

National Energy Technology Laboratory

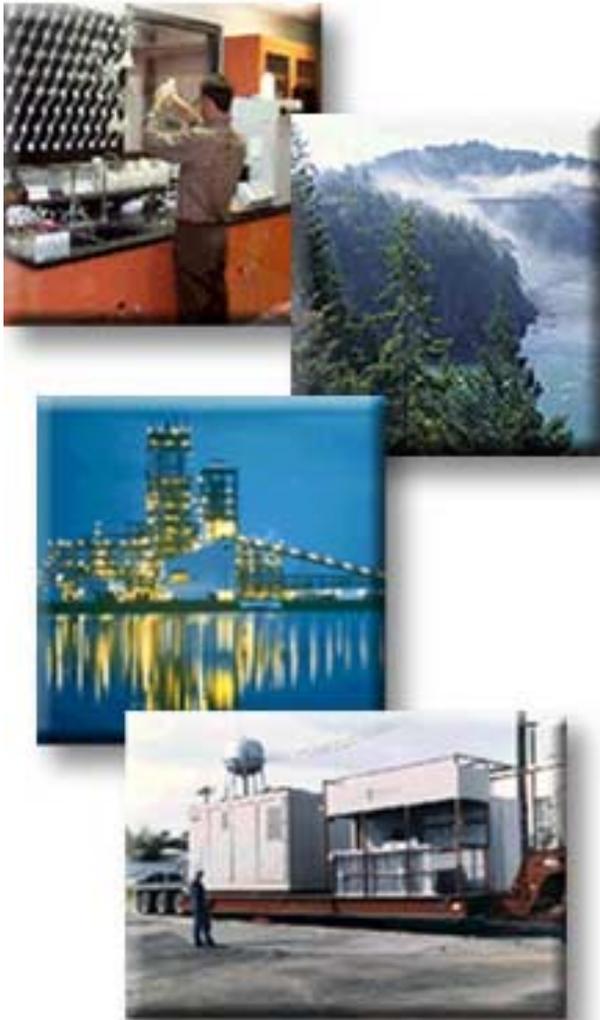


NETL Overview
March 20, 2002

Larry K. Carpenter
Deputy Associate Director
Office of Project Management



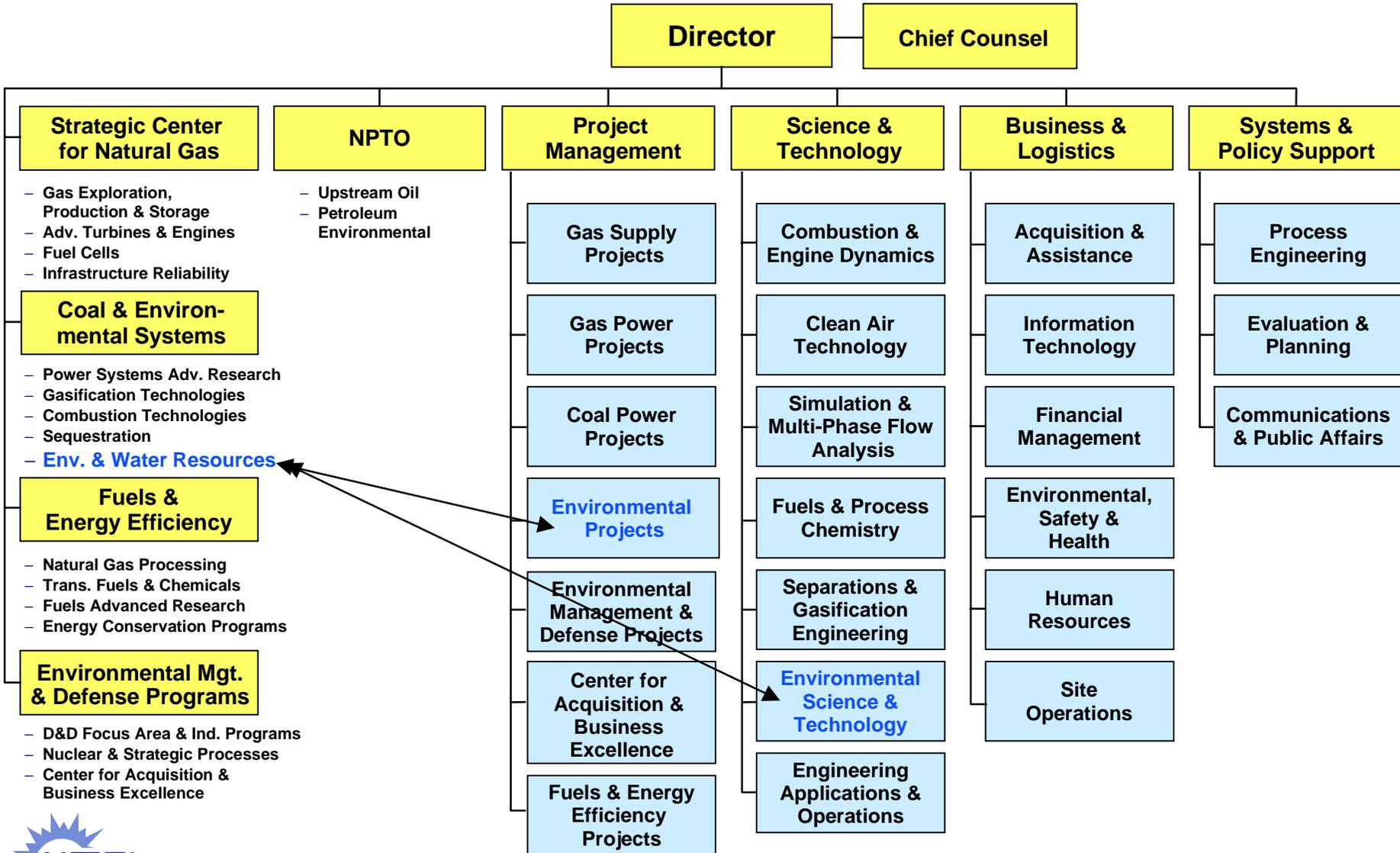
What We Are



- **One of DOE's 15 national laboratories**
- **Government owned and operated**
- **Sites in Oklahoma, Pennsylvania, and West Virginia**
- **Over 1,100 federal and support contractor employees**
- **FY01 budget of \$774 million**



Organizational Chart



Our Mission

- **Resolve the environmental, supply, and reliability constraints of producing and using fossil resources to provide Americans with a stronger economy, healthier environment, and more secure future**
- **Support development and deployment of environmental technologies that reduce the cost and risk of remediating DOE's weapons complex**
- **Contribute to best business practices and energy policy development**



