

Office of Science Perspective on Project Management

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www.science.doe.gov/opa/

2010 Department of Energy
Project Management Workshop

March 9 - 10, 2010, Alexandria, VA



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The
Challenge"*

- Office of Science—Mission and Organization
- Office of Project Assessment
- Unique Features of SC Projects
- SC Project Management Activities
- Federal Project Director Expectations
- Lessons Learned
- Final Thoughts

2

Topics

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Our mission is to **deliver the remarkable discoveries** and scientific tools that transform our understanding of energy and matter and advance the national, economic and energy security of the United States.

Deliver = Project Management

3

SC Mission

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3 Nobel Prizes in 6 Years with X-Ray Crystallography

The prize-winning work used all four SC/BES synchrotron radiation light sources

2009 Prize in Chemistry: Venkatraman Ramakrishnan, Thomas Steitz, and Ada Yonath)
"for studies of the structure and function of the ribosome." *Used all 4 light sources.*



Venkatraman Ramakrishnan



Thomas Steitz



Ada Yonath

2006 Prize in Chemistry: Roger Kornberg "for his studies of the molecular basis of eukaryotic transcription." *Used SSRL macromolecular crystallography beamlines.*

2003 Prize in Chemistry: Roderick MacKinnon for "structural and mechanistic studies of ion channels." *Used NSLS beamlines X25 and X29.*

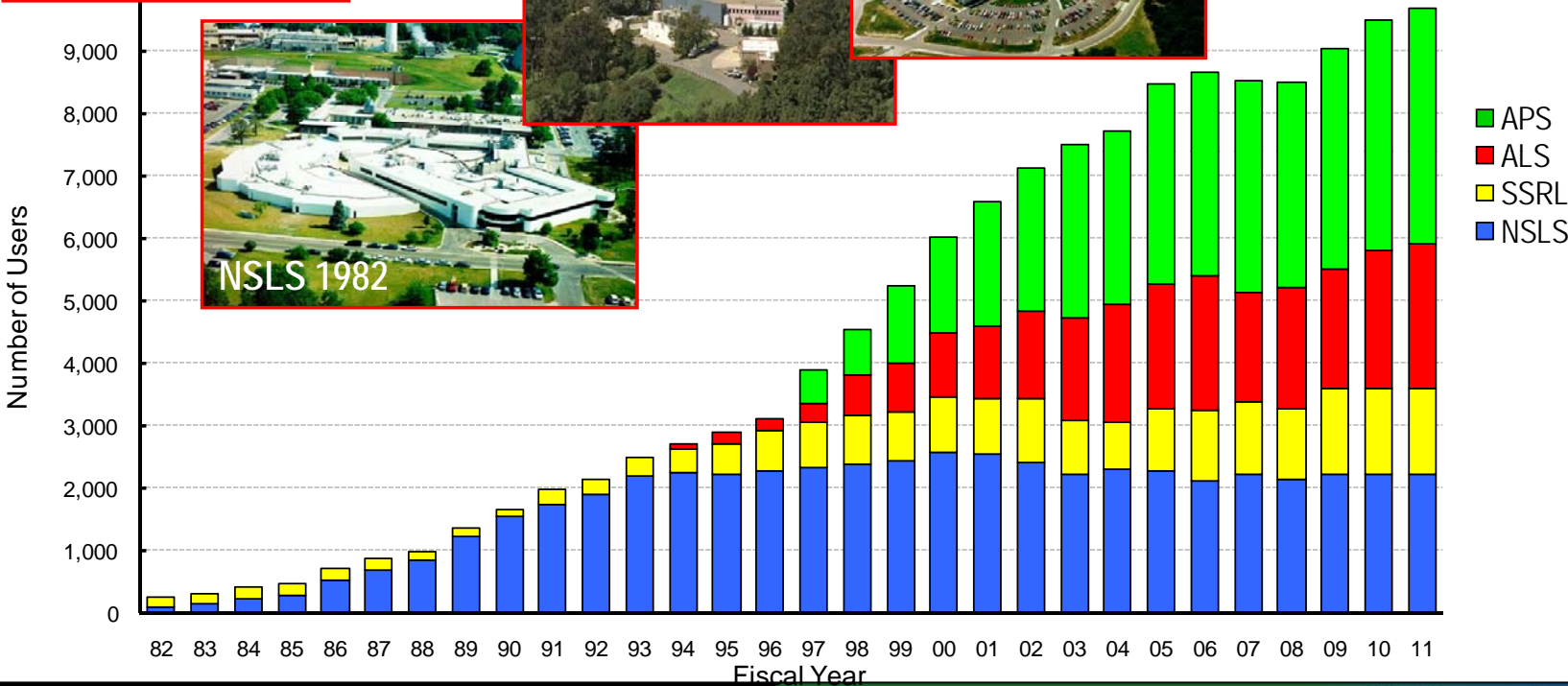
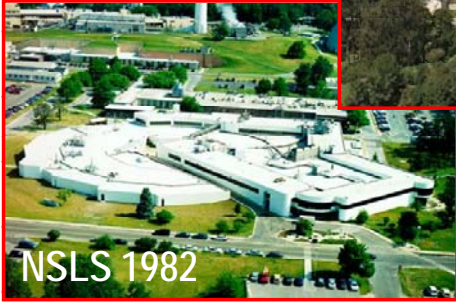
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The 4 BES Synchrotron Light Sources Serve Nearly 10,000 Users



