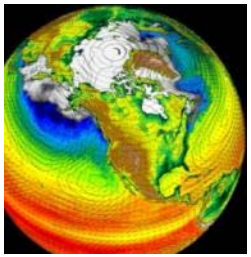
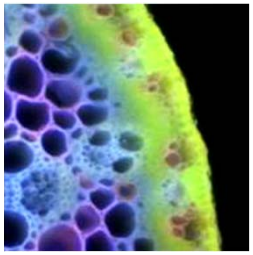
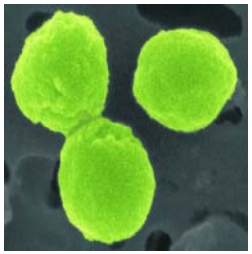


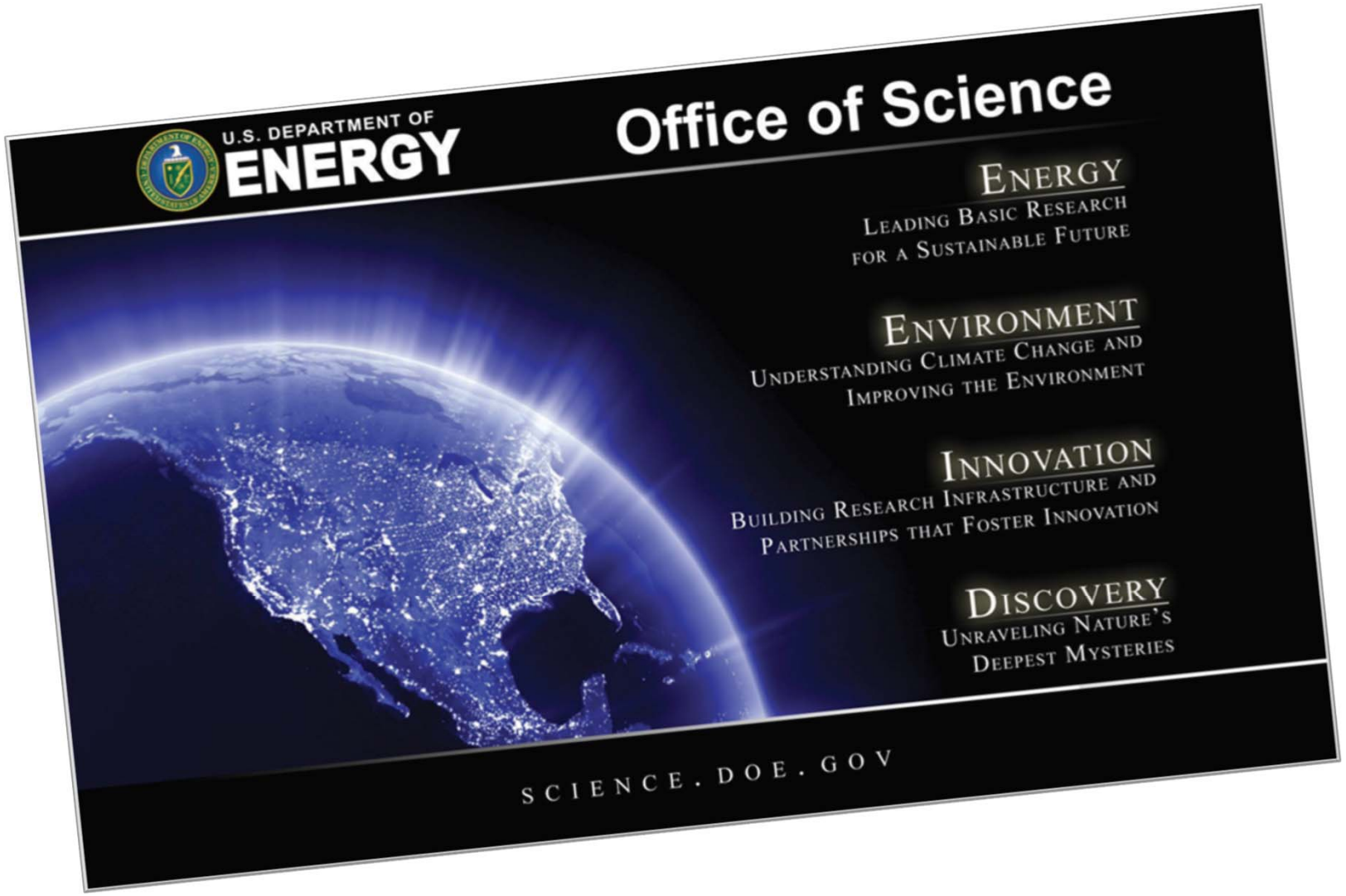




Office of Biological and Environmental Research

Biological Systems Science Division

Shireen Yousef

October 19, 2011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ENERGY
