

All-Employee Meeting

Sam Aronson
August 2, 2012



U.S. DEPARTMENT OF
ENERGY

Office of
Science

Agenda

- Safety Performance
- Sustained Safety and Operational Excellence
- Lab Director and NPP ALD Searches
- Scientific Progress and Expanding Capabilities
- 10-Year Strategic Plan
- Budget Outlook
- Q&A
 - Berkner audience: Step up to microphone
 - Webcast viewers: jgreen@bnl.gov

Safety Performance



A Call to Action

Many of us are already working conscientiously to keep yourselves and others safe. Your commitment is deeply appreciated.

- Operational performance is *not* where it needs to be
- We are experiencing too many events with potential for serious injury and BNL's future is at serious risk
- We cannot continue to behave the same and expect a different outcome
- We must solve this together

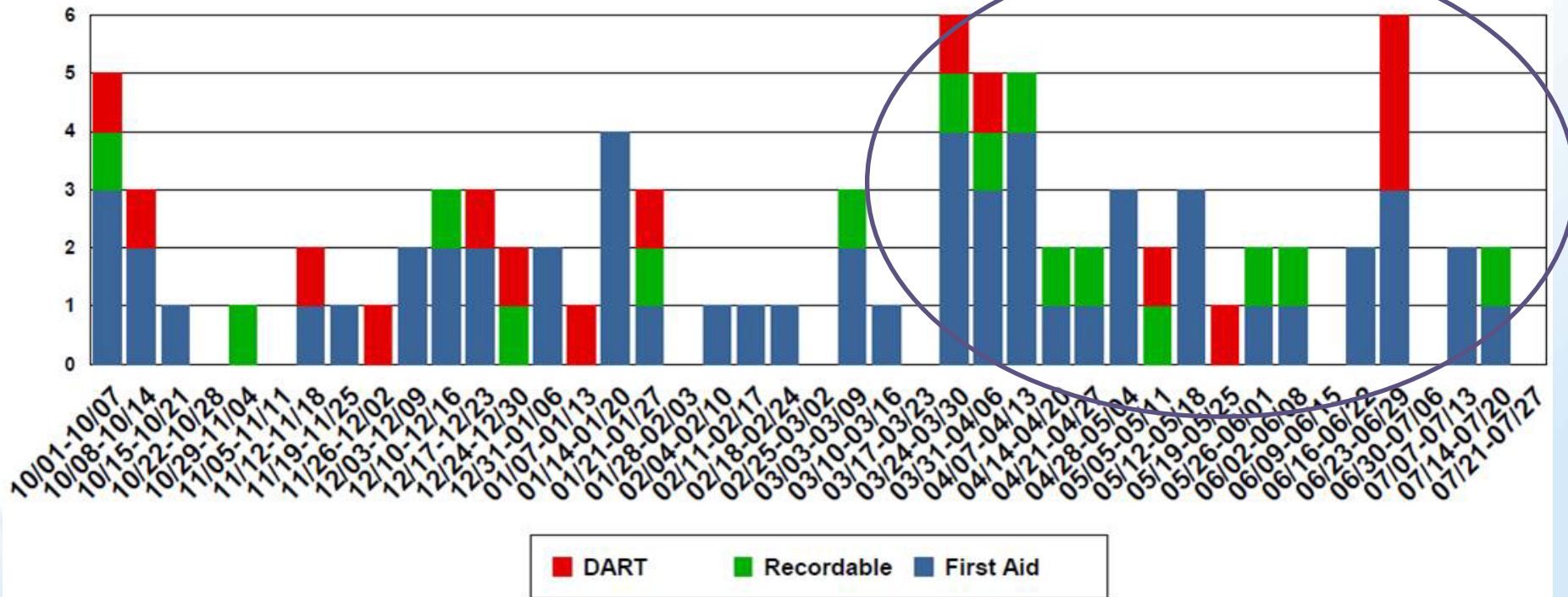


Safety

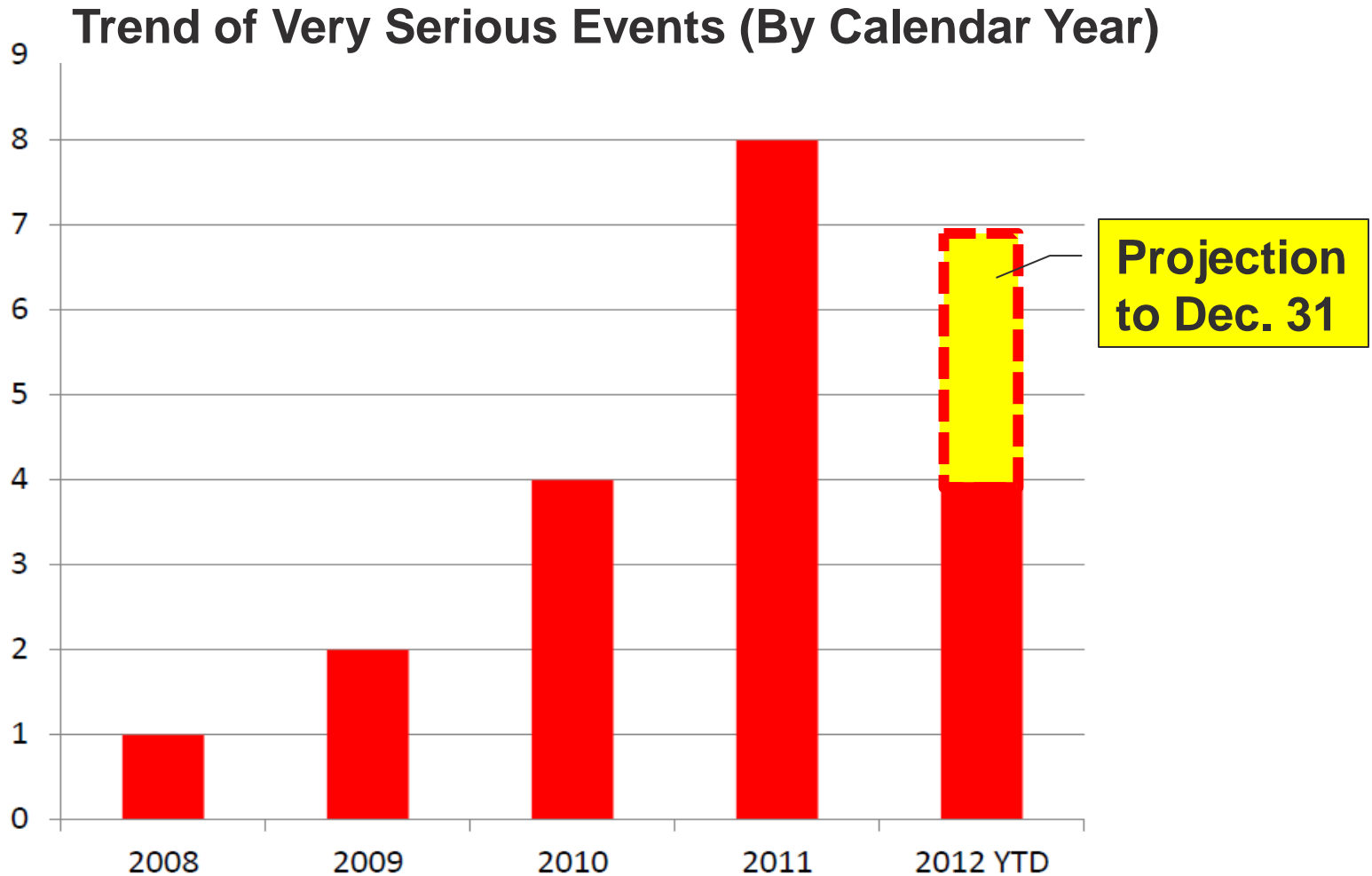
makes science possible
at Brookhaven National Laboratory

