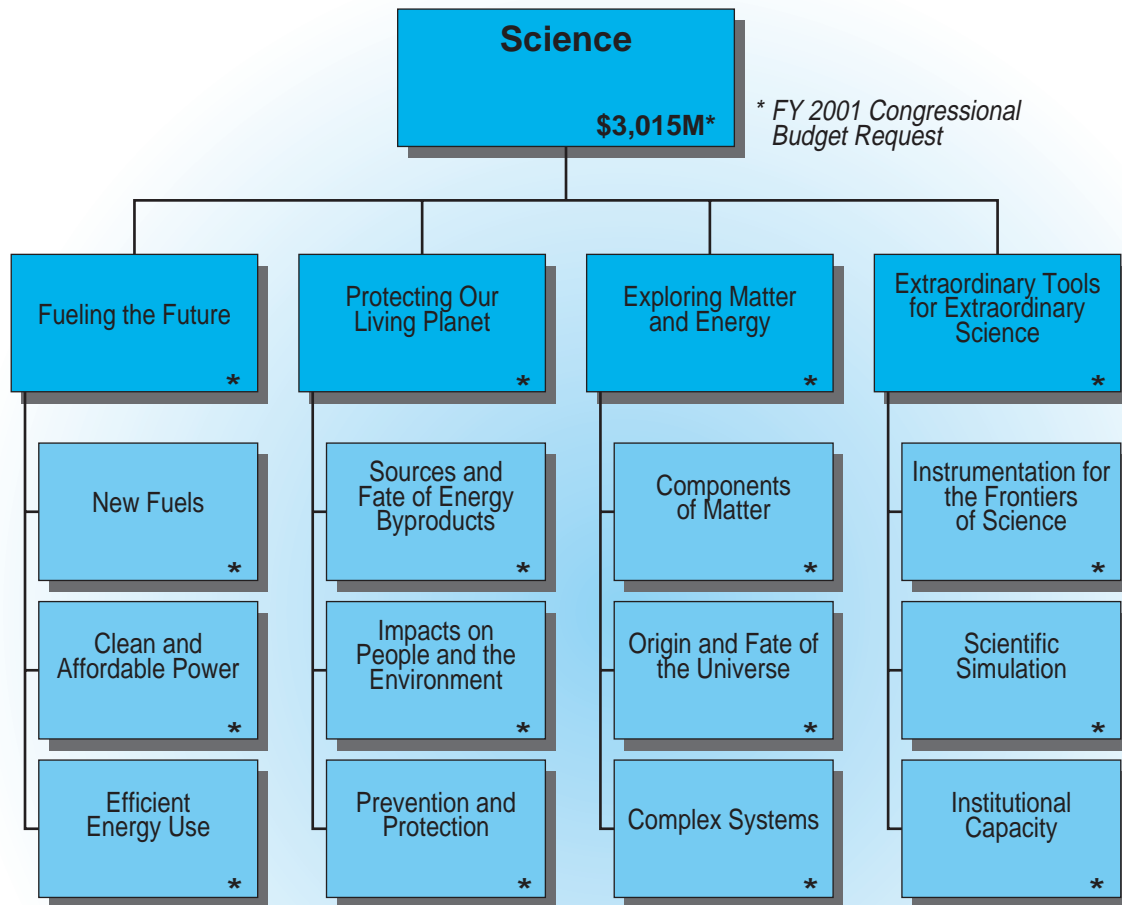


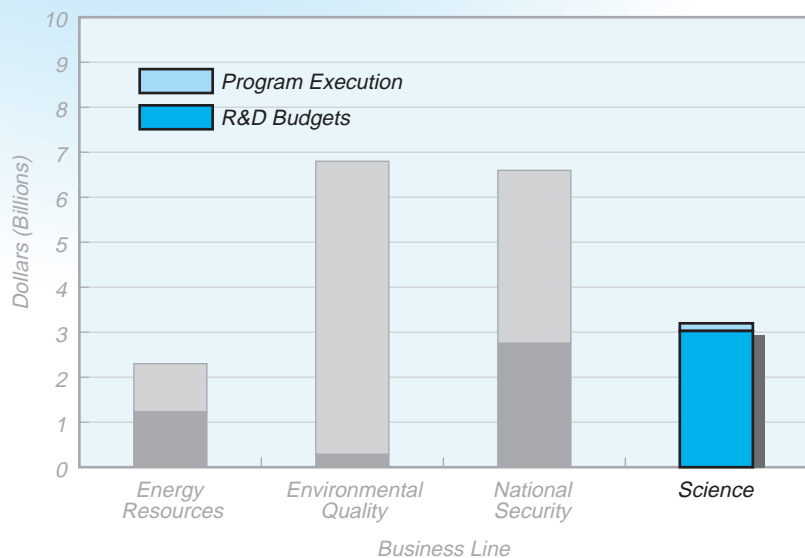
# DOE Research and Development Portfolio

# Science



\* Because research investments in Science support multiple strategic objectives, the investments are not broken out separately by individual strategic objective.

Office of Science



# Science R&D Portfolio

## FY 2001 Congressional Budget Request, R&D Highlights

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### Areas of Major R&D Focus:

- ***Fueling the Future—science for clean and affordable energy.***  
Emphasis on science that underpins carbon recycling and improved energy efficiency, simulation for combustion and materials, and fusion plasmas.
- ***Protecting Our Living Planet—energy impacts on people and the biosphere.***  
Emphasis on science for carbon sequestration, human and microbial genomics, structural biology, radiopharmaceuticals and functional imaging, biomedical engineering, the health impacts of low dose radiation, environmental remediation, regional climate modeling/simulation, and advanced monitoring and sensors.
- ***Exploring Energy and Matter—building blocks from atoms to life.***  
Emphasis on science for complex systems and the underlying interdisciplinary mix that will enable advances on this frontier, neutrino science as well as accelerator and non-accelerator based investigations into the nature of energy and matter and the origins and fate of the universe, university research in high energy and nuclear physics, international collaboration on large high energy physics facilities, plasma turbulence theory and experiments, understanding the complete workings of a microbial cell, and functional genomics that include investigations of the properties and implications of organisms in extreme environments.
- ***Extraordinary Tools for Extraordinary Science—national assets for multidisciplinary research.***  
Emphasis on advanced computation and associated hardware and software, imaging and visualization science and technology, scientific data management, upgrades to neutron science facilities and construction of the Spallation Neutron Source, the Next Linear Collider and associated cost reduction strategies, collaboratories and interconnected science facilities, use of synchrotron radiation sources for research in the life sciences and structural biology, collaborations with the National Institutes of Health and the National Science Foundation and others on facility design and use, and science education.

