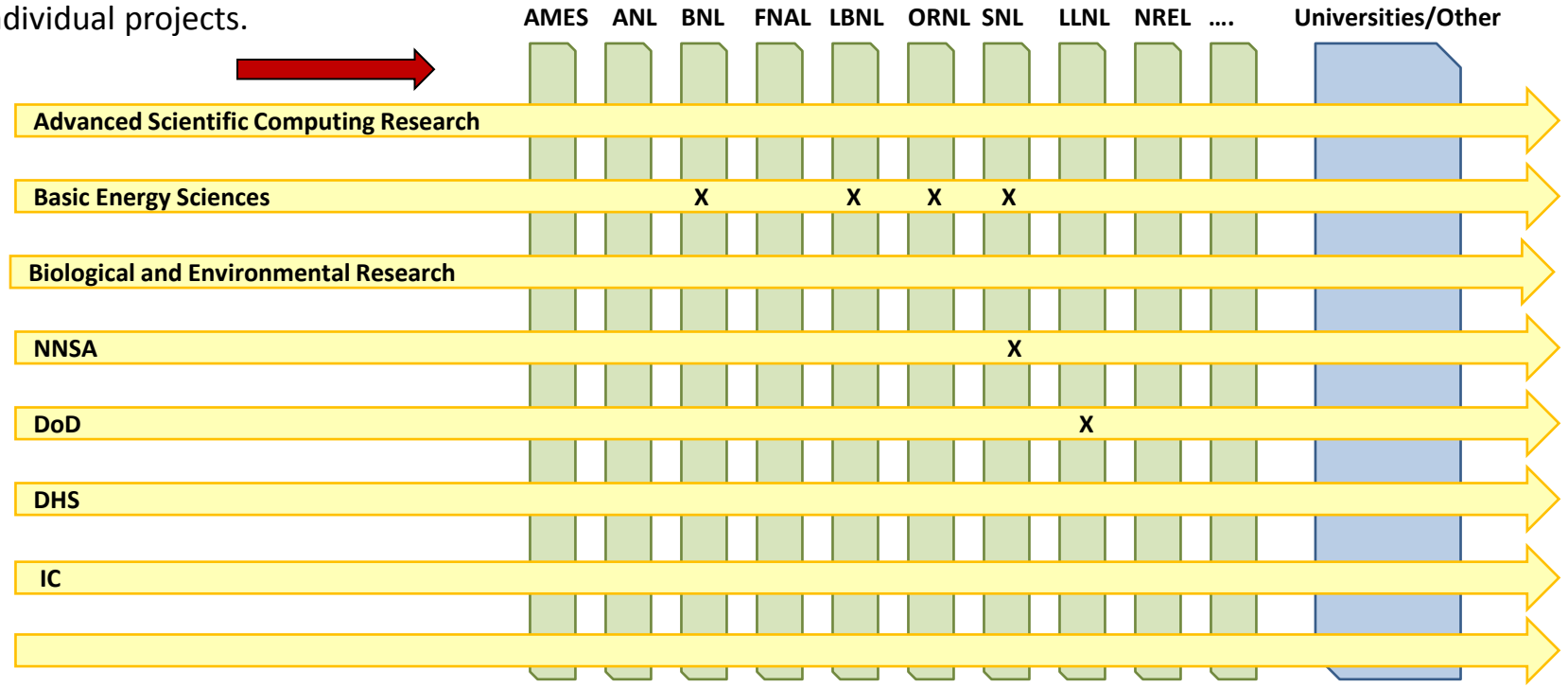


Duplication and Overlap?

Labs review their portfolio; synergies that give rise to strategic opportunities.

DOE programs review :

- their portfolio,
- the portfolio at each lab, and
- individual projects.



Non-DOE sponsors must be informed consumers.

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Issues

- Declining federal budgets creates pressure on agencies and thus on labs
- Differing interpretation of risk across the complex
- Imperfect consensus on the role of the National Labs
- Noise in the system

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Backup Materials

Authorities and Governing Regulations

- ***Atomic Energy Act of 1954*** (P.L. 83-303), as amended (42 U.S.C. 2011 et seq.), Sections 31, 32, and 33: authorizes, as appropriate, R&D and certain training activities for non-DOE/non-NNSA entities, provided that private facilities or laboratories are inadequate for that purpose.
- ***Economy Act of 1932***, as amended (31 U.S.C. 1535): authorizes an Agency to place orders for goods and services, subject to availability, with another Government agency when the head of the ordering Agency determines that it is in the best interest of the Government.
- ***Energy Reorganization Act of 1974*** (P.L. 93-438), Section 205 (42 U.S.C. 5845): requires Federal agencies to furnish to the NRC, on a reimbursable basis, such research services as NRC deems necessary and requests for the performance of its function.
- ***FAR 17.5***, "Interagency Acquisitions under the Economy Act": prescribes policies and procedures for a Federal agency to obtain supplies or services from another Federal agency.
- ***FAR 35.017***, "Federally Funded Research and Development Centers (FFRDCs)": establishes Government-wide policies for review and termination of FFRDCs.

DOE Policies, Orders and Manuals

- ***DOE Order 481.1C***, "Work for Others (Non-Department of Energy Work)" (01-25-2005)
- ***DOE M 481.1-1A***, "Reimbursable Work for Non-Federal Sponsors Process Manual" (9-28-2001)
- ***Department of Energy Accounting Handbook***, Chapter XIII, "Reimbursable Work, Revenues, and Other Collections" (3-15-2011)
- ***DOE O 522.1*** "Pricing of Departmental Materials and Services" (11-03-2004)
- DOE Procedures for Intelligence Activities.

Determinations and Certifications Process

For each WFO project, the following determinations must be made and certified in writing by the responsible DOE/NNSA contracting officer or authorized designee in the Site Office. The project:

- Must be consistent with or complementary to missions of DOE/NNSA and the facility to which the work is to be assigned;
- Must not adversely impact programs assigned to the facility;
- Must not place the facility in direct competition with the domestic private sector; and
- Must not create a detrimental future burden on DOE/NNSA resources.

- Must recover all costs: All WFO sponsors are charged a 3% Federal Administrative Charge (FAC) to defray costs of managing the WFO program/projects, unless granted an exception by the DOE CFO.

Determinations and Certifications Process (continued)

In addition, all Federal agencies must provide on or with the funding document a written statement confirming that:

- The requesting Agency has determined that entering into an agreement with DOE/NNSA complies with the requirements of the Economy Act of 1932, as amended (31 U.S.C. 1535), or other applicable authorizations;
- The requesting Agency has determined that entering into an agreement with DOE/NNSA is in compliance with competition requirements in Federal Acquisition Regulation (FAR) Part 6, section 6.002, Limitations;
- To the best of the requesting Agency's knowledge, the work will not place DOE/NNSA and their contractors in direct competition with the domestic private sector; and
- The requesting Agency understands and agrees that overhead charged for the project includes a percentage for LDRD.