Injuries Since October 2011

Injuries Per Week (FY)
As of 7/27/2012



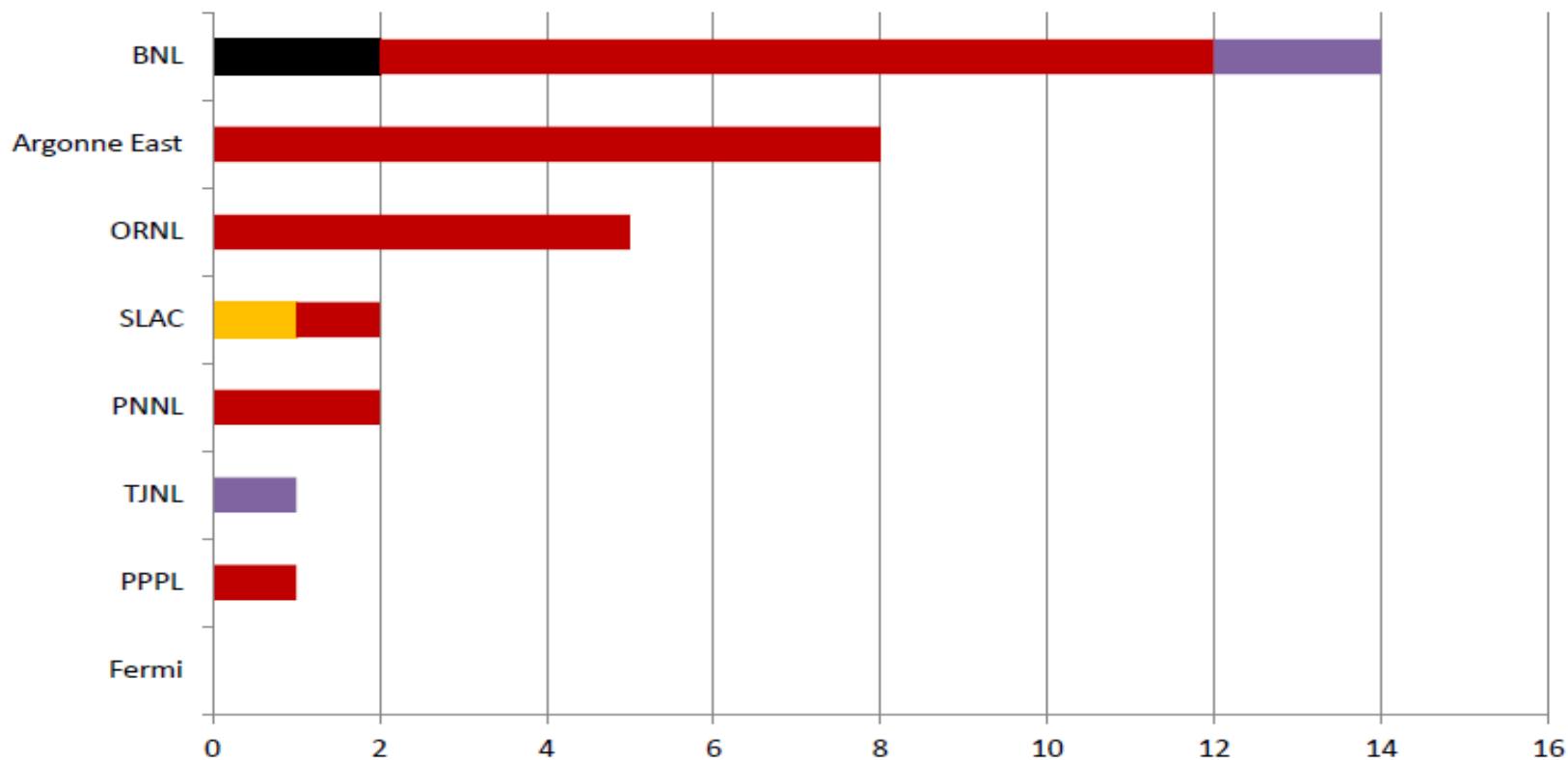
Major Events Since 2008



2008: Well house | 2009: HFBR, startle | 2010: BLIP, legacy rad source, 2 shocks
2011: 3 shocks, PET-R, tree felling, sealed source, scissor lift, oil discharge
2012: Shock, cylinders, recurring electrical, ladder fall