SC Mission

2010

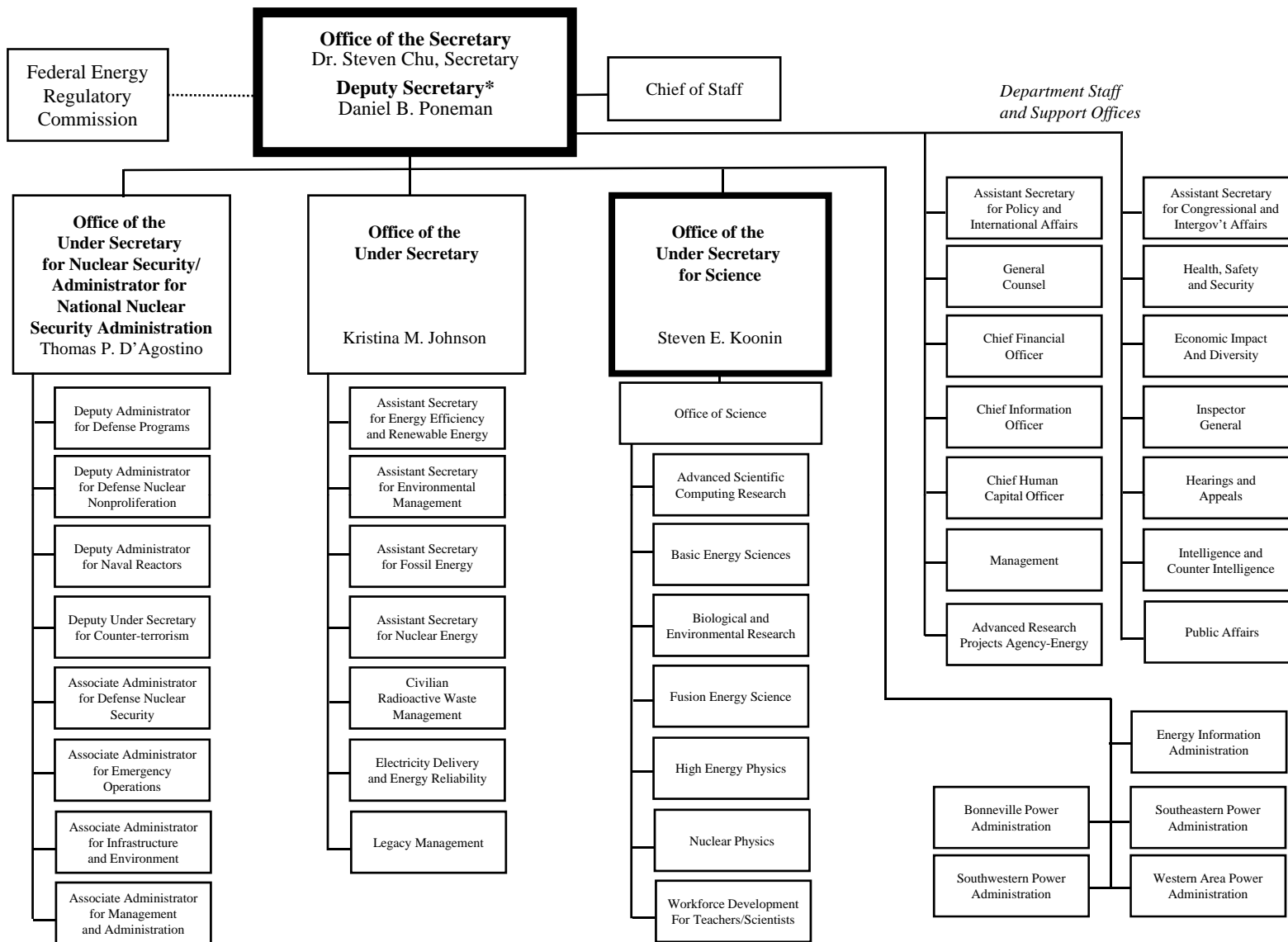
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5