NETL's Five RD&D Areas

**Electric Power
Using Coal**
Mining to Light Switch



**Energy
Policy Support**
*A Key Issue in Use
of Fossil Energy*



**Strategic Center
for Natural Gas**
Borehole to Burner Tip



Clean Fuels

Oil Supply
NPTO



**Fuels from
Coal and Gas**
*Supply and Delivery of Clean
Fuels for Transportation/
Other End Use
Sectors*



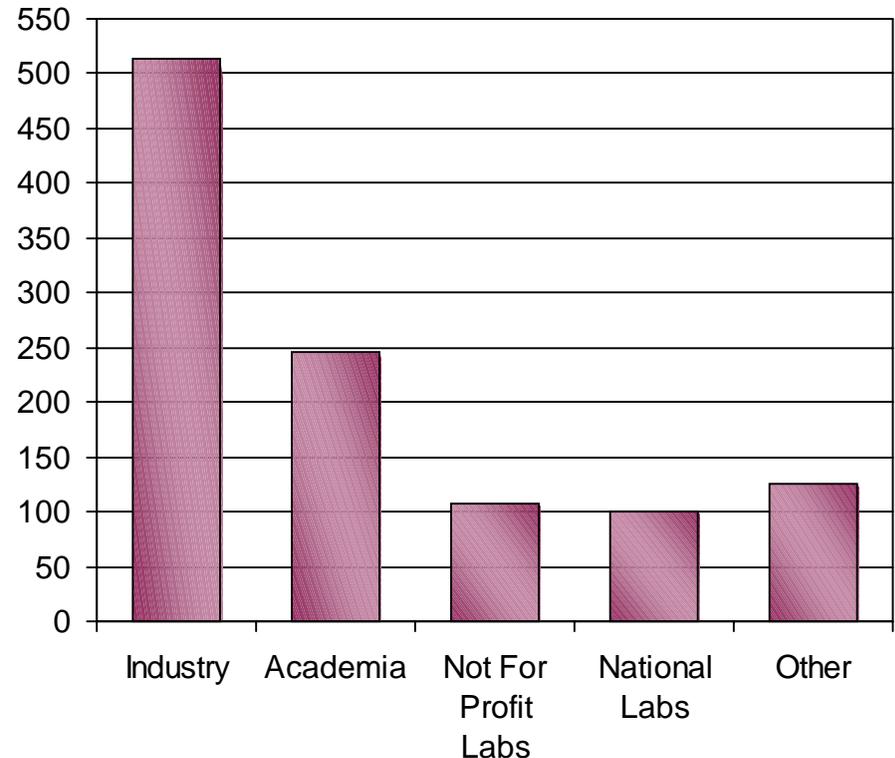
**Environmental
Management/Defense
Programs**
Supporting DOE



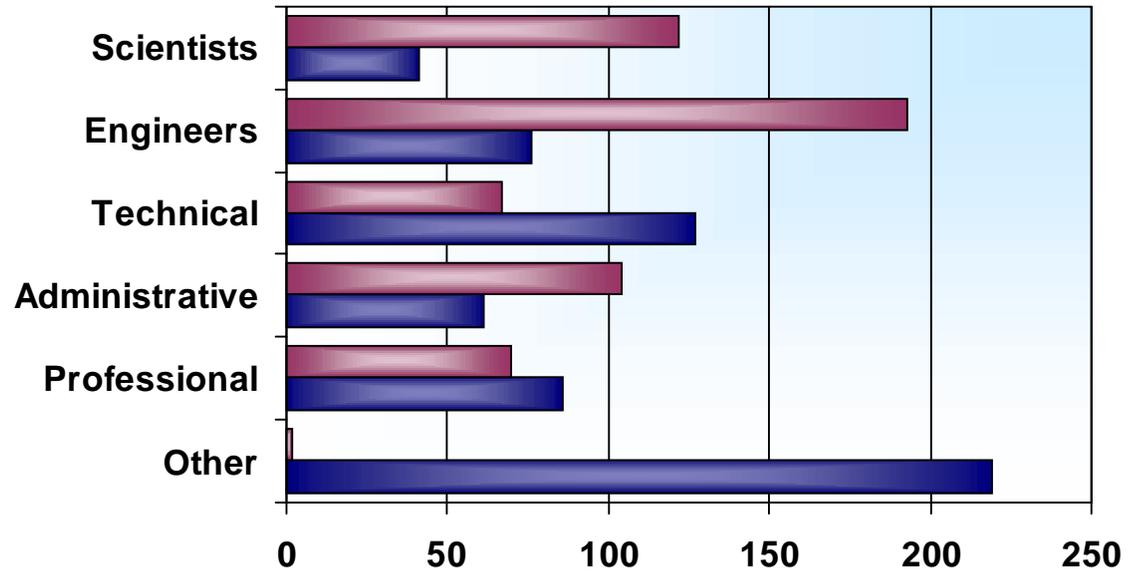
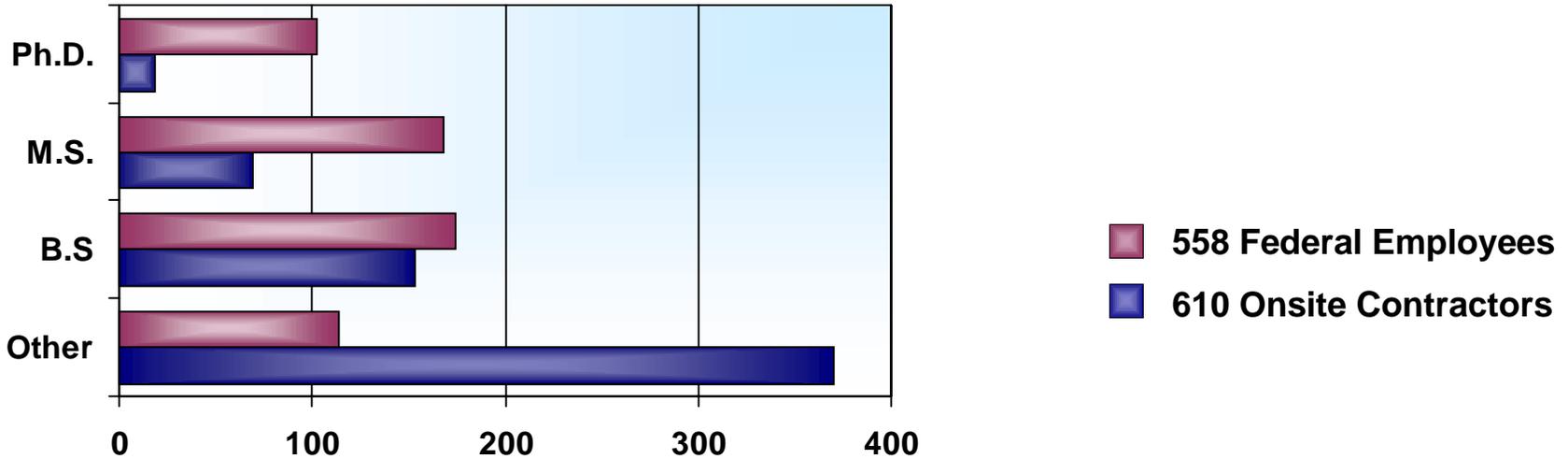
Shape, Fund, and Manage Extramural RD&D