Our Standing Relative to Other Labs

Major Events by Significance from CY 2011 to July 8, 2012



	Fermi	PPPL	TJNL	PNNL	SLAC	ORNL	Argonne East	BNL
■ OE (Operational Emergency)	0	0	0	0	0	0	0	2
■ SC 1 (Most Serious)	0	0	0	0	1	0	0	0
■ SC 2 (Very Serious)	0	1	0	2	1	5	8	10
■ R (Recurring)	0	0	1	0	0	0	0	2

Sustained Safety and Operational Excellence



Owning Our Tools for Mission Success



Blueprint put processes and procedures in place



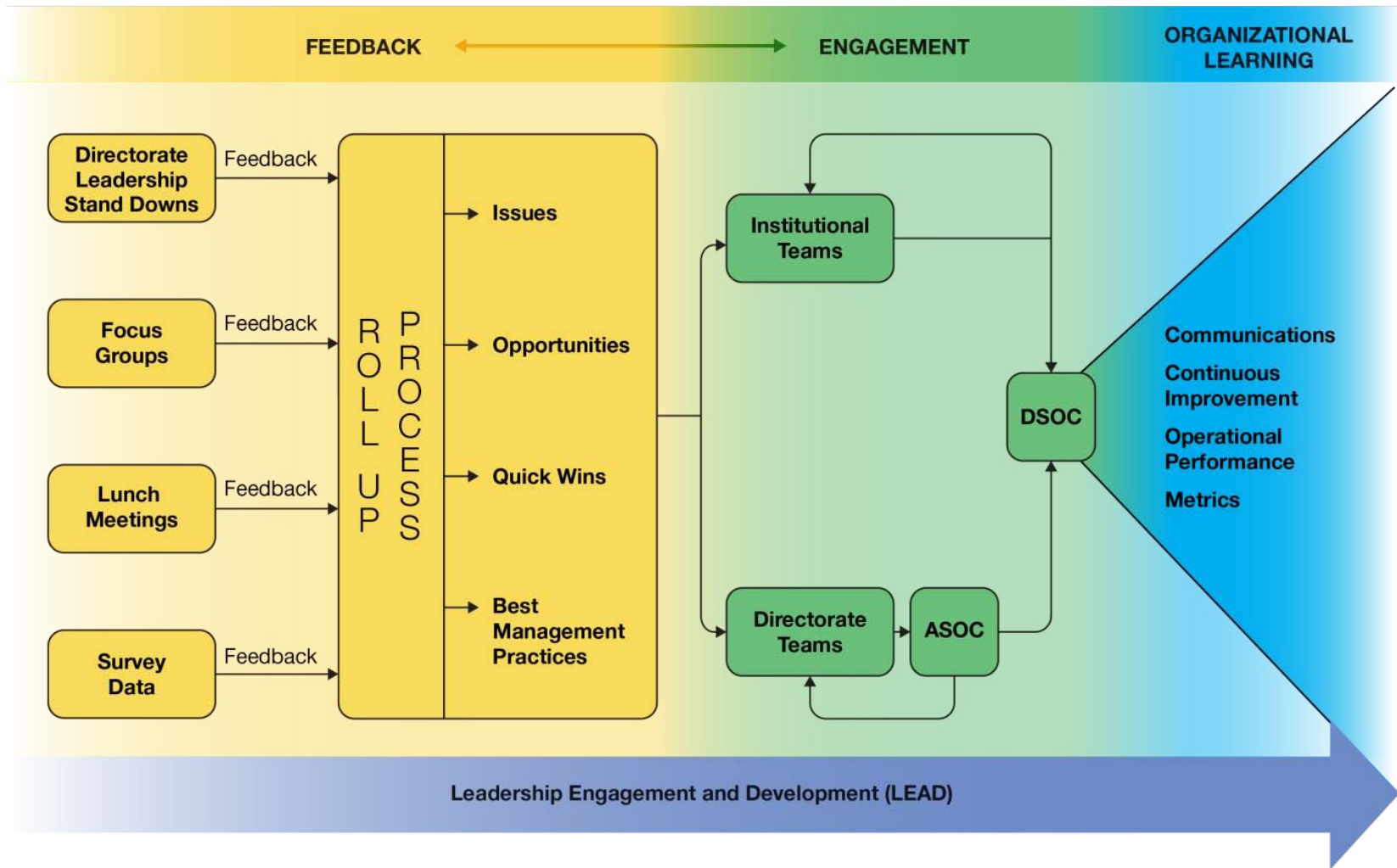
Safety performance cyclic; improvements not sustained



Ownership and execution not robust



2012 Sustained Excellence Improvement Agenda

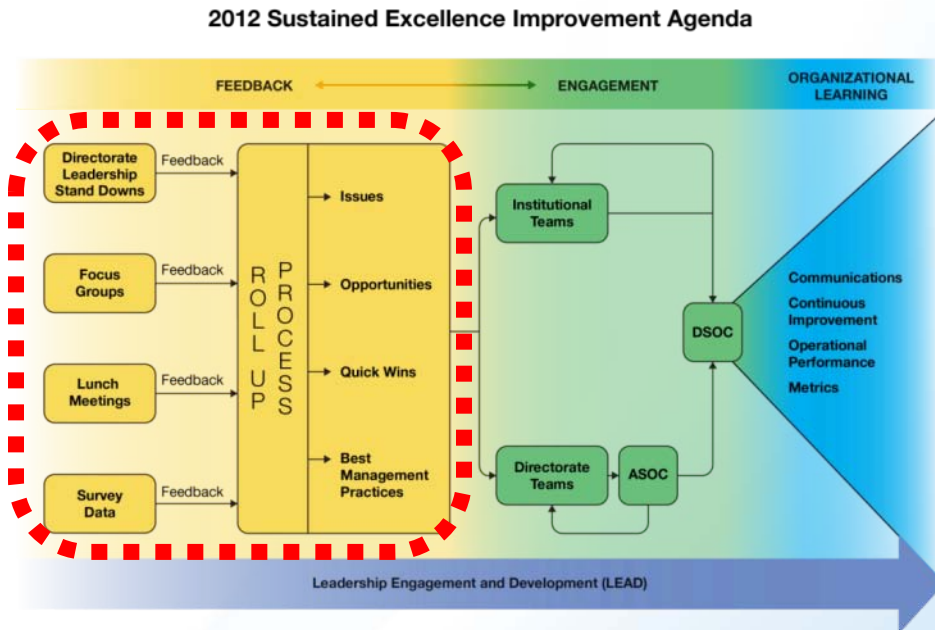


Lanny Bates, ALD, F&O
Steve Dierker, ALD, Photon Sciences
George Goode, ALD, ES&H
Les Hill, Blueprint Project Mgr