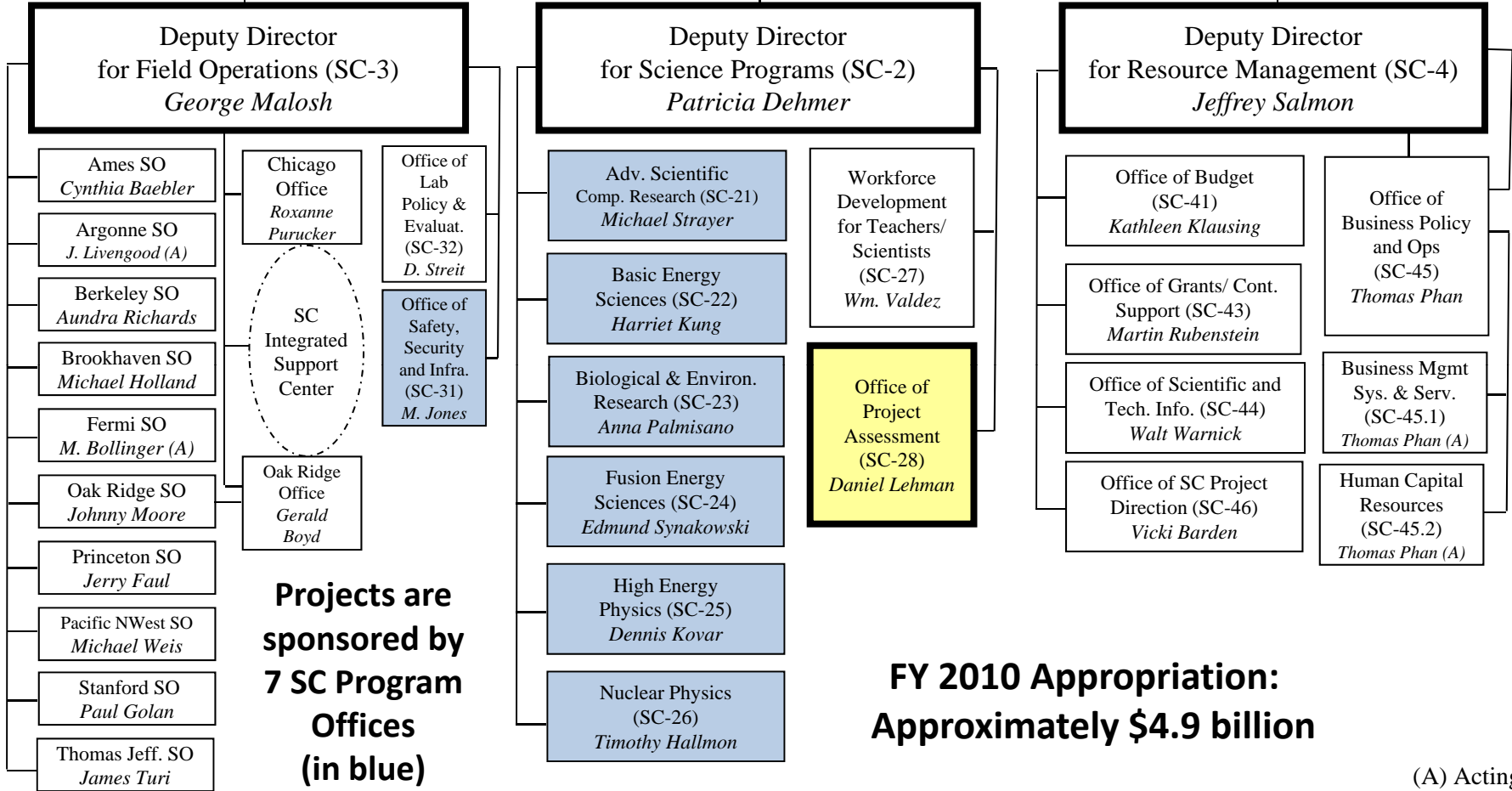
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Office of the Director (SC-1)
William F. Brinkman