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ENERGY
LEADING BASIC RESEARCH
FOR A SUSTAINABLE FUTURE
ENVIRONMENT
UNDERSTANDING CLIMATE CHANGE AND
IMPROVING THE ENVIRONMENT
INNOVATION
BUILDING RESEARCH INFRASTRUCTURE AND
PARTNERSHIPS THAT FOSTER INNOVATION
DISCOVERY
UNRAVELING NATURE'S
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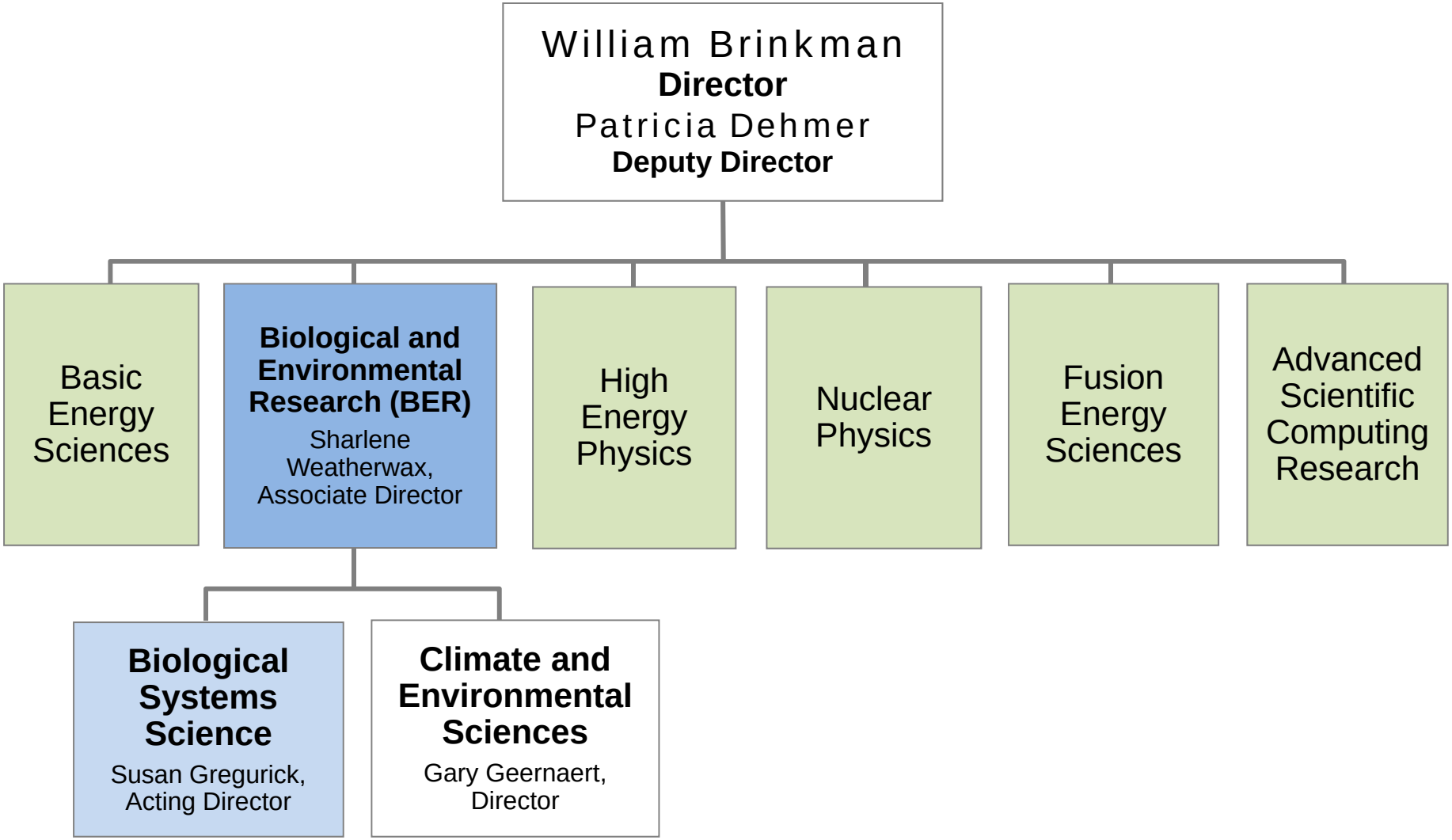