Roy Lebel, Mgr, QMO
Bob Lincoln, Chief HR Officer
Marge Lynch, ALD, CEGPA
Maggie Sullivan, Mgr, Learning & Dev.

Feedback and Analysis

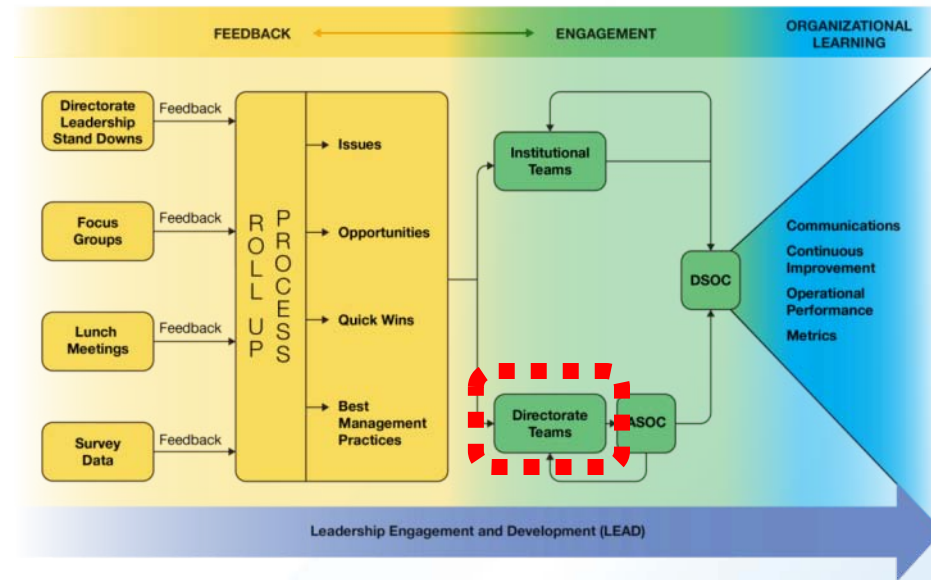
- Important Issues Discussed
 - Requirements and procedures
 - Workload and pace of work
 - Employee and worker engagement and input
 - Trust, values, complacency, and accountability
 - General safety issues
 - Housekeeping
 - Unhealthy conditions
 - Traffic safety



Directorate Engagement: Examples

- Stand-downs across directorates
- F&O Fire Rescue Group training
- ELS researches attend cross-dept. environmental safety reviews
- NPP improved communication and delineation of responsibilities with others, such as formal procedures between C-AD and F&O IFM
- ES&H remote field sampling
- CEGPA increased safety observations at the Science Learning Center

2012 Sustained Excellence Improvement Agenda



Fire Rescue Group Training



Remote Field Sampling

Institutional Engagement: Teams

2012 Sustained Excellence Improvement Agenda

■ Construction Safety

- Team defined and launched
- Structuring around Integrated Project Team Model
- To serve as a model for broader application beyond construction

■ Electrical Lock Out, Tag Out (LOTO) Improvements

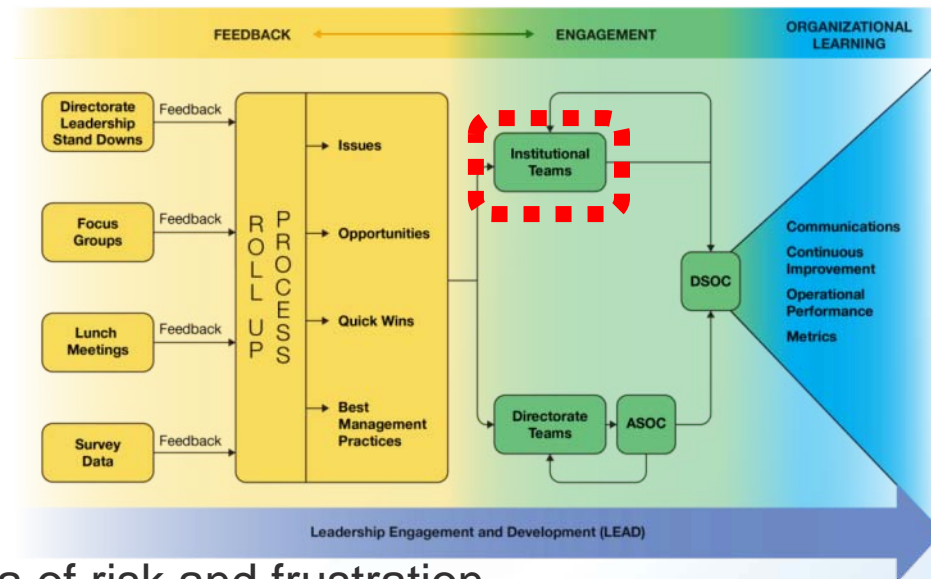
- Team defined and launched
- Focus on improving a significant area of risk and frustration
- Define and implement a compliant but worker-friendly procedure with consistent application for site-wide reliability in execution

■ Complex Procedures and Requirements

- Focus on high-risk management systems
- Scope, team, and charter under development