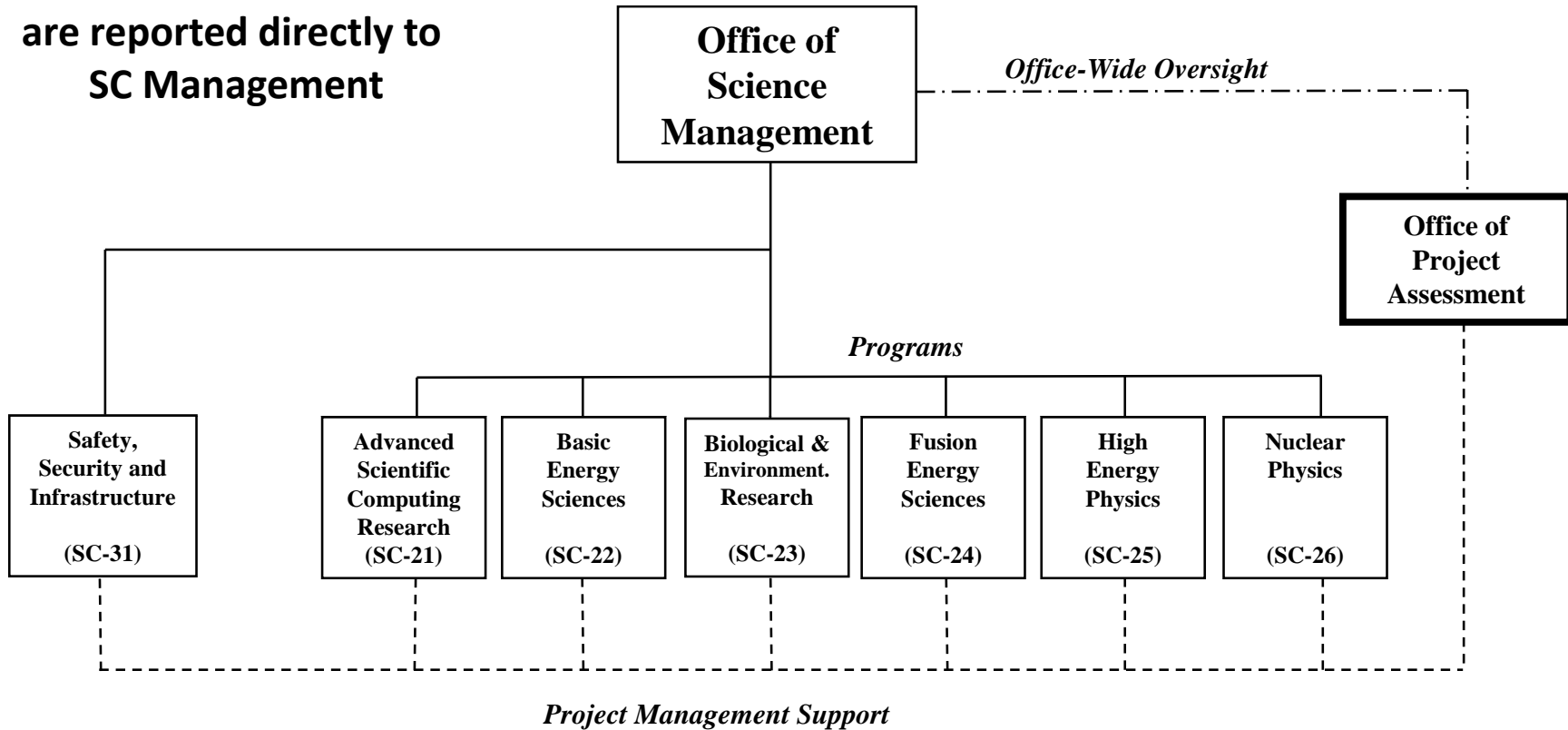
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**Results of Peer Reviews
are reported directly to
SC Management**

