

# NATIONAL ENERGY TECHNOLOGY LABORATORY'S (NETL) OPEN HOUSE

## RESEARCH AND DEVELOPMENT SUPPORT & TECHNOLOGY AND MANAGEMENT SUPPORT

### AGENDA June 4 & 5, 2008

#### Wednesday, June 4, 2008

##### **NETL Pittsburgh Site**

8:00 – 8:30 am	Registration	Building 922 Conference Center
8:30 – 9:15 am	Opening Remarks & NETL Overview: <ul style="list-style-type: none"> <li>• Carl O. Bauer; Director, NETL</li> <li>• Anthony V. Cugini; Director, Office of Research &amp; Development (ORD)</li> <li>• Scott M. Klara; Director, Strategic Center for Coal (SCC)</li> <li>• Charles M. Zeh; Director, Project Management Center (PMC)</li> </ul>	Building 922 Conference Center
9:15 am – 12:30 pm	Site Tour	Various (see attached)
12:30 pm	Albany Video Tour  Closing Remarks <ul style="list-style-type: none"> <li>• Thomas M. Torkos; Chief Operating Officer</li> </ul> Sign Out & Badge Return	Building 922 Conference Center

#### Thursday, June 5, 2008

##### **NETL Morgantown Site**

12:00 – 12:30 pm	Registration	Building 26 Conference Center
12:30 – 1:00 pm	Opening Remarks: <ul style="list-style-type: none"> <li>• Carl O. Bauer; Director, NETL</li> </ul>	Building 26 Conference Center
1:00 – 4:00 pm	Site Tour	Various (see attached)
4:00 pm	Sign Out & Badge Return	Building 26 Conference Center

**Pittsburgh Open House Tour**

**Wednesday June 4, 2008**

**9:15 AM through 12:30 PM**

(Tour will take approximately 2 hours)

		<b>Tour Group</b>					
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Speaker</b>		<b>Monahan</b>	<b>Hand</b>	<b>Davis</b>	<b>Mathur</b>	<b>Dean</b>	<b>Taylor</b>
<b>Bus</b>		<b>PINK</b>	<b>BLUE</b>	<b>YELLOW</b>	<b>GREEN</b>	<b>ORANGE</b>	<b>PURPLE</b>
<b>Stop 1</b>	<b>B-83 Machine Shop</b> Walk through the Machine Shop (South End Room 101)	<b>B-94 Computational Sciences</b> Stand outside of cluster area (Room 106)	<b>B-64 Waste Water Treatment</b> Stand outside of facility	<b>Bulk Nitrogen Storage</b> Stand in front of nitrogen storage tanks	<b>B-84 Advanced Instrumentation Laboratory</b> Try to allow people to flow in/out of room 118	<b>B-58 Occupational Health Unit</b> Allow people to look in through the door for room 123	
<b>Stop 2</b>	<b>B-83 Hydrogen Membrane Testing</b> Walk through the HMT area (B-84 Rooms 116, 118, 120)	<b>B-94 Analytical Lab</b> Try to allow people to flow in/out third floor room 301	<b>B-92 Chemical Handling Facility</b> Stand outside of facility	<b>B-65 Cylinder Receiving and Storage</b> Stand outside of Building	<b>B-84 CO2 Membrane Research</b> Second floor	<b>B-83 Machine Shop</b> Walk through the Machine Shop (South End Room 101)	
<b>Stop 3</b>	<b>B-94 Computational Sciences</b> Stand outside of cluster area (Room 106)	<b>B-64 Waste Water Treatment</b> Stand outside of facility	<b>Bulk Nitrogen Storage</b> Stand in front of nitrogen storage tanks	<b>B-84 Advanced Instrumentation Laboratory</b> Try to allow people to flow in/out of room 118	<b>B-84 Library</b> Stand outside of Room 108 this area is under construction	<b>B-83 Hydrogen Membrane Testing</b> Walk through the HMT area (B-84 Rooms 116, 118, 120)	
<b>Stop 4</b>	<b>B-94 Analytical Lab</b> Try to allow people to flow in/out third floor room 301	<b>B-92 Chemical Handling Facility</b> Stand outside of facility	<b>B-65 Cylinder Receiving and Storage</b> Stand outside of Building	<b>B-84 CO2 Membrane Research</b> Second floor	<b>B-84 Field Work</b> Stand at the South end of the first floor	<b>B-94 Computational Sciences</b> Stand outside of cluster area (Room 106)	
<b>Stop 5</b>	<b>B-64 Waste Water Treatment</b> Stand outside of facility	<b>Bulk Nitrogen Storage</b> Stand in front of nitrogen storage tanks	<b>B-84 Advanced Instrumentation Laboratory</b> Try to allow people to flow in/out of room 118	<b>B-84 Library</b> Stand outside of Room 108 this area is under construction	<b>B-58 Occupational Health Unit</b> Allow people to look in through the door for room 123	<b>B-94 Analytical Lab</b> Try to allow people to flow in/out third floor room 301	
<b>Stop 6</b>	<b>B-92 Chemical Handling Facility</b> Stand outside of facility	<b>B-65 Cylinder Receiving and Storage</b> Stand outside of Building	<b>B-84 CO2 Membrane Research</b> Second floor	<b>B-84 Field Work</b> Stand at the South end of the first floor	<b>B-83 Machine Shop</b> Walk through the Machine Shop (South End Room 101)	<b>B-64 Waste Water Treatment</b> Stand outside of facility	