■ Investing in Your Health and Safety

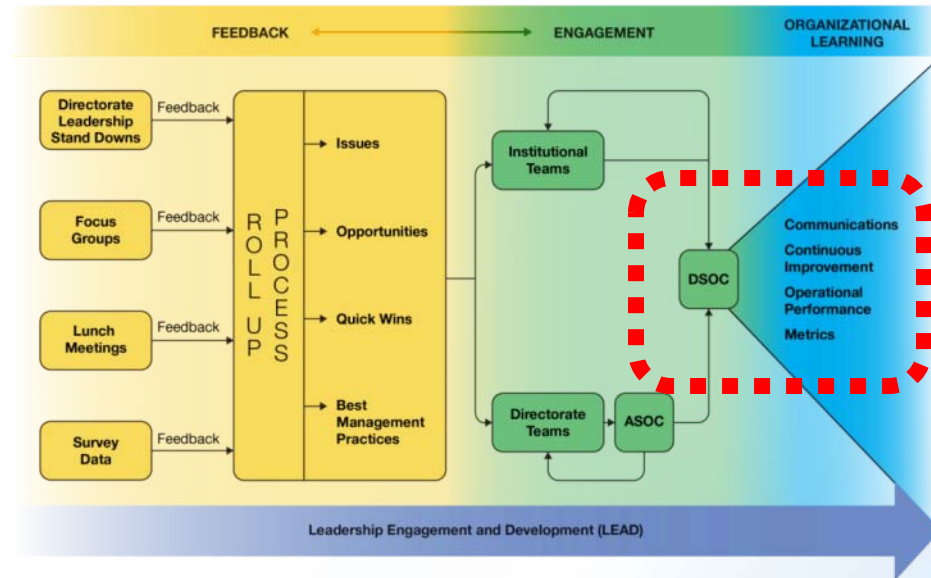
- Team and charter under development
- Scope will be significant part of the team activity



Learning Organization

2012 Sustained Excellence Improvement Agenda

- Open to input from employees
- Learn from mistakes and lessons of others
- Always look for continuous improvement
 - Have a questioning attitude when we see things that don't look right or when performance or feedback is less than desired
 - Be open, transparent, and thoughtful about using the information for improvement
 - This may be a stop work, a trend analysis, or just an email from someone
 - You welcome, embrace, and utilize feedback to make us better



Our Role for Success

Engagement

- Have strong ownership of systems, tools, and processes
- Provide positive reinforcement
- Have 1-on-1 conversations
- Be a good listener and acknowledge concerns

Accountability

- Hold ourselves responsible
- Aim for excellence in our work
- Apply rules, requirements, and regulations to all
- While disciplinary action is an element, it's a last resort

Role Modeling

- Demonstrate a positive attitude
- Lead by example
- Reinforce Lab priorities
- Reject noncompliance



Engagement, Accountability & Role Modeling in Action

- Sheared bolts discovered on an aerial lift leads to immediate stop and inspection of all similar lifts on site – and discovery of similar concern on second lift
- During F&O plan-of-the-day meeting, staff questions new electrical procedure and drives quick and effective change
- Staff member issues “stop work order” when observing a worker at height without fall protection



“I Helped Improve Safety at BNL”

*Examples of
BNLers being
Engaged,
holding themselves
and others
Accountable,
and serving as
Role Models*



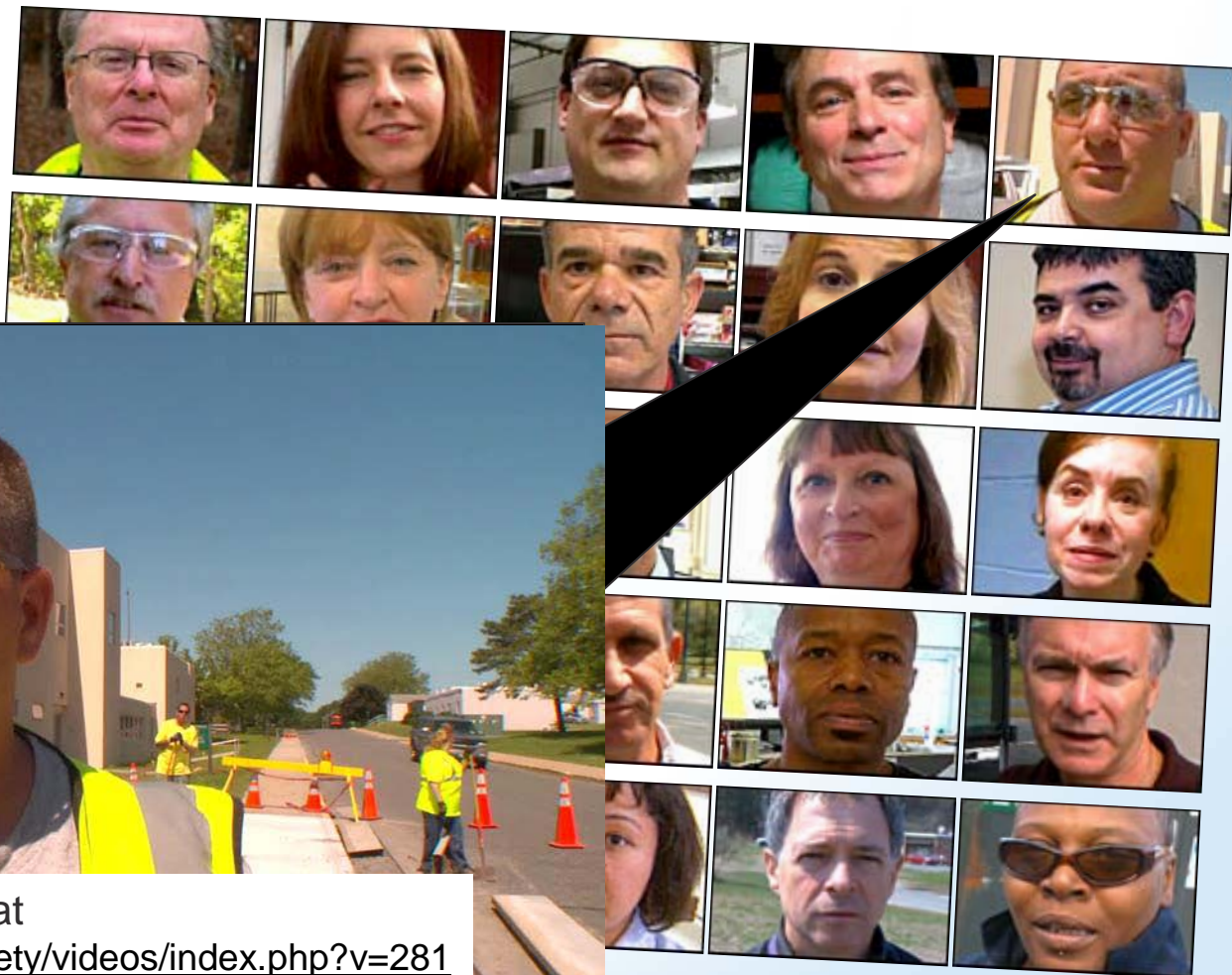
“I Helped Improve Safety at BNL”