### New or Expanded Areas of R&D Emphasis:

- ***Nanoscale science***, engineering and technology research to understand how deliberate tailoring of materials on an atomic level can lead to new and enhanced functionality and to provide new experimental and computational modeling tools for nanoscale research. [+\$36 M].
- ***Advanced scientific computing***, including computational modeling and simulation in broad areas of fundamental science [+\$51 M].
- ***Microbial cell research*** aimed at understanding the complete workings of a microbial cell to help meet needs in many diverse research areas such as energy, bioremediation, and carbon sequestration [+\$12 M].
- ***Bioengineering sciences***, capitalizing on unique instrumentation at DOE's national labs that enable the advancement of fundamental concepts in biologics, materials, processes, implants, devices and informatics systems for subsequent prevention, diagnosis, and treatment of disease [+\$5 M].
- ***Climate Change Technology research***, a program addressing carbon management in areas of science for efficient technologies, fundamental science underpinning advances in low/no-carbon energy sources, and sequestration science [+\$4 M].
- ***University-based research in robotics and intelligent machines*** for future applications important to DOE missions and to enable remote access to the DOE Office of Science user facilities [+\$2 M].
- ***Construction of the \$1.4 billion Spallation Neutron Source*** at Oak Ridge National Laboratory to regain the U.S. position of international leadership in neutron scattering for the physical, chemical, materials, polymer, and biological sciences [+\$163 M].
- ***Support for scientific user facilities*** by providing funds to optimize operating time and user support to serve more than 15,000 scientists in academia, industry, and federal laboratories who use these facilities annually. [+\$68 M].