Wednesday June 4, 2008

9:15 AM through 12:30 PM

(Tour will take approximately 2 hours)

Tour Group						
	1	2	3	4	5	6
Speaker	Monahan	Hand	Davis	Mathur	Dean	Taylor
Bus	PINK	BLUE	YELLOW	GREEN	ORANGE	PURPLE
Stop 7	<b>Bulk Nitrogen Storage</b> Stand in front of nitrogen storage tanks	<b>B-84 Advanced Intrumentation Laboratory</b> Try to allow people to flow in/out of room 118	<b>B-84 Library</b> Stand outside of Room 108 this area is under construction	<b>B-58 Occupational Health Unit</b> Allow people to look in through the door for room 123	<b>B-83 Hydrogen Membrane Testing</b> Walk through the HMT area (B-84 Rooms 116, 118, 120)	<b>B-92 Chemical Handling Facility</b> Stand outside of facility
Stop 8	<b>B-65 Cylinder Receiving and Storage</b> Stand outside of Building	<b>B-84 CO2 Membrane Research</b> Second floor	<b>B-84 Field Work</b> Stand at the South end of the first floor	<b>B-83 Machine Shop</b> Walk through the Machine Shop (South End Room 101)	<b>B-94 Computational Sciences</b> Stand outside of cluster area (Room 106)	<b>Bulk Nitrogen Storage</b> Stand in front of nitrogen storage tanks
Stop 9	<b>B-84 Advanced Intrumentation Laboratory</b> Try to allow people to flow in/out of room 118	<b>B-84 Library</b> Stand outside of Room 108 this area is under construction	<b>B-58 Occupational Health Unit</b> Allow people to look in through the door for room 123	<b>B-83 Hydrogen Membrane Testing</b> Walk through the HMT area (B-84 Rooms 116, 118, 120)	<b>B-94 Analytical Lab</b> Try to allow people to flow in/out third floor room 301	<b>B-65 Cylinder Receiving and Storage</b> Stand outside of Building
Stop 10	<b>B-84 CO2 Membrane Research</b> Second floor	<b>B-84 Field Work</b> Stand at the South end of the first floor	<b>B-83 Machine Shop</b> Walk through the Machine Shop (South End Room 101)	<b>B-94 Computational Sciences</b> Stand outside of cluster area (Room 106)	<b>B-64 Waste Water Treatment</b> Stand outside of facility	<b>B-84 Advanced Intrumentation Laboratory</b> Try to allow people to flow in/out of room 118
Stop 11	<b>B-84 Library</b> Stand outside of Room 108 this area is under construction	<b>B-58 Occupational Health Unit</b> Allow people to look in through the door for room 123	<b>B-83 Hydrogen Membrane Testing</b> Walk through the HMT area (B-84 Rooms 116, 118, 120)	<b>B-94 Analytical Lab</b> Try to allow people to flow in/out third floor room 301	<b>B-92 Chemical Handling Facility</b> Stand outside of facility	<b>B-84 CO2 Membrane Research</b> Second floor
Stop 12	<b>B-84 Field Work</b> Stand at the South end of the first floor	<b>B-83 Machine Shop</b> Walk through the Machine Shop (South End Room 101)	<b>B-94 Computational Sciences</b> Stand outside of cluster area (Room 106)	<b>B-64 Waste Water Treatment</b> Stand outside of facility	<b>Bulk Nitrogen Storage</b> Stand in front of nitrogen storage tanks	<b>B-84 Library</b> Stand outside of Room 108 this area is under construction
Stop 13	<b>B-58 Occupational Health Unit</b> Allow people to look in through the door for room 123	<b>B-83 Hydrogen Membrane Testing</b> Walk through the HMT area (B-84 Rooms 116, 118, 120)	<b>B-94 Analytical Lab</b> Try to allow people to flow in/out third floor room 301	<b>B-92 Chemical Handling Facility</b> Stand outside of facility	<b>B-65 Cylinder Receiving and Storage</b> Stand outside of Building	<b>B-84 Field Work</b> Stand at the South end of the first floor

