

Welcome and Introduction

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BROOKHAVEN
NATIONAL LABORATORY

a passion for discovery



Brookhaven Lab at a Glance

- **The only multi-program National Laboratory in the Northeast**
- **Physical Assets**
 - 5320 acres
 - 350 buildings; 4 million sf
- **Human Capital**
 - 3015 staff
 - 4873 visiting scientists
 - 4354 facility users
 - 1500 undergrad/grad students
 - 30,000 K-12 visitors/yr
- **Support of >1100 NYS Researchers**
 - 850 Academic (public = private)
 - 185 Medicine
 - 45 Industry
 - 25 State Govt. & others
- **Total Funding for FY10**
 - \$753.4M (includes 46.1M ARRA funding)

BNL, July 2010

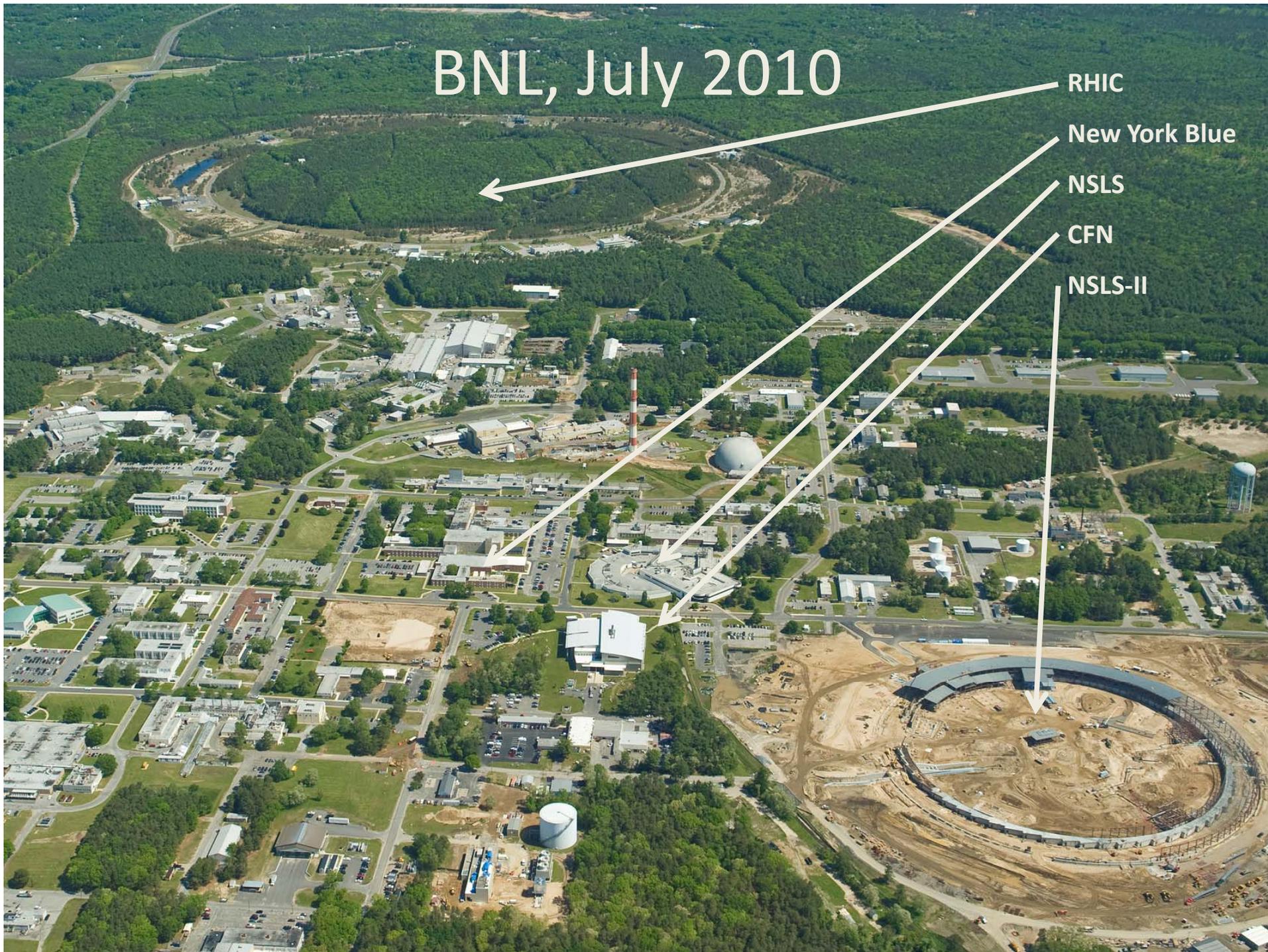
RHIC

New York Blue

NSLS

CFN

NSLS-II

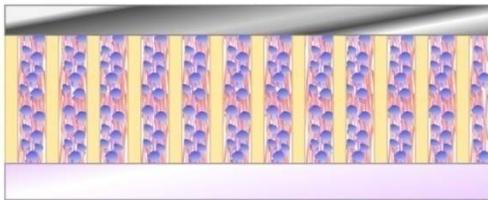


Basic Research and Development

Generation

Organic photovoltaics

- Inexpensive for large scale deployment
- Issue of efficiency



- **BNL Contribution**
- Nano-structured PV with double the efficiency per active unit area
- New x-ray techniques for study of polymer annealing

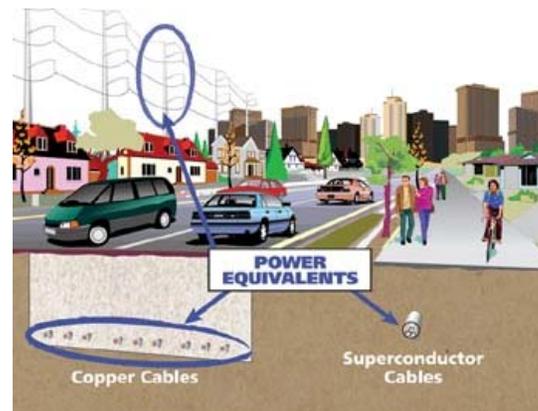


Brookhaven Science Associates

Transmission

Superconducting Lines

- Power density driver



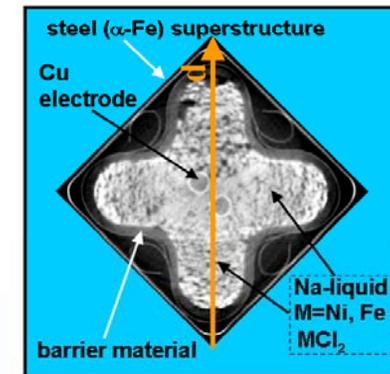
- **BNL Contribution**
- Reel-to-reel growth of superconducting



Storage

Batteries

- X-ray probes, materials



- **BNL Contributions**
- X-ray tools probing real batteries in operation
- Li electrode synthesis
- SMES

