Brookhaven National Laboratory: A Brief Overview

State Energy Advisory Board Meeting

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BROOKHAVEN NATIONAL LABORATORY

a passion for discovery

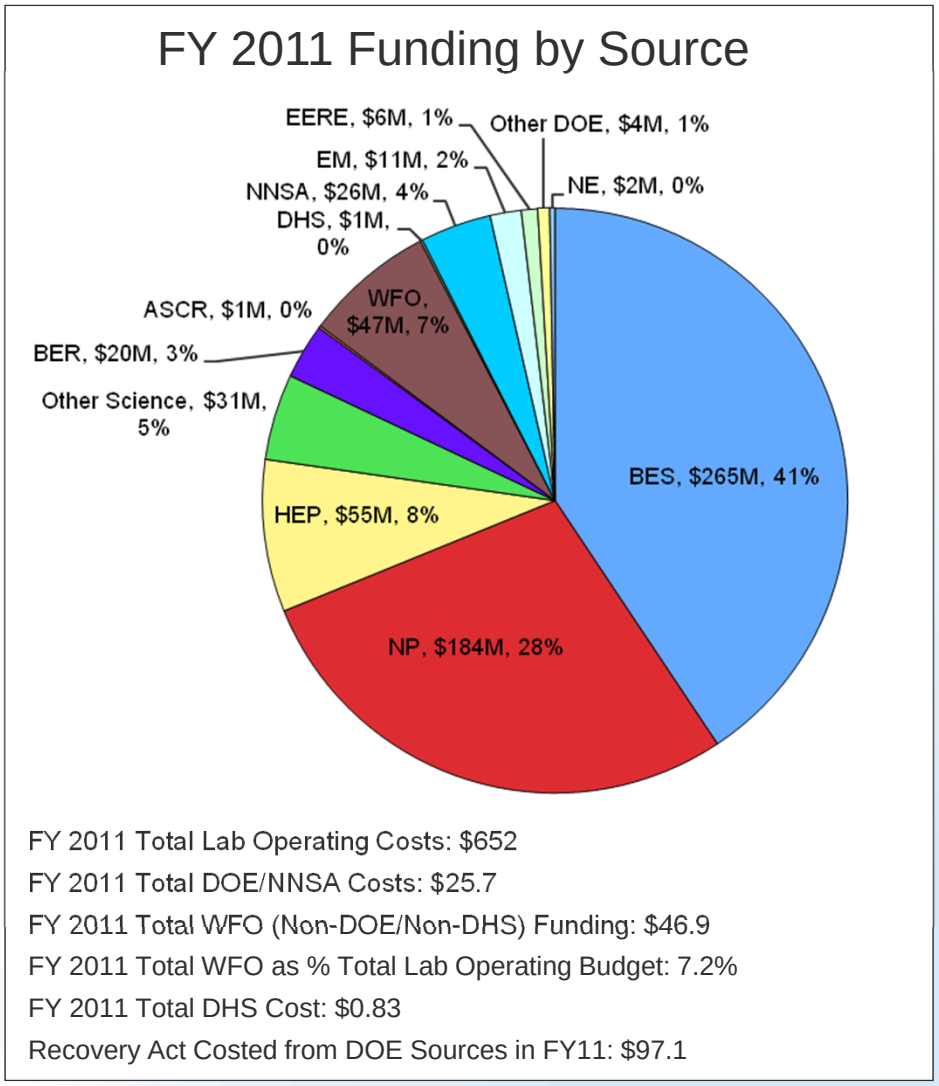
Office of Science
U.S. DEPARTMENT OF ENERGY

Outline

- Lab at a Glance – history, research areas
- BNL Facilities and Assets
- BNL Strategy – changes and what has driven them

Brookhaven National Laboratory at a Glance: FY 2011

- Managed by Brookhaven Science Associates
- Physical Assets
  - 5320 acres, 306 buildings
- Human Capital
  - 2990 FTEs (3110 heads)
  - Direct/indirect: 0.61/0.39
- Guests/Users
  - 419 undergrad/grad students (paid by Lab)
  - 4253 facility users
  - 1570 visiting scientists