**Wednesday June 4, 2008**

**9:15 AM through 12:30 PM**

(Tour will take approximately 2 hours)

		<b>Tour Group</b>					
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
<b>Speaker</b>		<b>Monahan</b>	<b>Hand</b>	<b>Davis</b>	<b>Mathur</b>	<b>Dean</b>	<b>Taylor</b>
<b>Bus</b>		<b>PINK</b>	<b>BLUE</b>	<b>YELLOW</b>	<b>GREEN</b>	<b>ORANGE</b>	<b>PURPLE</b>
<b>Stop 14</b>	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle	<b>B-167 Fitness Center</b> Pull up in parking lot and stay in vehicle
<b>Stop 15</b>	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle	<b>B-925 Day Care Center</b> Pull up in parking lot and stay in vehicle

<b>Return to 922 Conference Center</b>
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## Morgantown Open House Tour

Thursday June 5, 2008

1:00 PM through 4:00 PM

(Tour will take approximately 1 1/2 hours)

		Tour Group					
		1	2	3	4	5	6
Speaker		Monahan	Saab	Rotunda	Pratt	Weimer	Barnes
Bus		PINK	BLUE	YELLOW	GREEN	ORANGE	PURPLE
Stop 1	<b>B-25 Surface Science Lab</b> Stand outside of Room 111. Allow people to peer into lab area	<b>B-3 Computational Sciences</b> Walk in through room 109 and out through 107	<b>B-4 Fuel Research</b> Walk through B-4 from West to East	<b>B-19 Shipping and Receiving</b> Stand outside of north end of the building.	<b>B-16 Cylinder Receiving and Storage</b> Stand outside of facility	<b>B-2 Library</b> Walk people in and out through the east door (door to outside)	
Stop 2	<b>B-25 Analytical Lab</b> Stand outside of room 114 and allow people to walk through the lab and out through room 115	<b>B-3 Fitness Center</b> Walk in through center door of room 121 and out the south door	<b>B-33 Chemical Handling Facility</b> Stand in front of the facility	<b>B-19 Machine Shop/Cal Shop</b> Walk through the machine shop (stay behind yellow line). Allow people to look into the cal shop (room 304)	<b>B-8 Air Compression Facility</b> Stand outside of new facility being constructed	<b>B-25 Surface Science Lab</b> Stand outside of Room 111. Allow people to peer into lab area	
Stop 3	<b>B-3 Computational Sciences</b> Walk in through room 109 and out through 107	<b>B-3 Occupational Health Unit</b> Stand outside of facility and allow people to look in through the door	<b>B-17 CT Scanner</b> Stand outside of the project and allow people to look in	<b>Bulk Gas Storage</b> Stand outside of fenced area	<b>B-2 Library</b> Walk people in and out through the east door (door to outside)	<b>B-25 Analytical Lab</b> Stand outside of room 114 and allow people to walk through the lab and out through room 115	
Stop 4	<b>B-3 Fitness Center</b> Walk in through center door of room 121 and out the south door	<b>B-4 Fuel Research</b> Walk through B-4 from West to East	<b>B-19 Shipping and Receiving</b> Stand outside of north end of the building.	<b>B-16 Cylinder Receiving and Storage</b> Stand outside of facility	<b>B-25 Surface Science Lab</b> Stand outside of Room 111. Allow people to peer into lab area	<b>B-3 Computational Sciences</b> Walk in through room 109 and out through 107	