- **1,100 research activities in all 50 states and 26 countries**
- **Total award value of \$7.9 billion**
- **Private sector cost sharing of \$4.0 billion**
 - Leverages DOE funding
 - Ensures relevance
 - Mission accomplishment only through commercialization
- **53 active MOU's and MOA's**

Number of Projects by Partner Group



A Well-Trained Workforce



Site-Support Contractors Assist in Laboratory Operations

The Majors:



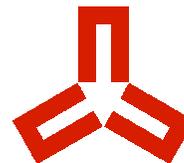
Energy and
Environmental
Solutions, LLC
(EG&G/SAIC)



*Concurrent
Technologies
Corporation*



PARSONS



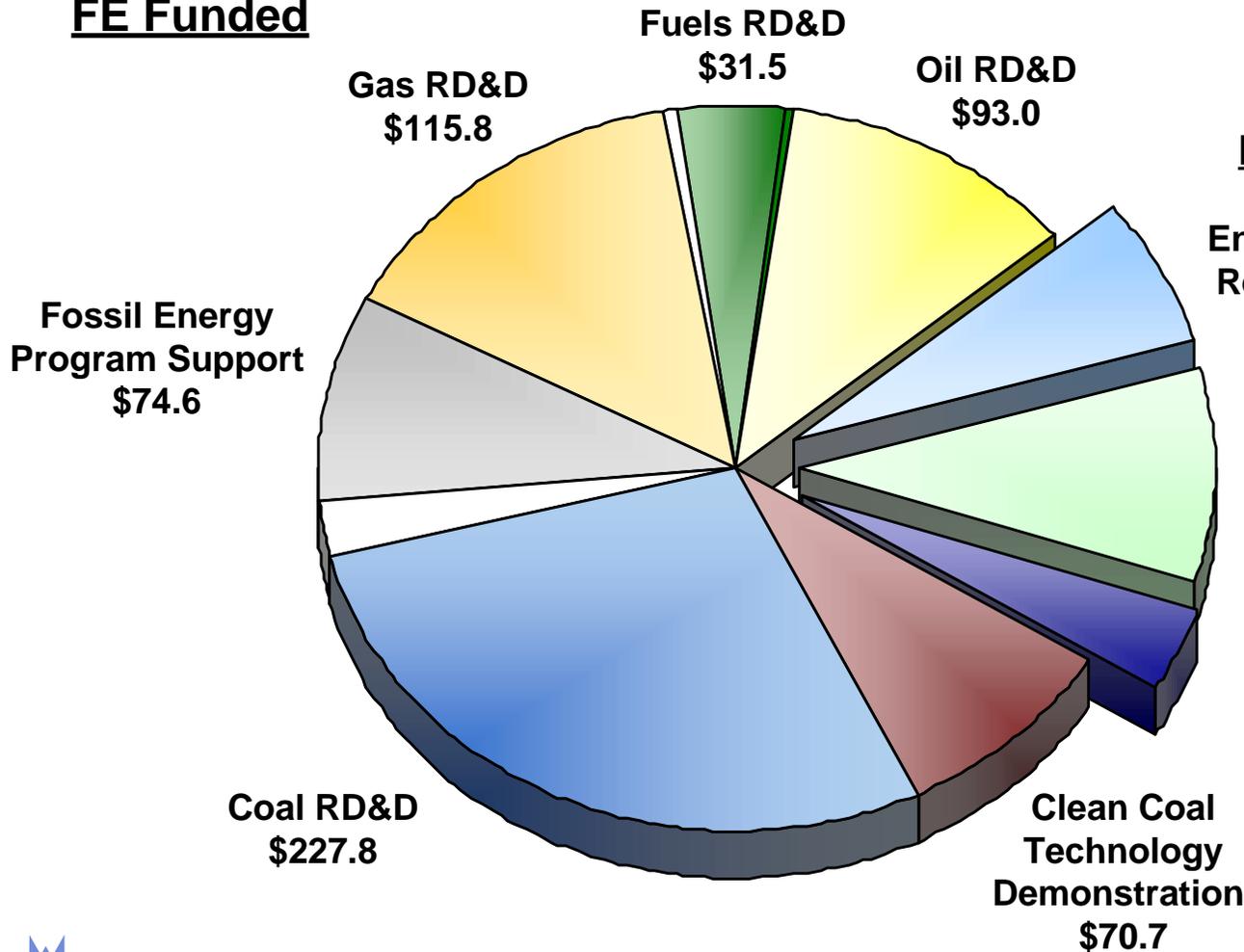
EG&G

Access to 50 companies through subcontracts



NETL FY01 Budget (\$774.2 Million)

FE Funded



Advanced Technologies Will Play a Crucial Role in Addressing Environmental, Supply, and Reliability Constraints of Producing and Using Fossil Energy



Visit Our Website

www.netl.doe.gov

NATIONAL ENERGY TECHNOLOGY LABORATORY
United States Department of Energy

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June 05, 2001

NETL

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Publications
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TOP NEWS STORIES

Delivering Gas To America
With President Bush's National Energy Policy calling for upgrades to America's gas pipeline network, DOE has selected 11 new projects to help ensure that tomorrow's gas moves reliably to consumers. [Read More!](#)

National Energy Policy Released
Report of the National Energy Policy Development Group

- [DOWNLOAD THE REPORT](#)

DOE's New Initiative - [Vision 21 Technology Roadmap](#)

RECENT HEADLINES

- [Slowing America's Oil Decline](#)
- [Clean Coal Technology Burner Sales Top \\$1 Billion](#)
- President Bush Budget Offers Clean Coal Initiative
 - [FY 2002 BUDGET TABLE FOR FOSSIL ENERGY](#)
 - BUDGET-IN-BRIEF [HTML](#) / [PDF](#)
 - [FULL TEXT OF FOSSIL ENERGY SECTION](#)
- [DOE Issues Decision on Environmental Assessment for Proposed Ocean Sequestration of CO₂ Field Experiment](#)