Mission/Approach

Mission:

❑To understand complex biological and environmental systems across spatial and temporal scales.

❑Provide Foundational Science to:

— Support the development of biofuels as major, secure, and sustainable national energy resources.

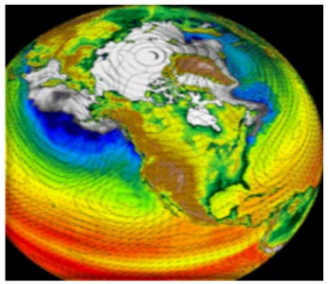
— Develop new tools to explore the interface of biological and physical sciences.

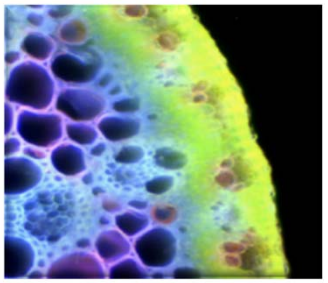
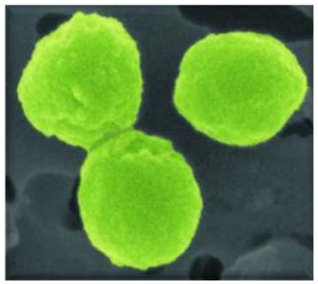
Approach:

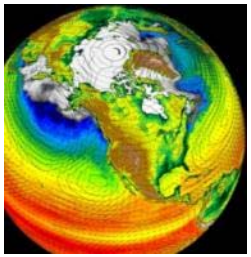
❑Integrating science by tightly coupling theory, observations, experiments, models, and simulations.

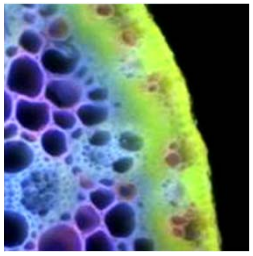
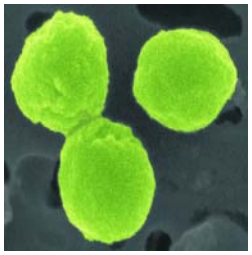
❑Supporting interdisciplinary research to address critical national needs.

❑Engaging national laboratories, universities, and the private sector to generate the best possible science.