Stop 5	<b>B-3 Occupational Health Unit</b> Stand outside of facility and allow people to look in through the door	<b>B-33 Chemical Handling Facility</b> Stand in front of the facility	<b>B-19 Machine Shop/Cal Shop</b> Walk through the machine shop (stay behind yellow line). Allow people to look into the cal shop (room 304)	<b>B-8 Air Compression Facility</b> Stand outside of new facility being constructed	<b>B-25 Analytical Lab</b> Stand outside of room 114 and allow people to walk through the lab and out through room 115	<b>B-3 Fitness Center</b> Walk in through center door of room 121 and out the south door	
Stop 6	<b>B-4 Fuel Research</b> Walk through B-4 from West to East	<b>B-17 CT Scanner</b> Stand outside of the project and allow people to look in	<b>Bulk Gas Storage</b> Stand outside of fenced area	<b>B-2 Library</b> Walk people in and out through the east door (door to outside)	<b>B-3 Computational Sciences</b> Walk in through room 109 and out through 107	<b>B-3 Occupational Health Unit</b> Stand outside of facility and allow people to look in through the door	

Thursday June 5, 2008

1:00 PM through 4:00 PM

(Tour will take approximately 1 1/2 hours)

		Tour Group					
		1	2	3	4	5	6
Speaker		Monahan	Saab	Rotunda	Pratt	Weimer	Barnes
Bus		PINK	BLUE	YELLOW	GREEN	ORANGE	PURPLE
Stop 7	<b>B-33 Chemical Handling Facility</b> Stand in front of the facility	<b>B-19 Shipping and Receiving</b> Stand outside of north end of the building.	<b>B-16 Cylinder Receiving and Storage</b> Stand outside of facility	<b>B-25 Surface Science Lab</b> Stand outside of Room 111. Allow people to peer into lab area	<b>B-3 Fitness Center</b> Walk in through center door of room 121 and out the south door	<b>B-4 Fuel Research</b> Walk through B-4 from West to East	
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Stop 9	<b>B-19 Shipping and Receiving</b> Stand outside of north end of the building.	<b>Bulk Gas Storage</b> Stand outside of fenced area	<b>B-2 Library</b> Walk people in and out through the east door (door to outside)	<b>B-3 Computational Sciences</b> Walk in through room 109 and out through 107	<b>B-4 Fuel Research</b> Walk through B-4 from West to East	<b>B-17 CT Scanner</b> Stand outside of the project and allow people to look in	
Stop 10	<b>B-19 Machine Shop/Cal Shop</b> Walk through the machine shop (stay behind yellow line). Allow people to look into the cal shop (room 304)	<b>B-16 Cylinder Receiving and Storage</b> Stand outside of facility	<b>B-25 Surface Science Lab</b> Stand outside of Room 111. Allow people to peer into lab area	<b>B-3 Fitness Center</b> Walk in through center door of room 121 and out the south door	<b>B-33 Chemical Handling Facility</b> Stand in front of the facility	<b>B-19 Shipping and Receiving</b> Stand outside of north end of the building.	
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Stop 12	<b>B-16 Cylinder Receiving and Storage</b> Stand outside of facility	<b>B-2 Library</b> Walk people in and out through the east door (door to outside)	<b>B-3 Computational Sciences</b> Walk in through room 109 and out through 107	<b>B-4 Fuel Research</b> Walk through B-4 from West to East	<b>B-19 Shipping and Receiving</b> Stand outside of north end of the building.	<b>Bulk Gas Storage</b> Stand outside of fenced area	