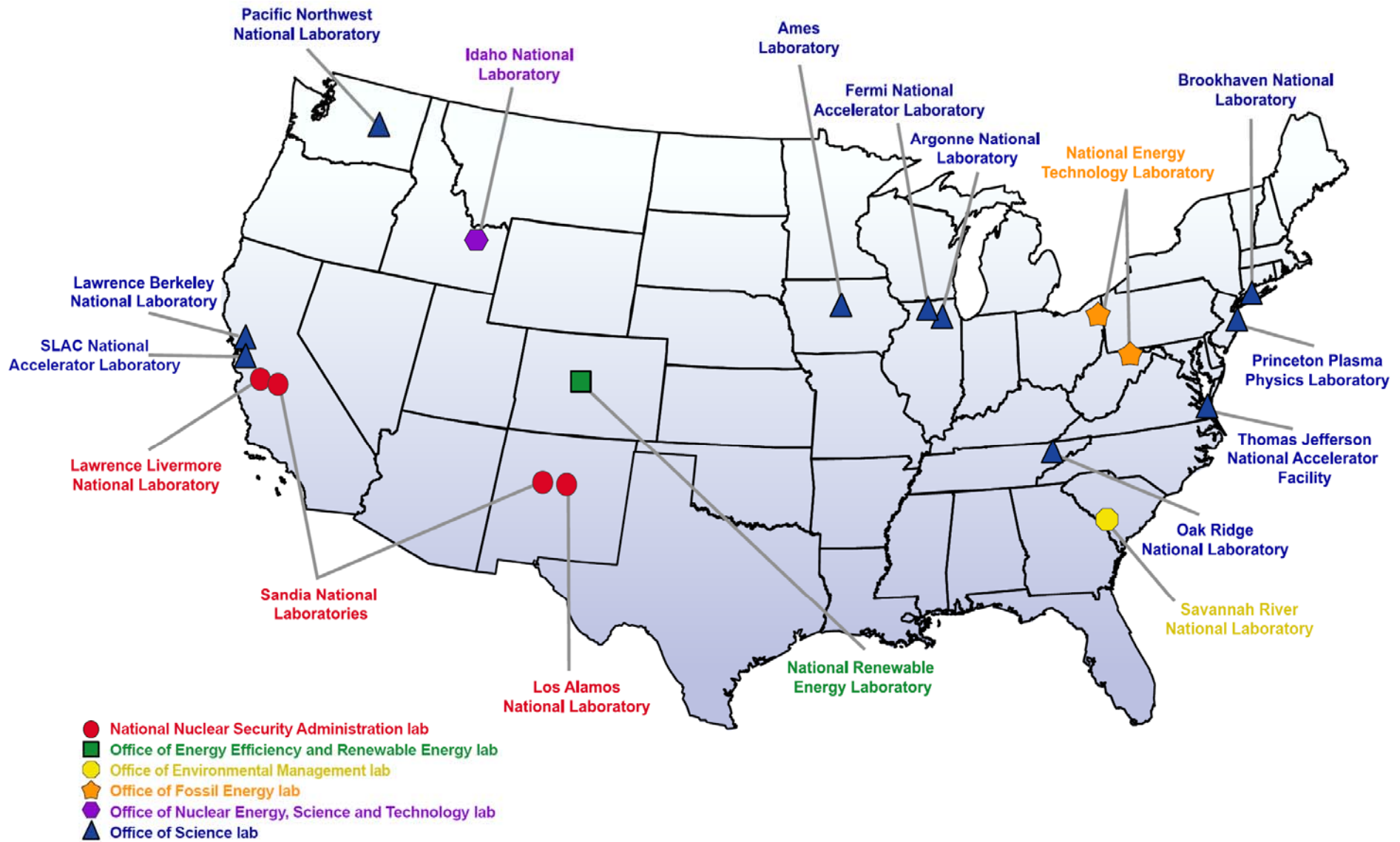


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National Laboratories

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Over the past 10-years (1999 to 2009) SC has successfully completed over 90% of its projects

	Project Performance			Cost Performance		
	# of Completed Projects ^{1,3}	# of Successful Projects ²	Success Rate (%)	Initial Baseline TPC ³ (\$B)	Final TPC (\$B)	Success Rate (%)
Total SC Projects	33	31	94%	\$2.68	\$2.72	99%

1—Excludes cancelled project—NCSX

2—Two projects not successful—NuMI and GLAST

3—Includes Directed Change due to Congressional change of funding profile for SNS