Research Leadership

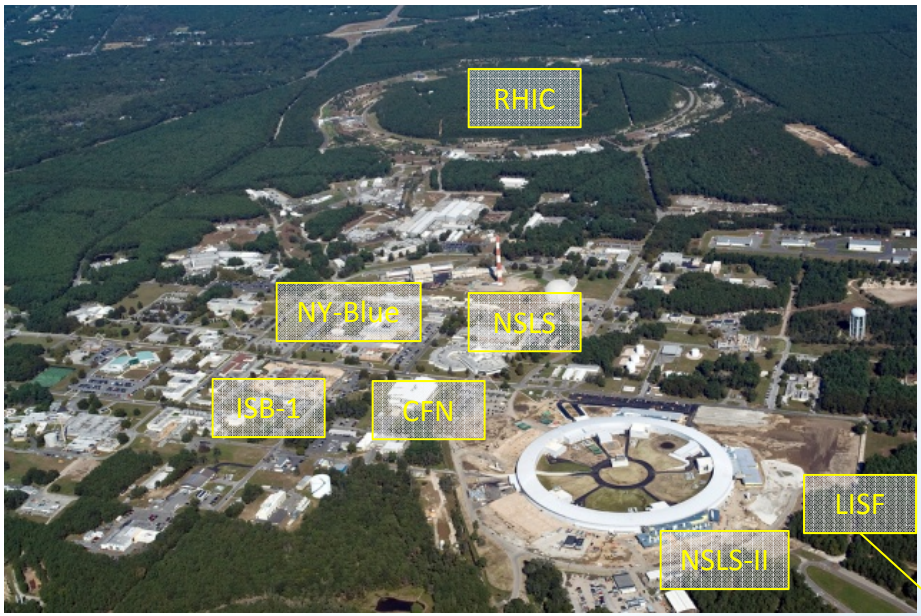
1957 1976 1980 1988 2002 2003 2009

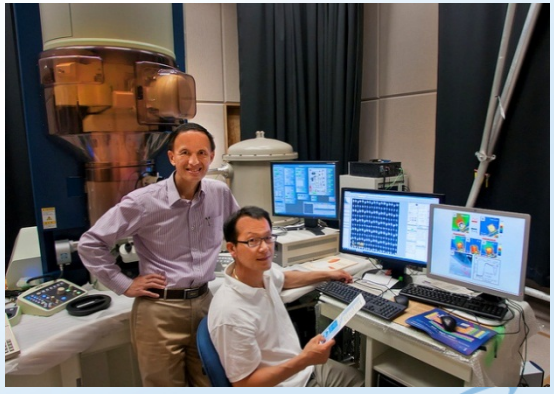
2009 National Medal of Science

- **7** Nobel Prizes
- **5** Nat'l Medal of Science winners
- **5** Fermi Awards
- **11** Lawrence Awards
- **2** Wolf Prizes
- **20** NAS/NAE members

BNL's Assets and Facilities

- Outstanding teams of scientists, engineers, students and support
- World-leading Science & Technology
- Premier user facilities
- Strong ties to top-tier NYS & NE research universities
- Diverse discovery-to-deployment portfolio





Major Research Facilities

National Synchrotron Light Source

National Synchrotron Light Source

- Industrial and academic users
- Researching battery storage, Alzheimer's disease, breast cancer, HIV/AIDS, environmental cleanup technology, and more

National Synchrotron Light Source II

National Synchrotron Light Source II

- Soon to be world's most advanced x-ray source
- $960 million project - hundreds of local jobs
- Will deliver research advancements in energy, nanotechnology, medicine and other fields

Center for Functional Nanomaterials

Center for Functional Nanomaterials

- Exploring energy science at the nanoscale
- Building new materials atom-by-atom to achieve desired properties and functions

Major Research Facilities

Relativistic Heavy Ion Collider (RHIC)

RHIC

- 2.4 mile circumference
- Studying the origins of the universe through particle collisions revealing make up of matter
- Discovery of the 'perfect liquid'

New York Blue Supercomputer

New York Center for Computational Science

- Partnership between BNL & Stony Brook University
- Two IBM supercomputers
- Supports broad range of research