Thursday June 5, 2008

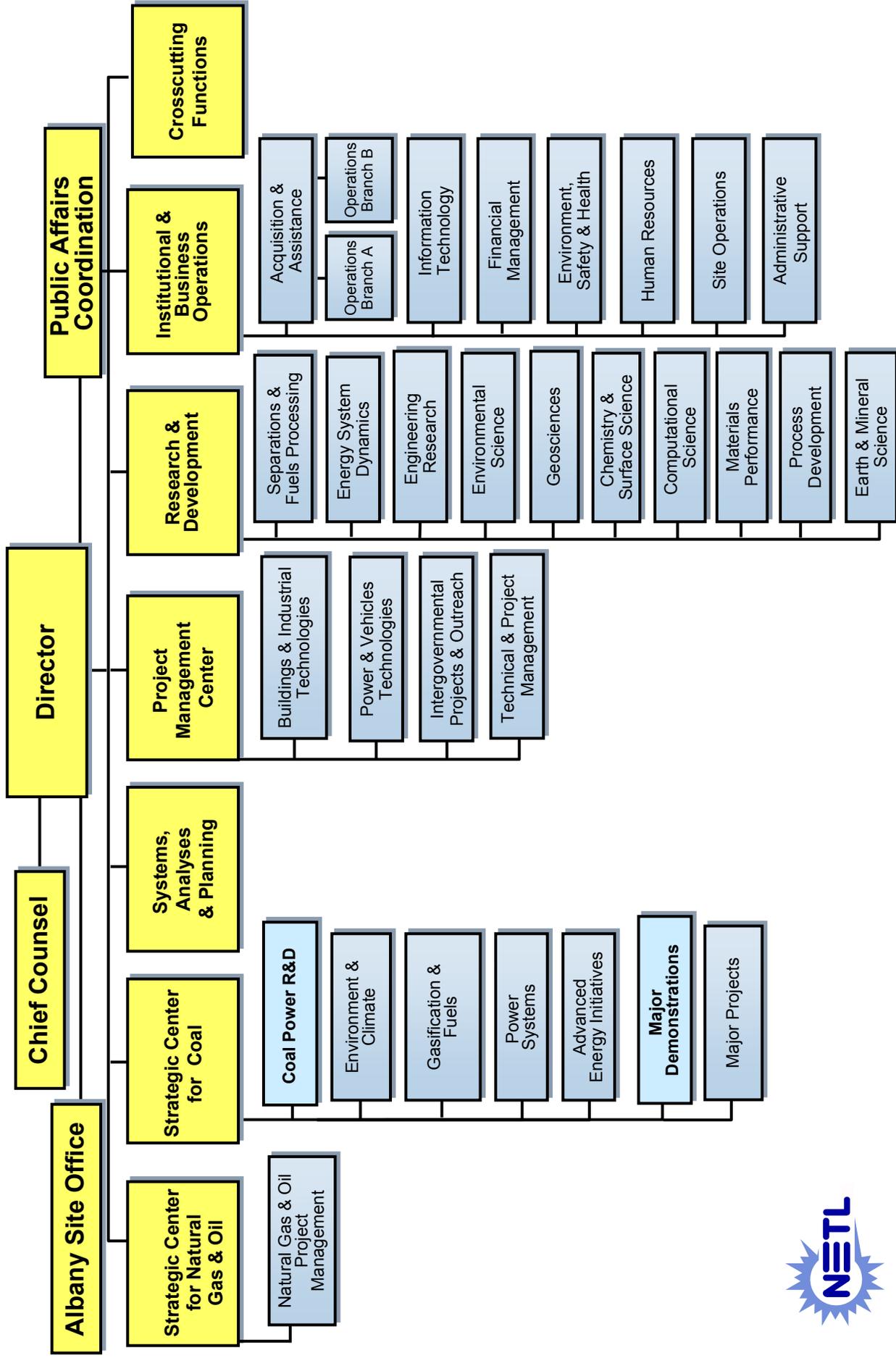
1:00 PM through 4:00 PM

(Tour will take approximately 1 1/2 hours)