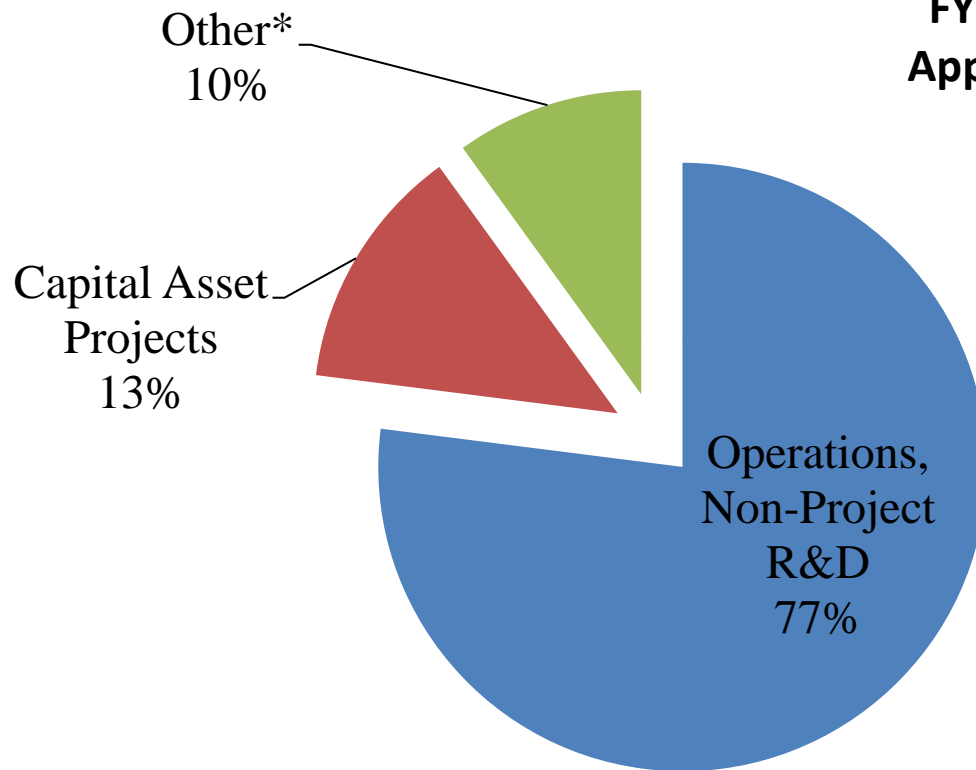
Current SC Projects

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FY 2010 SC Program Funding Categories



**FY 2010 Appropriation:
Approximately \$4.9 billion**

* Others include Program Direction, SBIR/STTR, Safeguards and Securities, Congressionally Directed Projects, and Workforce Development