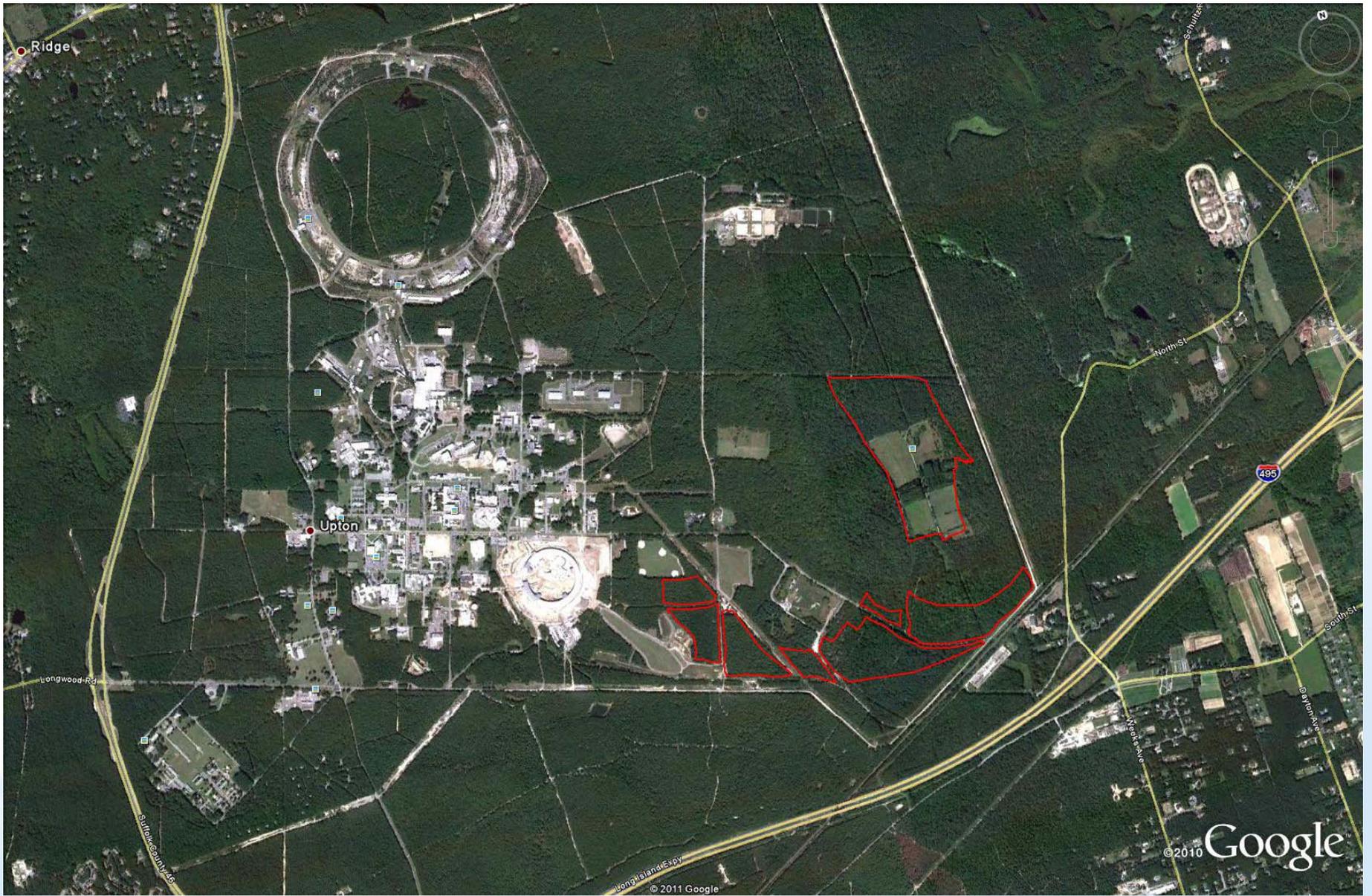


BNL strategy – growing the Lab’s impact

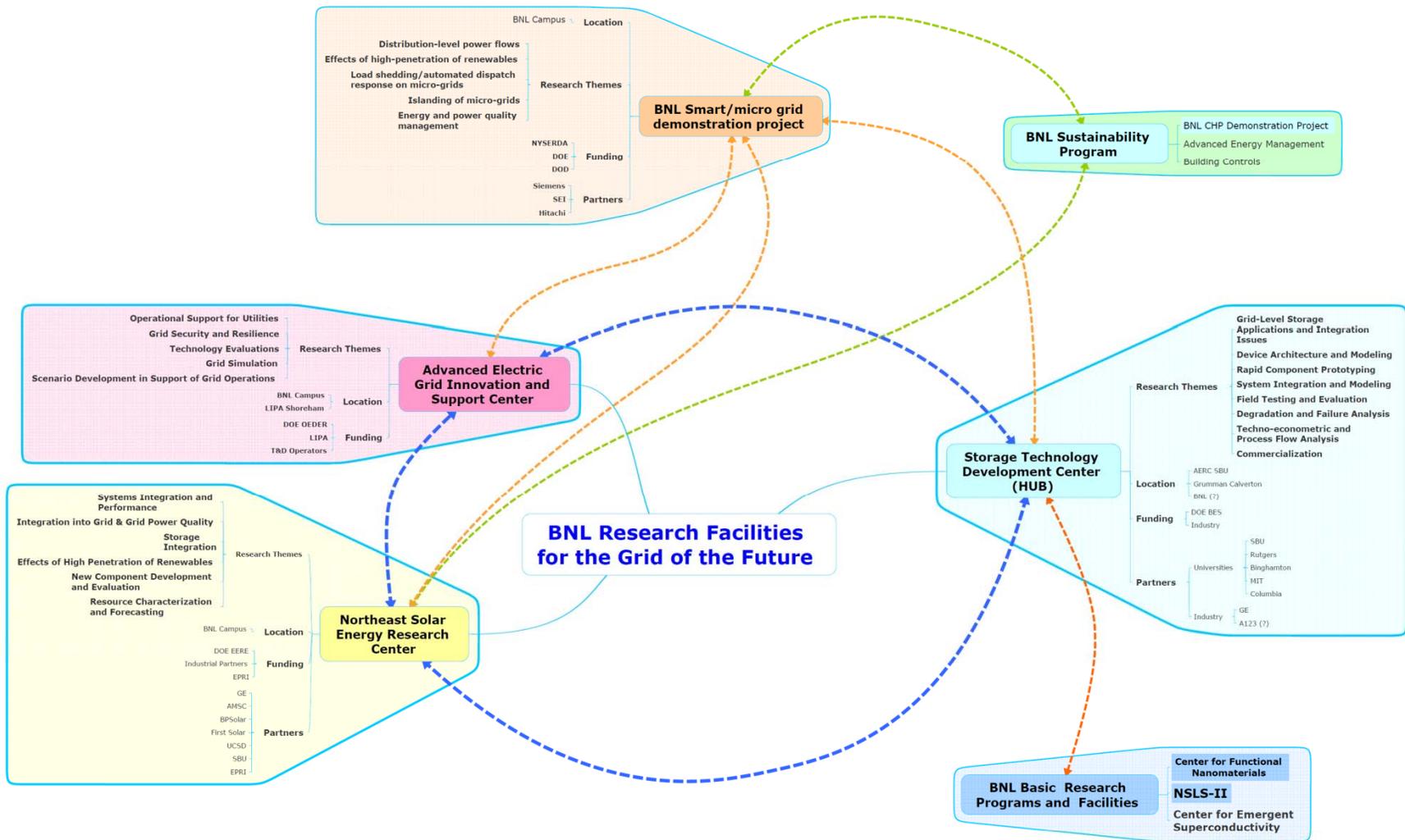
- **Maintain** preeminence in areas of basic research
 - Nuclear & Particle, Condensed Matter Physics, Material Science, Chemistry, Nanoscience, Bio-Imaging
- **Expand** impact through research on deployment barriers for new energy systems as well as commercialization of our discoveries