Relative Program and within the Biological Systems Science Division

DOE Genomic Science Program
A Mission-Inspired Fundamental Research Approach

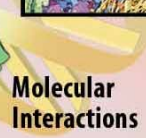
Technologies and Methods for Systems Biology	Fundamental Research Needs	Mission Grand Challenges for Biology

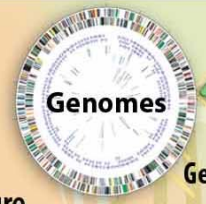
- Microbe genomics, plant genomics, metagenomics
- Analysis of global changes in gene expression and metabolite profiles
- Molecular imaging
- Structure determinations
- Modeling and simulation
- Prediction and design
- Synthetic biology

Gain a predictive understanding of how cells work in communities, tissues, plants, and, ultimately, global ecosystems

Explore the functioning and regulation of pathways and dynamic networks in cells

Understand how proteins function individually and in interactions with other cellular components





The genome determines dynamic biological structure and function at all scales, from genes to ecosystems.

Energy
Tools and concepts for designing and engineeering bioenergy plant and microbial systems, including the mechanistic bases.

Carbon Cycle
Tools and concepts to determine the carbon-cycling and sequestration processes of ocean and terrestrial ecosystems.

Environmental Remediation
Microbial and plant modeling and experiments to predict and control contaminant fate and transport.

Technology Endpoints

Payoffs for the Nation

- Sustainable and Viable Biofuel Technologies
- Earth System Modeling and Biosequestration Strategies
- Improved Strategies for Environmental Remediation and Long-Term Stewardship

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Plant Feedstock Genomics for Bioenergy

Joint DOE-USDA Research Program (2006-2011)

Genomics-based research that will lead to the improved use of biomass and plant feedstocks for the production of fuels such as ethanol or renewable chemical feedstocks in the following areas:

- Improve biomass characteristics, biomass yield, or sustainability;
- Systems biology approaches enabling efficient manipulation and breeding;
- Prediction of phenotype from genotype that could lead to improved feedstock characterization and sustainability.

Organisms of Interest: Brachypodium, switchgrass, sorghum, poplar, Miscanthus, energy cane, other potential bioenergy feedstocks.

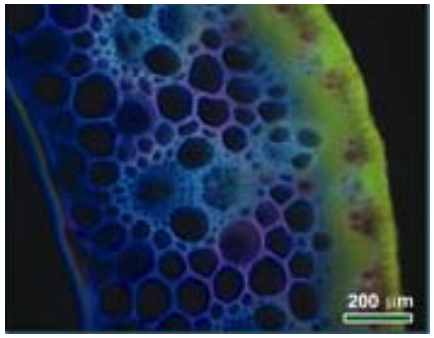
Total Funded Projects to Date: 56

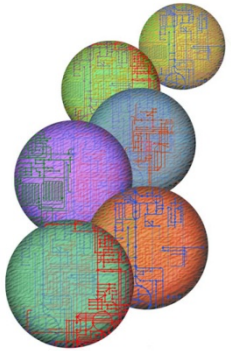
USDA United States Department of Agriculture National Institute of Food and Agriculture

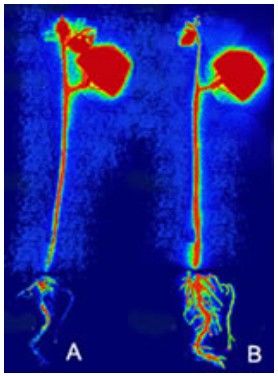
Genomic Sciences for Energy and the Environment

Supports genomic-based research that addresses DOE's missions in energy in the following research areas:

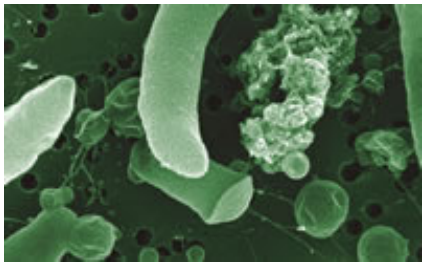
- Plant cell wall structural properties.
- Metabolic/regulatory networks underlying the systems biology of plants, microbes, and communities.
- Microbial degradation of complex plant material, or microbial advanced biofuel synthesis.
- The development of technologies aimed at characterizing key molecular species, events, and multicellular processes for genomic science.