SC Annual Budget

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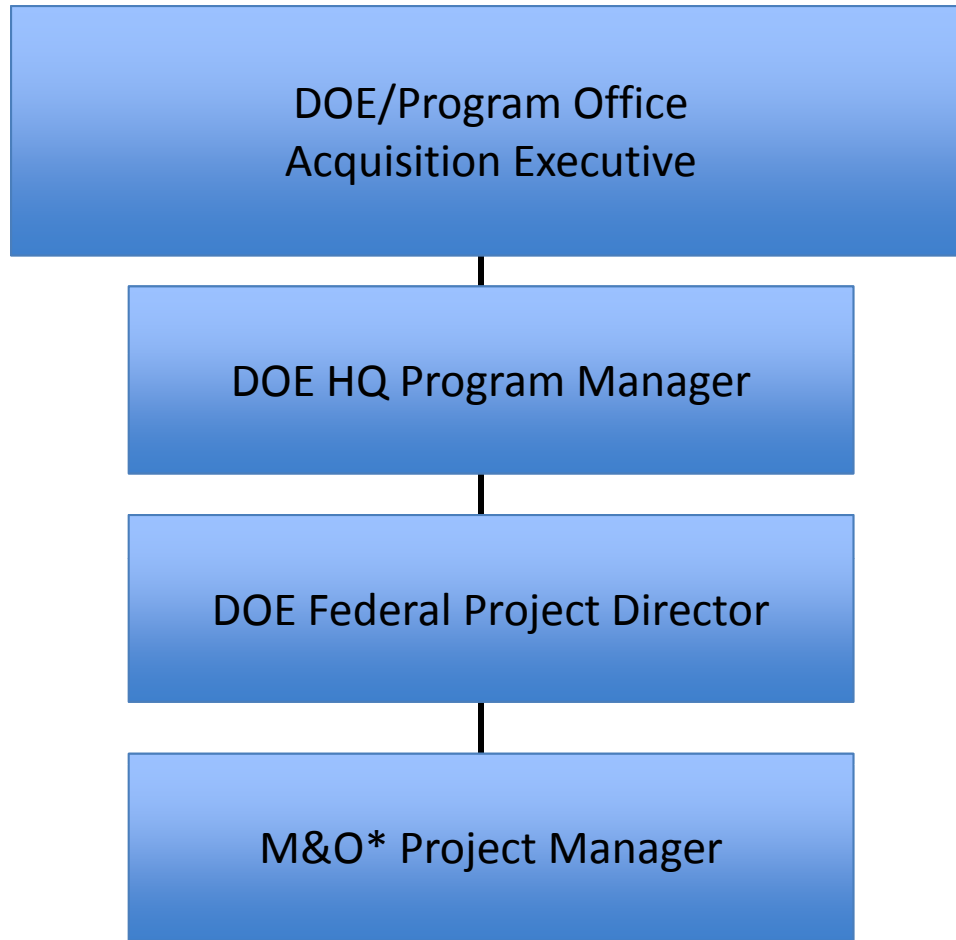
- SC Laboratories are **Not-for-Profit**
- SC contracts are **rigorously managed**, but the working relationship is a partnership
- **R&D is not a project phase**, but a means for optimizing design concepts
- Facility **users engaged** throughout the project lifecycle
- Conceptual Design Reports **establish reasonableness** of design
- Project designs **consider future upgrades**—programs/projects take a long view
- Projects are “**built to the baseline**” with a goal of maximizing science capability
- Lehman (peer) reviews are **conducted regularly** and facilitate **application of lessons learned** from other projects
- Clear **line of authority and accountability** for projects

Unique Features of SC Projects

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*Management and Operating Contractor

Integrated Project Team

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- **Conduct Project Reviews**, and about every 6 months on large SC projects (~30-35 reviews per year—large and small projects)
- **Engage SC Federal Project Directors (FPDs) to ensure experience and qualifications** of FPDs and contractor project managers **are appropriate**
- **Maintain a Watch List** of SC projects—**Conducts monthly meetings** with senior SC management
- **Maintain website used by SC Community**—Includes information such as review dates, project documents/procedures, and other resources
- **Supports OECM activities** such as the PMDCP/FPD Certification and PM Improvements such as the Project Management Order Revision

SC PM Activities

(in addition to DOE systems)

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- The overall SC objective is to **select competent and capable** FPDs to successfully manage SC projects
- FPDs role is to be the “**Owner’s Representative**” for the assigned project
- FPDs serve as the **single point of contact** between DOE and the contractor, typically as a Contracting Officer’s Representative
- FPDs lead the Integrated Project Team and are responsible and **accountable within DOE for ensuring the success** of the assigned project
- FPDs **add value** to the successful completion of the project

SC FPD Expectations

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Location: Argonne National Laboratory

Purpose:

One of only three third-generation, hard x-ray (20 to 100 KeV) synchrotron radiation light sources in the world to study the structure and properties of materials

Total Project Cost:

