

## **OFFICE OF BASIC ENERGY SCIENCES**

### **OFFICE OF SCIENCE**

#### MISSION

The Office of Basic Energy Sciences (BES) supports fundamental research in the natural sciences and engineering to provide a basis both for new and improved energy technologies and to provide the understanding necessary for mitigating the environmental impacts of energy use. As part of its mission, BES also provides world-class scientific user facilities for the Nation.

Four strategies associated with the BES mission are to:

1. support world-class research in areas relevant to energy resources, production, conversion, and efficiency and to the mitigation of the adverse impacts of energy production and use, i.e., in areas of materials sciences and engineering, chemical sciences, geosciences, and biosciences;
2. foster and support the discovery, dissemination, and integration of the results of fundamental, innovative research in these areas;
3. plan, administer, and fund the design, construction, and operation of major scientific user facilities to serve researchers from the university, national laboratory, and industrial research communities; and
4. act as a steward of human resources, essential scientific disciplines, institutions, and premier scientific user facilities.

BES supports the Office of Science (SC) mission to foster, formulate, and support forefront basic and applied research programs which advance the science and technology foundations necessary to accomplish Department of Energy (DOE) missions.

#### ORGANIZATIONAL STRUCTURE

1. Office of the Associate Director
2. Materials Sciences and Engineering Division
3. Scientific User Facilities Division
4. Chemical Sciences, Geosciences, and Biosciences Division

#### FUNCTIONS

##### The Associate Director

1. Formulates program goals, strategic directions, priorities, and plans for the Office of Basic Energy Sciences. As appropriate, factors in advice provided by the Basic Energy Sciences Advisory Committee.

2. Develops budgets for the Office of Basic Energy Sciences in accordance with the above. Assists the Director of Science in formulating BES budget requests and assists in the defense of the budget through DOE, the Office of Management and Budget, the Office of Science and Technology Policy, and Congressional committees.
3. Provides overall management direction for the BES Program.
4. Integrates the efforts of the BES program elements. Also integrates the BES program with other SC Program Offices; other DOE Program Offices, including the DOE applied energy programs; and other Federal research programs such as the National Science Foundation.
5. Develops and maintains working relationships with the Site Office Managers, the Oak Ridge Office Manager, and other DOE Field Managers responsible for national laboratories performing BES-sponsored research in order to ensure integration of the BES science programs with laboratory operations.
6. Provides advice to the SC Director regarding issues which affect the capabilities or institutional health and well-being of the SC laboratories.
7. Provides support to the Basic Energy Sciences Advisory Committee.

#### Materials Sciences and Engineering Division

1. Funds and administers materials and engineering physics research programs in the structure and composition of materials, mechanical behavior of materials and radiation effects, physical behavior of materials, synthesis and processing science, and engineering research.
2. Funds and administers condensed matter physics and materials chemistry research programs in experimental condensed matter physics, theoretical condensed matter physics, materials chemistry and biomolecular materials, and x-ray and neutron scattering.
3. Funds and administers the Department's Experimental Program to Stimulate Competitive Research (EPSCoR).
4. Administers peer-reviewed basic research activities in the areas described above at DOE and other government laboratories, universities, and industrial and not-for-profit institutions. Conducts reviews in accordance with policies described in 10 CFR 605 for the grant program and with BES guidelines developed for the DOE laboratories.
5. Formulates long-range and strategic plans and develops budget submissions and justifications for materials sciences and engineering research. Provides advice and recommendations to the Associate Director for BES.

6. Supports and plans intra-agency, interagency, and Administration activities; National Academy of Sciences/National Research Council activities; and a wide variety of workshops and collaborative research and development (R&D) efforts.
7. Represents the Office of Science and the Department of Energy in the areas of materials sciences and engineering on all relevant agency and interagency committees and on all other special purpose committees. Serves as principal point of contact between the DOE technology programs and the Office of Science concerning matters related to materials sciences and engineering. Maintains liaison with program officials administering related work in other Federal agencies, with relevant technical societies, and with relevant standing committees of the National Academy of Sciences.
8. Identifies important energy-related research needs in materials sciences and engineering in consultation with staff from DOE Program Offices and members of the scientific and engineering communities and stimulates interest in these areas through workshops and other interactions with the communities.
9. Participates in the Council for Materials Sciences and Engineering.
10. Works with the Site Office Managers, the Oak Ridge Office Manager, and other appropriate DOE Field Managers to ensure compliance with DOE, Federal and/or State policies and regulations on safeguards and security; emergency preparedness; quality assurance; and environment, health, and safety at BES research facilities.