Play the video online at
<http://intranet.bnl.gov/safety/videos/index.php?v=279>

Andy Cook, Chemistry Department

“I Helped Improve Safety at BNL”



Play the video online at
<http://intranet.bnl.gov/safety/videos/index.php?v=281>

Rob Chieffo, Site Resources Division

Summary – Our Challenge

- We must move beyond event-driven corrective action plans to finding the root causes of organizational performance issues
- Change the way managers, supervisors, and staff communicate and work together
- Become a learning organization
 - *Questioning attitude*
 - *Listening attitude*
- We must all set the tone
 - *Engagement*
 - *Accountability*
 - *Role Modeling*
- A sustained improvement agenda is not a one-time event, but requires ongoing commitment

Lab Director and NPP ALD Searches



Search Updates

Lab Director

- Search committee working with Russell Reynolds Associates, a nationally recognized search firm
- Committee met June 13
 - Defined and discussed leading candidates
 - Search firm now ascertaining candidate interest
- Committee met with employees to discuss perspectives
- Candidate interviews begin this month

ALD for Nuclear & Particle Physics

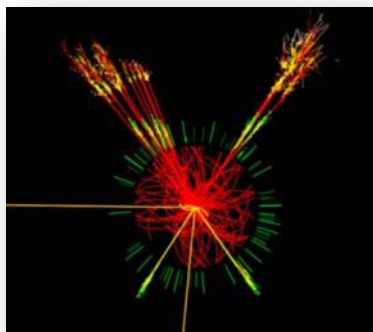
- Search committee making good progress
- Committee met in April and May
 - Gathered input from scientific staff
 - Identified slate of candidates
- Committee selected a short list of candidates and I am working with that list
 - Arranging formal interviews

Scientific Progress and Building New Capabilities

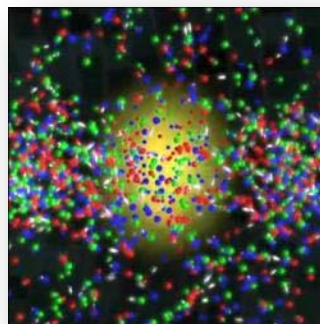


Our Scientific Progress

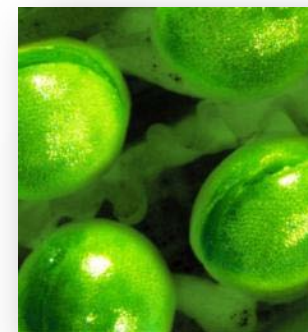
Search for Higgs
Boson at LHC
Reveals New Particle



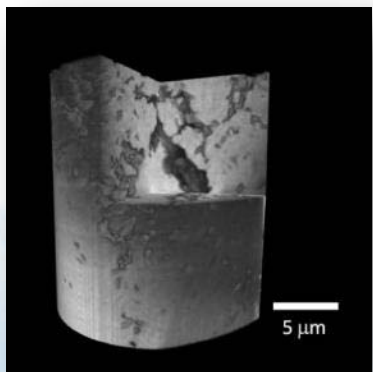
Two of the World's Firsts at
RHIC: Uranium-Uranium &
Copper-Gold Collisions



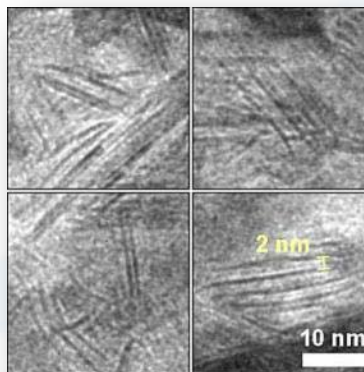
Identifying Mechanism
For Regulating Plant
Oil Production



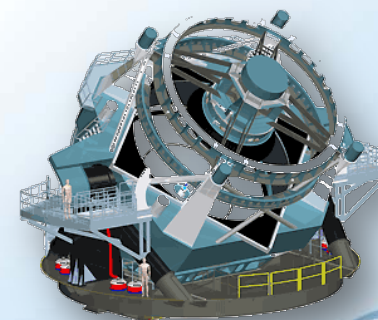
New X-ray Microscope at
NSLS Creates High-
Resolution 3D Images



Low-Cost Electrocatalyst
Efficiently Generates
Hydrogen Gas for Fuel

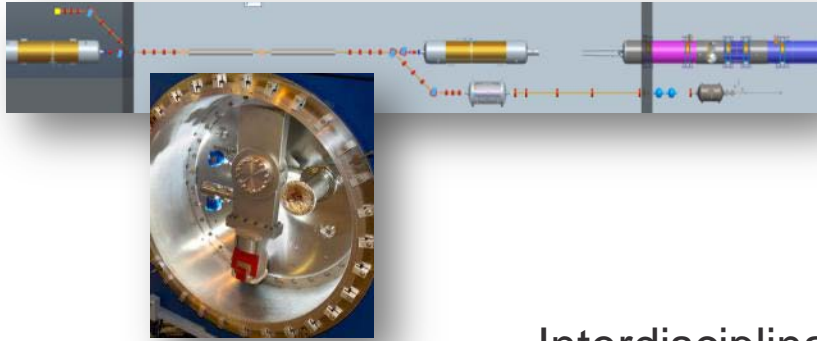


Large Synoptic
Survey Telescope
Camera Receives CD-1

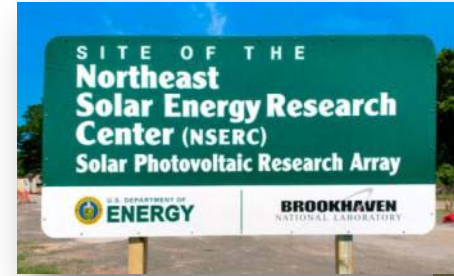


Expanding Our Capabilities

R&D for eRHIC



Northeast Solar Energy Research Ctr.