BUSINESS SECTORS

- Strategic Center for Natural Gas
- Electric Power Using Coal
- Climate Change Policy Support
- Fuels
- Oil Supply
- Enviro. Mgt. & Defense Programs





Outcomes from NETL's Programs

Technology → Assist in providing U.S. acceptable, affordable, and available energy in mid- to longer-term

Policy → Positively impact development of sound energy policies

Competitiveness → Help maintain technology competitiveness of U.S. energy industry

Stability → Appropriately transfer technology to developing countries to improve geopolitical stability / global climate

Workforce → Provide trained energy workforce through university research programs

Region → Regional economic development



Conduct Onsite Science and Technology Research

- **Four Focus Areas** and two technology clusters
- Involves 1/3 of staff
- 31 CRADA's
- Research laboratories at Morgantown and Pittsburgh

Carbon Sequestration Science

Large stationary sources of CO₂



Ultra-Clean Fuels

For high-efficiency transportation systems



Computational Energy Science

Virtual demonstrations of energy plants of the future



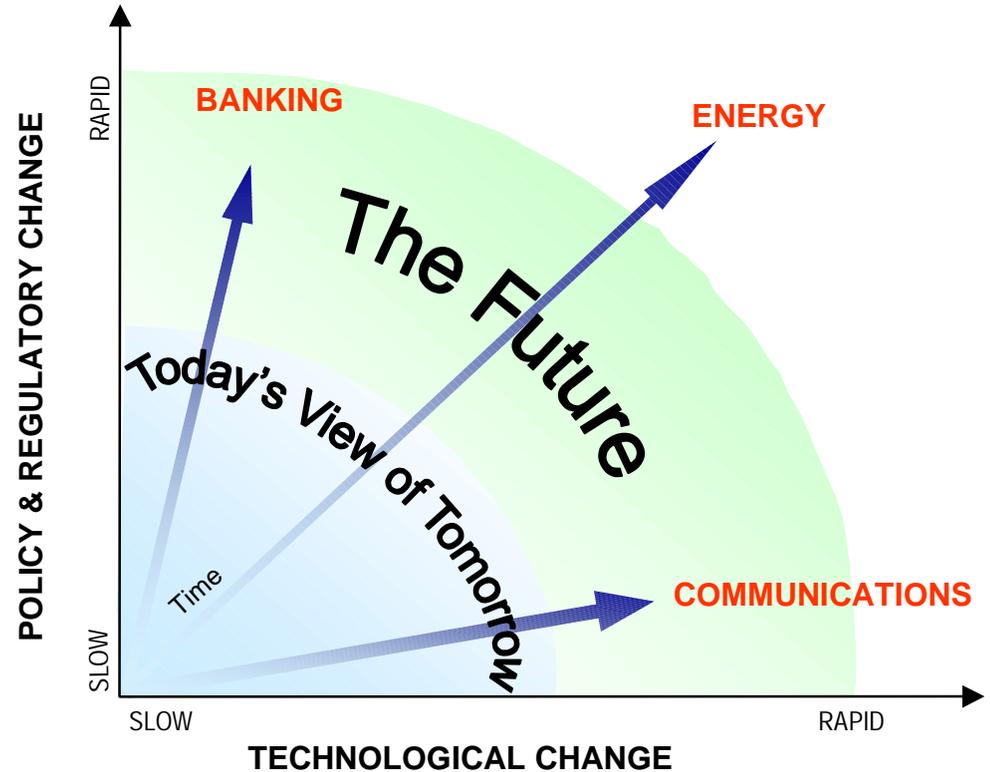
Gas Energy Systems Dynamics

Gaseous-fueled power generation systems



Support Policy Development

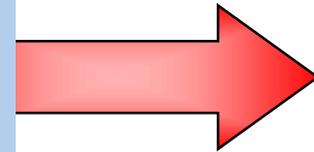
- Conduct analyses that anticipate and support policy development
- Create “knowledge products” giving policy makers technical information in useful format