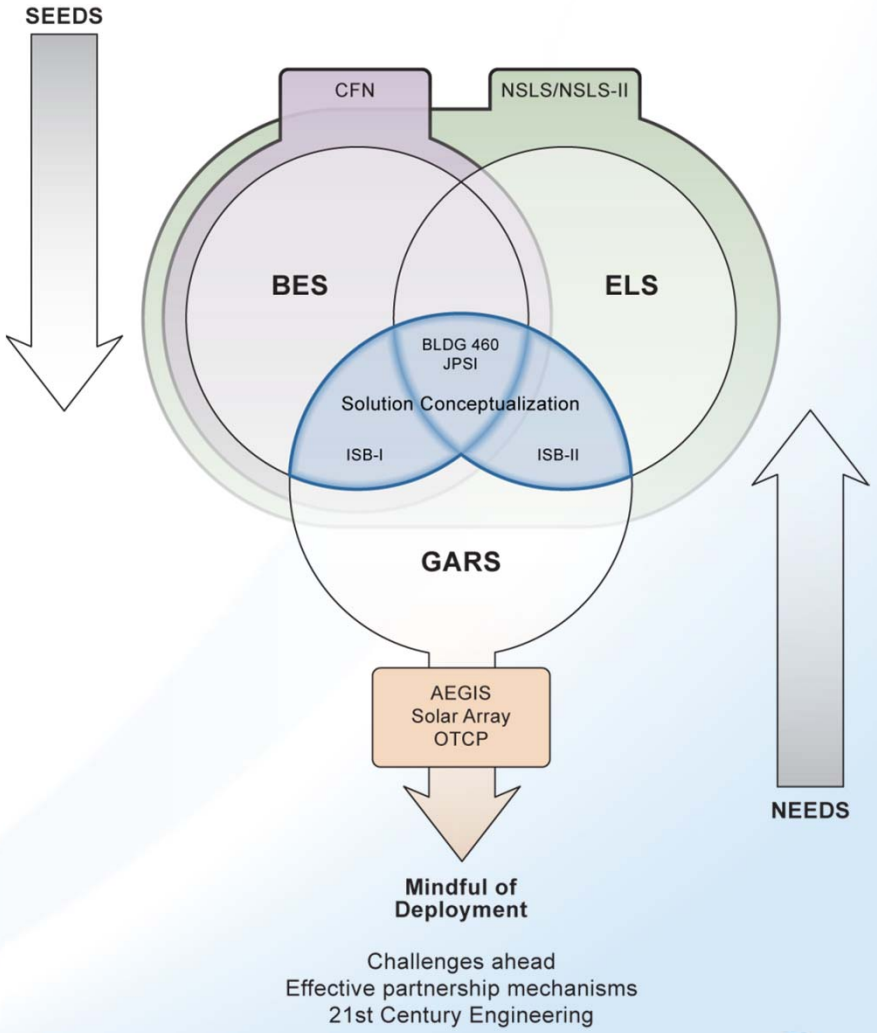
Long Island Solar Farm

Long Island Solar Farm

- Partnership between BNL, LIPA and BPSolar
- 32MW Peak to power 4500 L.I. homes
- Unique opportunity to study renewables in the Northeast and test new Grid technologies

Strategy for increasing BNL impact

- **Maintain** preeminence in basic research
- **Grow** applied programs, leveraging BNL core capabilities
- **Focus** on energy, national security, bio & life sciences
- **Expand** impact through
  - Commercialization
  - Partnerships in NYS, NE



BNL Strategy: why

- Brand – emphasis on discovery science and facilities: differentiates BNL from other multi-program labs
- Impact –National Labs need to demonstrate impact on important national issues, basic science is not enough
- Growth – long-term sustainability of BNL, buffer budget gyrations

BNL Strategy: how

- Brand –
  - Prepare core research programs and marquee facilities for continued world leadership (RHIC → eRHIC, NSLS → NSLS-II)
  - Develop applied research in areas of national interest, leveraging core (energy, security, environment and life sciences, accelerator R&D)

- Impact –
  - Reorganized scientific directorates (GARS & ELS) for better coupling to applied programs; created CTP Office for better intellectual property management; created NYS-based partnerships to support aggressive energy strategy

- Growth –
  - Reorganized support services (financial, HR, facilities and operations) for more uniform/efficient business functions; target non-Office Science and non-DOE opportunities

Questions?