Interdisciplinary Science Building



Science Lab Renovation



Brookhaven Science Associates

Hub Proposal



CELESTE

Center for Extended Lifetime Energy Storage TEchnologies



BROOKHAVEN
NATIONAL LABORATORY

Building the World's Most Advanced Light Source



Play the video online at
http://www.youtube.com/watch?v=gl_Fi-8cGPM&feature=youtu.be

10-Year Strategic Plan

2012-2021

*Full plan available at
www.bnl.gov/10yr-plan*

BROOKHAVEN
NATIONAL LABORATORY

a passion for discovery



U.S. DEPARTMENT OF
ENERGY

Office of
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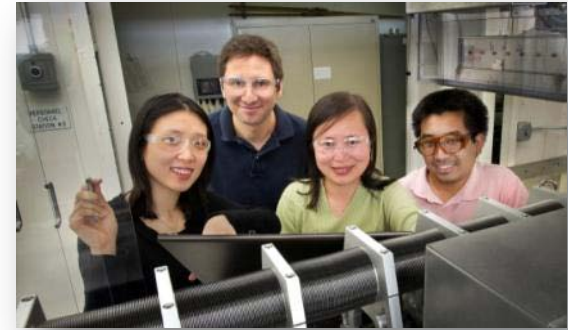
Our Plan for Robust Science

- Produce a world-class NSLS-II facility and carry out significant and well-executed first experiments
- Nuclear physics at BNL will remain second to none
- BNL's contribution to energy solutions will continue to grow both regionally and nationally
- BNL will continue to have leadership roles in particle physics both domestically and internationally
- Explore intriguing options for the application of BNL's accelerator technology
- Synthetic biology and data intensive computing are growing and exciting areas at BNL

We strive for operational excellence in
all of our work

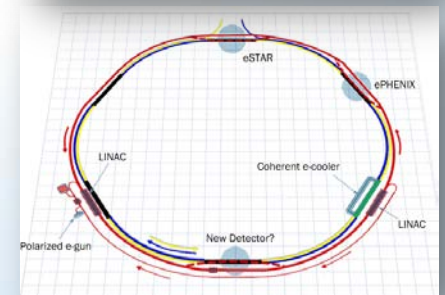
Completion of NSLS-II and Smooth Transition from NSLS is Our Top Priority

- NSLS-II more than 75% complete
- New light source will be 10,000 times brighter than NSLS
- Explore solutions to grand challenges in clean energy technologies and national energy security
- NSLS to NSLS-II transition
 - Early operations in 2014
 - ~30 beamlines by 2018
 - Will eventually serve 3,000-4,000 users/yr



Our Commitment to the Continued Operations of RHIC is Unwavering

- NRC report: “Spectacular” performance by the RHIC over past decade; critical future role
- RHIC Run 12: record p-p polarization and luminosity, first U-U and Cu-Au collisions (RHIC-II era is here!)
- Building support in the nuclear physics community for an electron ion collider
 - Developing new accelerator technologies, including an energy recovery LINAC
 - eRHIC is the most effective path to an electron-ion collider



Brookhaven Energy R&D: A Collaborative Approach



BNL Resources

CFN/Nanoscience



NSLS/NSLS-II



ISB-I



LISF



New York Blue



BNL
Research

NY State Consortia/Resources

ENERGY CHALLENGES: New York and Beyond

- Electric Systems
- Sustainable Fuels

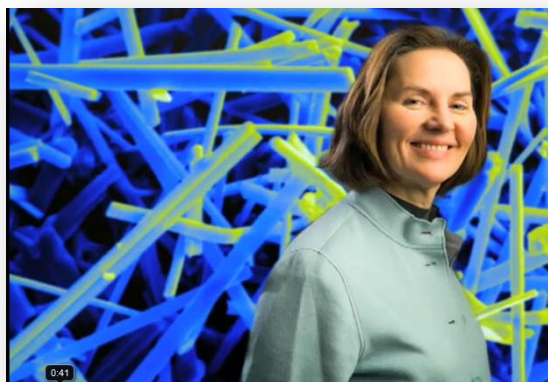
DOE ALIGNMENT/LEVERAGE

- DOE Priority Research Directions
- 4 Energy Frontier Research Centers

Collaborators/Joint Appointments



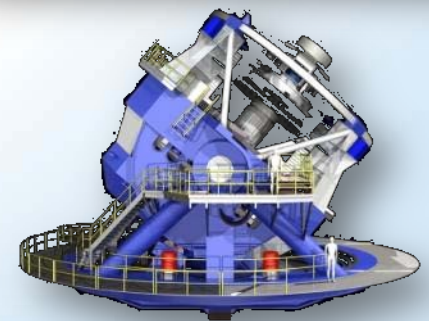
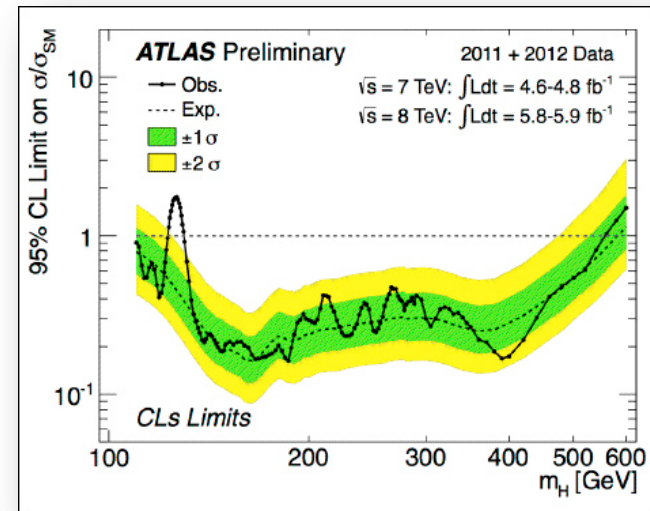
BNL/SBU Energy Storage Hub Proposal Addresses Fundamental Issues in Electrochemical Materials