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Stop 15	<b>Day Care Facility</b> Stand in the parking lot outside of the trailer	<b>Day Care Facility</b> Stand in the parking lot outside of the trailer	<b>Day Care Facility</b> Stand in the parking lot outside of the trailer	<b>Day Care Facility</b> Stand in the parking lot outside of the trailer	<b>Day Care Facility</b> Stand in the parking lot outside of the trailer	<b>Day Care Facility</b> Stand in the parking lot outside of the trailer	

**Return to B26 Conference Center**

# National Energy Technology Laboratory



Thank you for registering to attend NETL's Open House for potential offerors on the solicitation for NETL's "Research and Development Support" and "Technology and Management Support" contracts in Pittsburgh, PA on June 4<sup>th</sup> and in Morgantown, WV on June 5<sup>th</sup>.

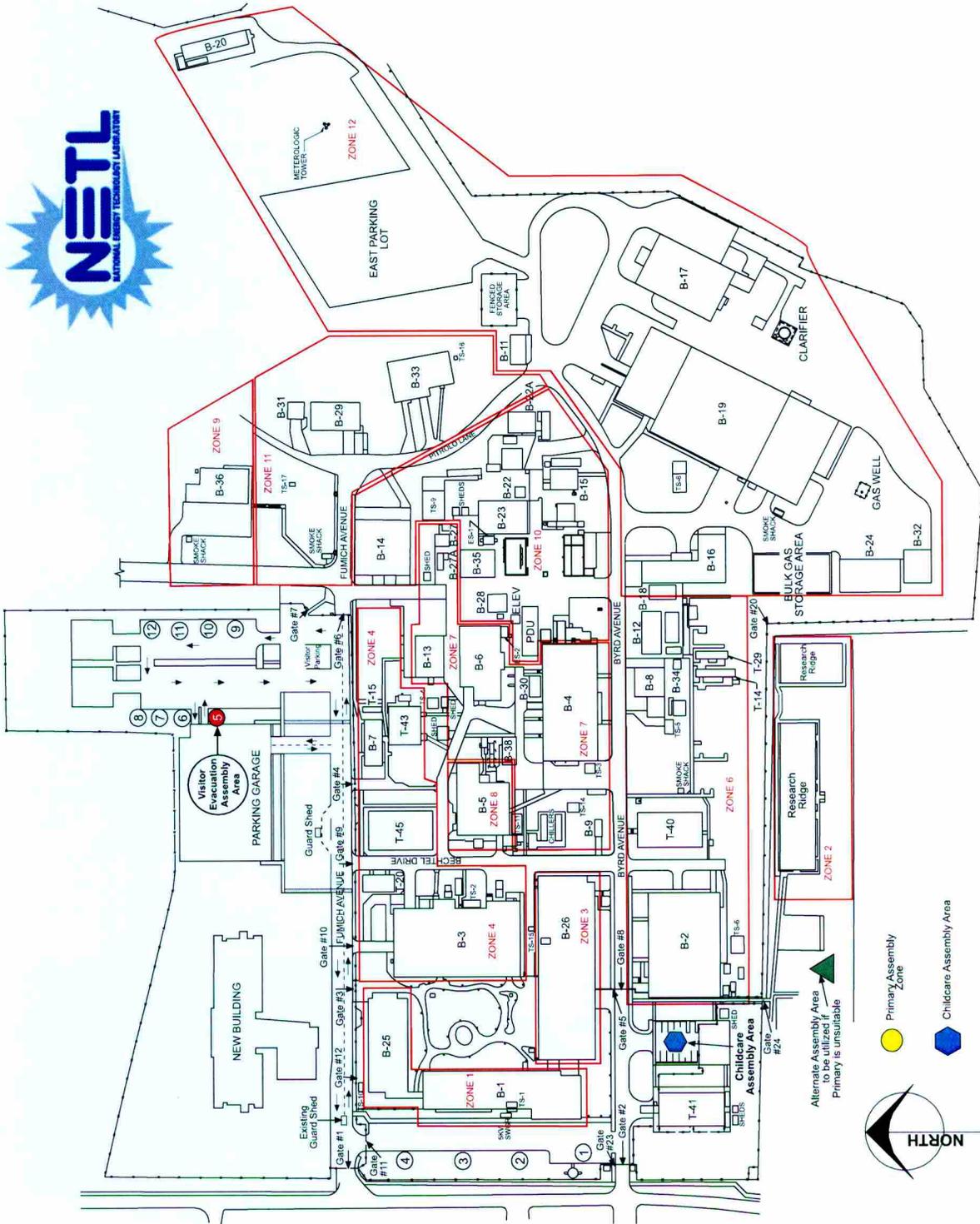
To help your visit go as smoothly as possible, please review the following information:

