Committee of Visitors Review of the
BES Materials Sciences and
Engineering Division

Basic Energy Sciences Advisory Committee
March 23, 2018

Linda L. Horton
Director, Materials Sciences and Engineering Division
History of COVs in SC/BES

• The first SC-BES COV was in 2002
• This will be the sixth review for MSE. All previous COV reports and BES responses can be found at: 
  http://science.energy.gov/bes/besac/bes-cov/
• COV recommendations are taken very seriously by BES and have resulted in substantive changes
  – Portfolio Analysis and Management System
  – Improved documentation of award decision making process
  – Additional resources for program manager travel
  – Endorsement of use of white papers as a key aspect of communication with the community
The Portfolio Analysis and Management System (PAMS) is enabling the “rigorous collection of data on all aspects of proposal solicitation, review, funding recommendation, proposed action and all metrics associated with progress …” (2008 COV)

- Recommendations for portfolio management tool in all subsequent BES COVs; SC responded with development of PAMS
  - Fully implemented for grant review/award process beginning in FY 2014
  - All grant award approval/declination signatures are electronic; PIs receive notification of status automatically by PAMS
  - Progress reports submission to PAMS began in February 2015
  - Demographic information (optional) for all PAMS users in February 2015
  - PAMS products (e.g., publications) can be entered into the system (and updated as needed)
  - PAMS also used for new and renewal national laboratory applications
- The COV will use PAMS COV Module for the upcoming review
Committee of Visitor Charge (Standard)

1. For both the DOE laboratory projects and the university projects, assess the efficacy and quality of the processes used to:
   (a) solicit, review, recommend, and document proposal actions and
   (b) monitor active projects and programs.

2. Within the boundaries defined by DOE missions and available funding, comment on how the award process has affected:
   (a) the breadth and depth of portfolio elements, and
   (b) the national and international standing of the portfolio elements.
Office of Basic Energy Sciences

Harriet Kung, Director

Materials Sciences and Engineering Division
Linda Horton, Director
Teresa Crockett, Program Analyst
Vacant, Secretary

- Materials Discovery, Design, and Synthesis
  Helen Kerch, Acting, P.A.
  Craig Henderson, Michael Bennett

- Materials Chemistry
  Craig Henderson, Michael Bennett
  X-ray Scattering
  Lane Wilson

- Biomolecular Materials
  Mike Markowitz

- Synthesis and Processing Science
  Bonnie Gersten

- Batteries and Energy Storage Hub: Technology Coordination
  Craig Henderson, John Vettrano

- Condensed Matter and Materials Physics
  Jim Horwitz, Vacant, P.A.
  Michael Pechan

- Theoretical Condensed Matter Physics
  Jim Davison, Matthias Graf

- Neutron Scattering
  Thyagapathy P. Thyagarajan

- Experimental Condensed Matter Physics
  Jim Davison, Matthias Graf

- Physical Behavior of Materials
  Reece Gorton

- Electronic and Scanning Probe Microscopies
  Jane Zhu

- Mechanical Behavior and Radiation Effects
  John Vettrano

- Experimental Program to Stimulate Competitive Research (DOE EPSCoR)
  Tim Fitzsimmons

- Scattering and Instrumentation Sciences
  Helen Kerch, Vacant, P.A.

- X-ray Scattering
  Lane Wilson

- X-ray and Neutron Scattering Facilities
  Peter Lee
  Thyagapathy P. Thyagarajan

- NSRCs **
  George Maracas

- Facilities Upgrades and MF** Projects
  Phil Kraushaar
  Ed Stevens

- Operations
  Helen Kerch, Vacant, P.A.

- Construction
  Linac Coherent Light Source-II
  Phil Kraushaar

- Fundamental Interactions
  Jeff Krause
  Vacant, P.A.

- Photochemistry and Biochemistry
  Gail McLean
  Vacant, P.A.

- Chemical Transformations
  Raul Miranda
  Vacant, P.A.

- Atomic, Molecular, and Optical Sciences
  Tom Settersten

- Solar Photochemistry
  Christopher Fecko
  Vacant

- Catalysis Science
  Viviane Schwartz
  Chris Bradley

- Gas Phase Chemical Physics
  Wade Sisk

- Photonsynthetic Systems
  Stephen Herbert

- Condensed Phase and Interfacial Molecular Science
  Gregory Fiechter

- Computational and Theoretical Chemistry
  Mark Pederson

- Fuels from Sunlight
  Christopher Fecko

- Geosciences
  James Rustad

Legend:
- Δ: Delegation from BMI/PNNL
- P.A.: Program Assistant

March 2018
MSE Division – by the Numbers

• MSE has an annual budget of ~$360M
  – EFRCs and Hub are ~$80M
  – Funding: 40% universities, 60% national laboratories
  – 10 core research areas plus EPSCoR

• MSE staffing
  – 2 team leads
  – 13 program managers
  – 2 administrative: program assistant and analyst

• Annual new and renewal proposals: 700 to 800
• Annual progress reports: ~450
• Annual white papers: >500 (estimate)
COV Covers Applications for Funding Opportunities and Lab Announcements in FY 2015 – 2017 plus Award Management

- FY 2015 – 2017 Office of Science Annual Funding Opportunity Announcements
  - Open year round for new and renewal applications for grants
  - Pre-applications not required
- FY 2015 – 2017 Early Career Research Program
  - First time inclusion in the COV
  - Pre-applications required
- FYs 2015 and 2016 – Computational Materials Sciences (CMS)
- FY 2017 Scientific Discovery through Advanced Computing (SciDAC)
- FY 2016 - EPSCoR State National Laboratory Partnership Applications
  - Pre-applications required
- National Laboratory new applications and triennial reviews

Not included
- Batteries and Energy Storage Hub; Energy Frontier Research Centers
DOE EPSCoR

- Helps address disparities in competitiveness for Federal research support
- Highlights the importance of geographical diversity in the nation’s energy R&D portfolio

DOE EPSCoR follows the NSF EPSCoR RII eligibility criteria. Twenty four states, Puerto Rico, Guam, and the U.S. Virgin Islands were eligible to participate in the DOE EPSCoR program during most of the COV review period. [Note that Missouri lost eligibility in April 2015 and was not eligible for EPSCoR funding in subsequent FOAs. New Mexico lost eligibility in January 2018.]
FY 2018 BES-MSE Committee of Visitors

- Prof. Esther Takeuchi, Stony Brook University and BNL, chair
- April 18-20, 2018, Rockville Hilton
- PAMs-based COV
- 17 COV panelists organized into 4 panels (Centered on the 3 MSE Division programmatic teams and EPSCoR)
  1. Scattering and Instrumentation Sciences Team – Susanne Stemmer, University of California - Santa Barbara
  2. Materials Discovery, Design, and Synthesis Team – Monica Olvera de la Cruz, Northwestern University
  4. Experimental Program to Stimulate Competitive Research (EPSCoR) – Jeff Nelson, SNL
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Questions?