#### Scientific User Facilities Division

1. Conceives, plans, administers, and funds the design, construction, and operation of major scientific user facilities for synchrotron radiation research, neutron scattering research, nanoscale science research, and other user facilities as appropriate. Oversees the fabrication of Major Items of Equipment for the synchrotron radiation light sources, the neutron scattering facilities, the electron beam microcharacterization centers, and other scientific user facilities as appropriate.
2. Conducts reviews of the scientific user facilities in accordance with policies described in 10 CFR 605 for the grant program and with BES guidelines developed for the DOE laboratories.
3. Formulates long-range and strategic plans and develops budget submissions and justifications for the scientific user facilities. Provides advice and recommendations to the Associate Director for BES.
4. Supports and plans intra-agency, interagency, and Administration activities; National Academy of Sciences/National Research Council activities; and a wide variety of workshops and collaborative R&D efforts.

5. Represents the Office of Science and the Department of Energy in the areas of the scientific user facilities on all relevant agency and interagency committees and on all other special purpose committees. Serves as principal point of contact between the DOE technology programs and the Office of Science concerning matters related to the scientific user facilities. Maintains liaison with program officials administering related work in other Federal agencies, with relevant technical societies, and with relevant standing committees of the National Academy of Sciences.
6. Identifies important needs for the scientific user facilities in consultation with staff from DOE Program Offices and members of the scientific and engineering communities and stimulates interest in these areas through workshops and other interactions with the communities.
7. Participates in the Council for Materials Sciences and Engineering, the Council for Chemical Sciences, the Council for Earth Sciences, and the Council for Biosciences.
8. Works with the Site Office Managers, the Oak Ridge Office Manager, and other appropriate DOE Field Managers to ensure compliance with DOE, Federal and/or State policies and regulations on safeguards and security; emergency preparedness; quality assurance; and environment, health, and safety at BES research facilities.

#### Chemical Sciences, Geosciences, and Biosciences Division

1. Funds and administers research in fundamental interactions in atomic, molecular, and optical sciences; chemical physics; photochemistry and radiation research; and computational and theoretical chemistry.
2. Funds and administers research in molecular processes research in catalysis and chemical transformations, separations and analysis, heavy element chemistry, chemical energy and chemical engineering, and geosciences research.
3. Funds and administers research in biochemistry and biophysics and in plant sciences.
4. Funds and administers research in combustion science.
5. Administers peer-reviewed basic research activities in the areas described above at DOE and other government laboratories, universities, and industrial and not-for-profit institutions. Conducts reviews in accordance with policies described in 10 CFR 605 for the grant program and with BES guidelines developed for the DOE laboratories.
6. Formulates long-range and strategic plans and develops budget submissions and justifications for chemical sciences, geosciences, and biosciences. Provides advice and recommendations to the Associate Director for BES.

7. Supports and plans intra-agency, interagency, and Administration activities; National Academy of Sciences/National Research Council activities; and a wide variety of workshops and collaborative R&D efforts.
8. Represents the Office of Science and the Department of Energy in the areas of chemical sciences, geosciences, biosciences on all relevant agency and interagency committees and on all other special purpose committees. Serves as principal point of contact between the DOE technology programs and the Office of Science concerning matters related to these areas. Maintains liaison with program officials administering related work in other Federal agencies, with relevant technical societies, and with relevant standing committees of the National Academy of Sciences.
9. Identifies important energy-related research needs in chemical sciences, geosciences, and biosciences in consultation with staff from DOE Program Offices and members of the scientific and engineering communities and stimulates interest in these areas through workshops and other interactions with the communities.
10. Participates in the Council for Chemical Sciences, the Council for Earth Sciences, and the Council for Biosciences.
11. Works with the Site Office Managers, the Oak Ridge Office Manager, and other appropriate DOE Field Managers to ensure compliance with DOE, Federal and/or State policies and regulations on safeguards and security; emergency preparedness; quality assurance; and environment, health, and safety at BES research facilities.

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