Examples of Organisms of Interest: plants (Arabidopsis, poplar, sorghum, Brachypodium, switchgrass, Miscanthus, black cottonwood, alfalfa, soybean, and Medicago) and microbes (green algae, cyanobacteria, Clostridial species, diatoms, E. coli, Nanoarchaeum, and Shewanella)



Total Funded Projects To Date: 27

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Early Career Research

Supports the development of individual research programs of outstanding scientists early in their careers and stimulates research careers in the disciplines supported by the DOE Office of Science.

BER-BSSD's Topics of Interest: microbial system biology design for bioenergy production.

Due Dates:
Preapplication were due September 1, 2011
Full Applicatins are due November 29, 2011
Decision are due March 22, 2012

Link: http://science.energy.gov/early-career/

Review Process

Preapplication Stage:

— 2-3 pages describing research objectives, technical approach, and list of team members and their expertise.
— Will be evaluated by a team of DOE program managers for program relevance.
—Results of the evaluation will be communicated to PIs.

Full Application Stage: by invitation only

—A minimum of 3 technical reviews per proposal.
—Merit review criteria:

1. Scientific and/or Technical Merit of the Project;
2. Appropriateness of the Proposed Methods or Approach;
3. Competency of Applicant's Personnel and Adequacy of Proposed Resources; and
4. Reasonableness and Appropriateness of the Proposed Budget.
5. Plus any additional program criteria mentioned in the FOA.

Content of Standard DOE Proposal

- ❑Required Forms
  - •SF 424
  - •Project/Performance Site Locations (s)
  - •SF-LLL Disclosure of Lobbying Activities if applicable
- ❑Budget/Budget Justification
- ❑Biographical Sketches
- ❑Project Summary/Abstract
- ❑Project Cover Page/Narrative
- ❑Current and Pending Support
- ❑References Cited
- ❑Facilities & Other Resources
- ❑Equipments
- ❑Other Attachments

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Tips For Writing A Good Proposal

- ❑Read the FOA thoroughly and if you are not sure about you eligibility status, contact the Program Manager.
- ❑Adhere to the guidelines provided in the funding opportunity announcement.
- ❑Submit all required materials.
- ❑Proofread your proposal.
- ❑Complete your proposal at least a week before the deadline.
- ❑Maintain close contact with your sponsor research services and ask them for guidance.

Want To Get Involved With Our Programs?

- Look for funding opportunity announcements (FOA's) on our web site http://science.energy.gov/ber/funding-opportunities/
- Contact the DOE scientific program manager in your area of interest http://science.energy.gov/ber/about/staff/
- Look for opportunities to interact with the DOE National Laboratories
- Take advantage of a DOE Scientific User Facility
- Volunteer to serve as a reviewer for a DOE peer review panel
- Participate in a DOE research needs workshop

Useful Links

Program information

http://science.energy.gov/ber/

http://genomicscience.energy.gov/program/aboutBER.shtml

Reports, Workshops, and Brochures

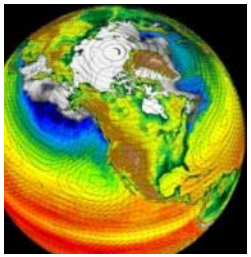
http://science.energy.gov/ber/news-and-resources/

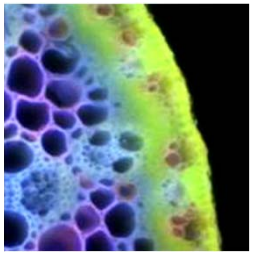
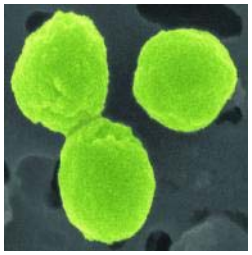
Research abstracts

http://www.osti.gov/oberabstracts/search.adv.jsp

Funding Opportunity Announcements

http://science.doe.gov/grants/index.asp



Thank you!

Shireen.Yousef@science.doe.gov