- Focus on lifetime of electrochemical materials
- Driven by transportation & grid storage issues
- Strong BNL/SBU team in place
 - Distinguished leader: Esther Takeuchi
 - Leverages NSLS, NSLS-II, CFN, and Advanced Energy Center
- New York State Support
 - \$12.5M direct matching from NYS
 - Leverage NYS battery and grid investments
 - Support from Senator Schumer
 - Dedicated Building @ SBU: AERTC (new 49ksf, LEED Platinum laboratory space)

Physics of the Universe

- Intellectual and technical leadership in particle physics
- Three frontiers of particle physics:
 - **Energy** (ATLAS/LHC) – Secretary Chu’s award for RHIC-ATLAS Computing Facility, Higgs hunt
 - **Intensity** – Measurement at Daya Bay of the last unknown neutrino mixing angle
 - **Cosmology** – LSST camera received Critical Decision 1 approval from DOE
- Advanced accelerator R&D for a possible muon collider, developing record-breaking superconducting magnets



BNL Will Build a Leading Synthetic Biology Program

- Bioenergy is the long-term priority for our biosciences program
- Increasing plant oil production as a renewable resource for fuels and industrial feedstock
- Leverage BNL strengths: Plant biochemistry, Metabolic engineering, Physical biology, Computational biology and Nanoscience
- Continue development of BER programs: Tropics climate prediction, Atmospheric science, Radiotracers, Systems biology, K-base, Epigenetics, and Biology beamlines at NSLS-II



Accelerator Science & Technology

Supports Ongoing and Future Needs for BNL and the Broader Community

■ RHIC/eRHIC

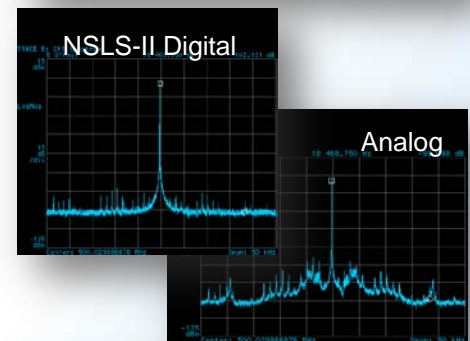
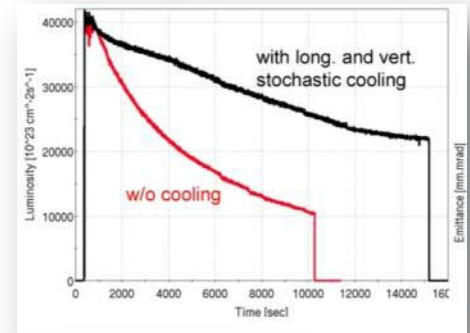
- Enables optimal RHIC operations
- Provides state-of-the-art technologies for eRHIC

■ NSLS-II

- Advanced beam position monitors
- High-precision magnet alignment
- Low-noise digital RF cavity controller

■ Societal impacts

- Grid-scale energy storage – ARPA-E grant
- CRADA to develop medical synchrotron for hadron cancer therapy



Computation

- Broaden impact as a leader in data-intensive high performance computing

Homeland/National Security

- Nuclear detectors for portal and cargo monitoring; Radiological Assistance Program; Urban dispersion of contaminants



Biomedical Imaging

- Apply radiochemistry and PET/MRI capabilities to biomedical challenges

Work for Others

- Our aspiration for WFO is 20% of the Lab's operating budget by 2020



RHIC Advocacy, Contingency Planning

- Current national budget constraints
 - Funding projections insufficient for the three existing and proposed facilities in the nuclear physics plan – RHIC, CEBAF, and FRIB
- DOE formed Tribble subpanel
 - Examine priorities in a constrained budget environment
 - Hearings in September and report due in January
- Advocating for RHIC
 - RHIC is highly productive, at the forefront of nuclear physics research, and provides a cost-effective path to a future facility (eRHIC)
 - Nuclear Physics: Retain U.S. scientific leadership
 - Making the case to NY congressional delegation, media, and others
- Contingency
 - Office of Science asked BNL to present contingency plans in case serious Nuclear Physics budget constraints in FY 2014-18 lead to early termination of RHIC operations

RHIC Contingency Plan

Guiding Principles (for April 2012 strategic planning retreat)

- Accelerate NSLS-II availability
- Preserve world-leading accelerator science and technology and cutting-edge research and development essential for future nuclear physics and basic energy sciences facilities
- Provide a vibrant nuclear physics research effort
- Promote “discovery to deployment” emphasis even more aggressively than in our principal plan
- Accelerate and expand materials science impact
- Accelerate synthetic biology and data-intensive computing efforts

Detailed plans and resource needs for accelerated growth being developed

Budget Outlook



Budget Outlook

- We continue to monitor the FY13 federal budget situation
 - Six-month Continuing Resolution likely; terms uncertain
 - Government discussing potential sequestration
 - \$109B in automatic spending cuts divided equally between defense and domestic programs starting Jan. 2 if Congress cannot achieve a deficit-reduction deal
- DOE SC asked NPP & Photon Sciences to prepare various budget scenarios
 - Probable delay in knowing FY13 final budgets for such large programs increases impact of any reductions
- Progress on our growth initiatives is as important as ever. Some recent successes:
 - Energy – SGRID3, HUB, NYSTAR, and NYSERDA
 - Computation – NYSERDA, NYPA, and SBU

Questions

- Audience: Step up to microphone
- Webcast Viewers: E-mail jgreen@bnl.gov