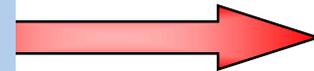
Changes in energy industry driven by both technological and policy/ regulatory change

Our Capabilities Support DOE Missions

- **Renowned expertise in fossil energy technologies**
- **Ten years' experience in nuclear cleanup technologies**
- **Ability to work with the private sector**
 - Understand private-sector business practices
- **Strong contracting and project management capabilities**
 - Onsite procurement and legal authority
- **Cradle-to-grave energy system assessment capability**
- **Understand international scene in energy**



Energy Resources



Environmental Quality



Science



National Security



Electric Power Using Coal

Mining to Light Switch

Environmental Control and Performance Improvement for Existing Fleet of Coal Plants

- Enhance environmental performance and efficiency of current plants



Vision 21: Ultra-Clean Electric Plants of Future

- Dramatic improvements in environmental performance of coal plants enabling them to be an option for energy production post 2015

Carbon Sequestration: Important Options to Address Climate Change

- Reduce CO₂ emissions to near zero as a climate change option

Mining/Water: Addressing Energy Supply Issues

- Minimizing environmental impact of current and post coal production



Strategic Center for Natural Gas

Borehole to Burner Tip

Gas Exploration & Production

Help increase domestic gas production through innovative E&P technologies that minimize environmental impact

Next Generation Gas Turbines

Accelerate efficiency improvements in gas-fired turbines for central station power and large industrial applications

Gas Infrastructure Reliability

Ensure safe & reliable transmission, distribution and storage of gas

Distributed Generation

Accelerate penetration of gas-fueled fuel cells and engines as option for distributed power market



Clean Liquid Fuels

Supply and Delivery of Clean Fuels for Transportation and Other End Use Sectors

Exploration & Production

Enhance domestic oil production through innovative E&P technologies that minimize environmental impact

Future Fuels

Provide fuels for a future transportation infrastructure

Fuels Environmental Solutions

Enhance environmental performance for producing oil and gas, processing fuels, and developing refineries of tomorrow

Infrastructure Reliability and Product Integrity

Ensure reliable distribution, storage and monitoring of finished products

Ultra-Clean Fuels

Produce fuels that meet environmental standards and support advanced engine designs



Energy Policy Support

A Key Issue in Use of Fossil Energy



Climate Change Policy Support

- Understand tradeoffs to guide RD&D program development
- Policy support for co-control of GHGs and criteria pollutants
- Contribute to resolution of issues

International Projects: A Critical Element in Addressing Climate Change

- Projects in 16 countries
- Emphasis on developing economies particularly China, India, Latin America
- Promote use of advanced technology from NETL portfolio



Environmental Management/Defense Programs

Supporting the DOE Complex

Environmental Management: Reducing Cost and Risk of Remediating DOE's Weapons Complex

- Deactivation & Decommissioning Focus Area
- Industry and University Programs



Center for Acquisition & Business Excellence: Technical & Business Services for DOE

- Life cycle cost engineering
- Project management tools

Commercial Nuclear Utility Decommissioning

- DOE/Utility Consortium

Nuclear Security: Support to DOE's Nonproliferation Efforts

- Nonproliferation: design changes for Russian reactors
- Conversion of weapons grade material to MOX fuel



NETL's Investment in West Virginia

- **Local Economy**

- **Contributes \$110 million annually through payroll, small purchases, and contracts**
- **Agreements with WV colleges/universities valued at \$13 million**
- **7th largest employer in Monongalia County**
- **Draws over 6,000 visitors to Morgantown area per year**

- **State Economy**

- **\$175 million of awards generate 7,000 person years of work within state**
- **\$44 million awarded annually to small businesses**



NETL's Investment in Pennsylvania

- **Local Economy**

- Contributes \$186 million annually through payroll, small purchases, and contracts
- Agreements with PA colleges/universities valued at \$37 million
- Draws nearly 3,000 visitors to Pittsburgh area per year

- **State Economy**

- \$612 million of awards in place generate 24,000 person years of work within state
- \$32 million awarded annually to small businesses