\$798.8 million

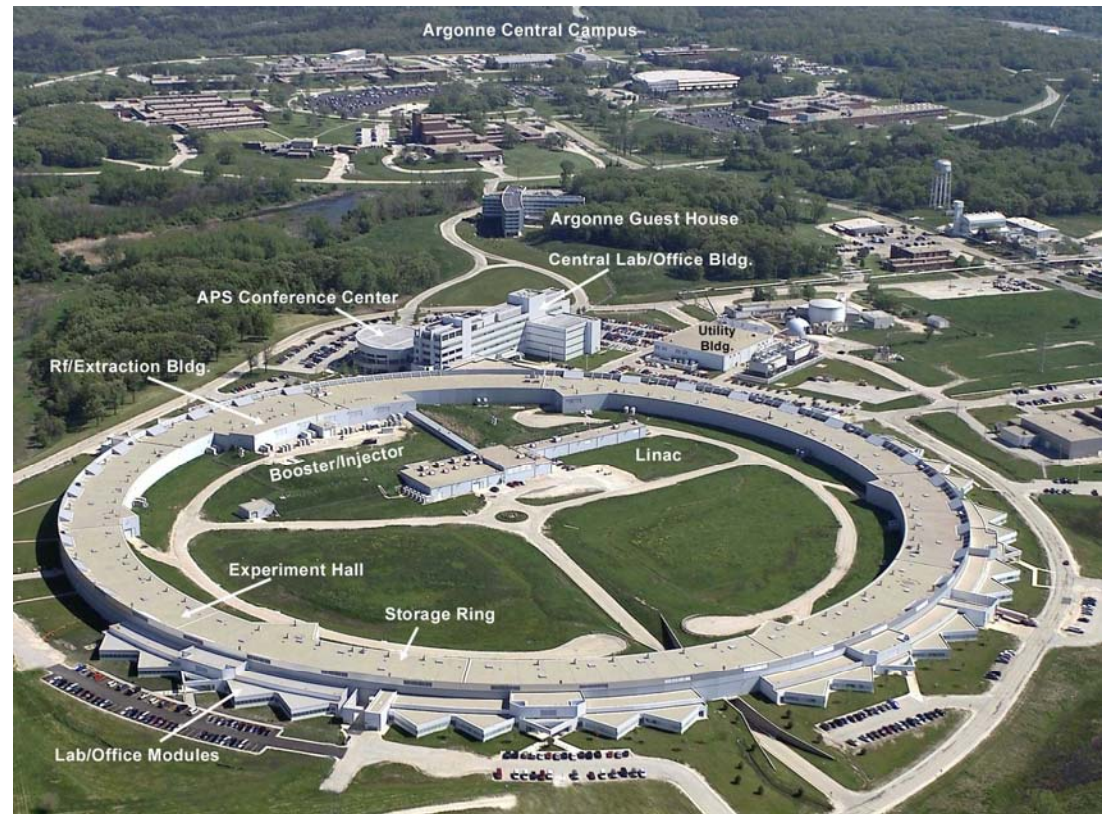
Start/End Dates:

May 1988/August 1996

Features:

- 1,104-meter (0.7 mi) circumference
- 7 GeV
- 450 permanent staff
- 68 beamlines for experimental research

Information: www.aps.anl.gov



**APS received the
PMI Project of the Year Award, 1997**

**Advanced Photon Source
(APS) – *Successful***

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SNS Site, Spring 1999

Spallation Neutron Source
(SNS) – *Successful*

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Location: Oak Ridge National Laboratory

Purpose:

To provide neutron beams with up to 10 times more intensity than any other source in the world (1.4 million watts of beam power on the target)

Total Project Cost:

\$1.4 billion

Start/End Dates:

August 1996/June 2006 (actual)

Operating Costs:

~ \$182.9 million (FY 2010)

Features:

- 80 acre site
- 400 permanent staff
- Initial suite of instruments for material science investigations

Information: www.sns.gov



**SNS received the
Excellence Award in Project Management, 2006**

**Spallation Neutron Source
(SNS) – *Successful***

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Location: SLAC National Accelerator Laboratory

Purpose: When completed, the LCLS will provide laser like radiation in the hard X-ray region, ten billion times greater in peak power and peak brightness than any existing coherent hard X-ray light source. The LCLS will be used to better understand disciplines ranging from atomic physics to structural biology.

Total Project Cost:
\$416 million (forecast)

Start/End Dates:
May 2003/July 2010 (planned)

Expected Annual Operating Costs:
~ \$120 million

Features:

- ~1.5 miles in length
- 450-500 permanent staff
- 6 experimental stations for instruments

Information: <http://lcls.slac.stanford.edu/>



Linac Coherent Light
Source (LCLS) – *Successful*

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- Project's **purpose and benefits** must be clear and **effectively communicated to all stakeholders (e.g., users)**
- Project team's **success depends on establishing and nurturing strong** working and personal **relationships**
- Front-end planning is an **essential mechanism for identifying and addressing risk in all project phases**
- Stable project funding is **essential to maintain project momentum**
- Project reviews provide necessary **"Checks and Balances"** to keep the project on track and build credibility.

Summary of Lessons Learned

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- Sound baselines are important; stable funding is critical
- Projects too often have optimistic rather than realistic view of events
- Projects slow to look outside for solutions (defensive routines)

Management, Management, **Management!**

Final Thoughts

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