enabled by

- **Partnerships** with Industry and Academia, esp. in NY State and the NE
 - Energy Frontier Research Centers
 - Long Island Solar Farm/NE Solar Research Center
 - BNL micro-grid Demo Project
 - Advanced Electric Grid Innovation and Support Center (Future)
 - Storage Hub (Future)
 - NYS Smart Grid Consortium
 - NYBEST Consortium
 - NY Energy Policy Institute
 - Regional Innovation Council
 - BNL-CSHL-SBU Research Alliance
 - Accelerate Long Island



A Prime Focus at BNL is on “Grid-Level” Performance



Northeast Solar Energy Research Center

- **Mission:**

- identify and overcome scientific, technical, and policy-related barriers to the broad adoption and deployment of solar energy systems in the northeast region
- conceptualize and develop new approaches/solutions and advance them from discovery to deployment

- **Approach:**

- focus on systems integration and performance, grid integration
- field demonstration/test-bed for evaluation of prototype systems
- modeling and simulations of new technologies/systems designs, concepts
- resource characterization and modeling
- broad collaboration and strong partnering w/ companies, labs, universities, and NYS

Why BNL?

- Location, On-Site Resources, Electrical Infrastructure
 - 50MW-60MW load; 13.8 kV distribution circuits
 - Federal Property: U/L listing not a requirement; electrical safety is
 - Smart grid sensors on BNL electricity distribution system
- Dedicated Lab Space
- Meteorology Tower, NOAA NEXRAD
- Dedicated PV Array (TDB), Long Island Solar Farm
- Research capability and expertise in
 - Utility-scale energy systems
 - Environmental impact and life-cycle analysis of Solar PV
 - Meteorology and cloud physics research expertise
- Existing transactions and facility user agreements
 - Data rights protection, proprietary user agreements, CRADA

Purpose

The purpose of this workshop is to define the parameters for extensive, outward focused co-laboratory that facilitates the development and deployment of advanced solar energy systems and associated challenges with grid integration

- identify current issues and future challenges related to deployment of solar energy systems in the northeast US
- refine our initial concepts for the mission and research focus areas
- better define the infrastructure, capabilities, facilities & equipment needed to support the mission
- Identify transactional issues or concerns (IP, user agreements..)

What do we want you to do?

- Ask Questions, challenge our thinking
- Suggest alternative directions
- Tell us when you do not agree and why
- Tell us who we need to engage and why
- Tell us how we get your active participation in NESRC

Your input is what makes the difference

Contact Information

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