1. The starting entry time for the Pittsburgh site (June 4) will be 7:30 a.m. and the Morgantown site (June 5) will be 11:30 a.m. Please adhere to these times.
2. Only those who have pre-registered for the Open House will be permitted on site.
3. All attendees must be U.S. Citizens and have a government issued photo ID (driver's license, passport, etc.). Security will check the name on the ID against the pre-registration roster at the entrance gate—please have ID ready. Lawful Permanent Residents (Green Card) are not considered a U.S. Citizen—it is an official immigration status.
4. Security Officers will check/inspect vehicles per random vehicle check procedures. In addition, any items that are found within vehicles being checked per the random vehicle inspection, such as briefcases, laptop computers, containers, etc. shall be inspected. Attendees will not be permitted to bring non-business-related items (e.g., luggage) into NETL buildings.
5. Cell phones with photo/video capabilities are not permitted. **No** photo or video recording is permitted. No hand-carried items may be taken on tours of the site.
6. No firearms or other weapons, alcoholic beverages, drugs, and/or contraband are allowed on the NETL site.
7. If contraband items are found, the attendee will be asked to remove the vehicle from the NETL site. The make of the vehicle, license plate #, the individual's name and the contraband item will be documented. The contraband items will not be allowed to remain on site.
8. Security will direct all attendees to a designated parking lot. A shuttle vehicle is to be used to ensure everyone's safety and arrival at the conference location for badging purposes.
9. Attendees requiring special parking considerations, i.e. mobility problems, handicapped permits, will be directed to park in an accommodation area after their vehicle has been properly inspected by Security.
10. Attendees must wear badges at all times while at the Laboratory. Attendees are required to be escorted at all times. Site access by attendees is restricted to the Open House Program.
11. Please wear comfortable shoes. No open toe shoes are permitted on the site tours.
12. Please be sure to dress for anticipated weather—if it's raining, bring an umbrella. Site tours include outdoor walking. Business casual attire is recommended.
13. Smoking is permitted only at designated smoking areas.

14. At the completion of the Open House, all attendees must return their badges to the registration personnel before leaving the NETL site. In addition, all attendees will return to their vehicles via the shuttle service.
15. No transportation will be provided between the Pittsburgh and Morgantown site.

As a reminder, the intent of this Open House is to encourage full and open competition resulting in the best value for NETL. The Open House will consist of presentations and a guided site tour of the R&D facilities and ES&H/general support operations. The Open House is not a pre-solicitation conference and attendance is not mandatory. The Open House is only a tour of the facility to familiarize potential offerors with the breadth of work being conducted at NETL. All questions that arise during the Open House must be submitted in writing in accordance with the instructions listed in the FEDBIZOPPS announcement. As part of the strategy to provide information that may benefit potential offerors in preparing their proposals, NETL has established an electronic reading room at <http://www.netl.doe.gov/business/index.html>. Upon completion of the Open House, a video of the tour will be posted on the electronic reading room along with other relative information.





- B-1 ADMINISTRATIVE OFFICES
- B-2 GENERAL PURPOSE
- B-3 PILOT PLANT
- B-4 ADVANCED COMBUSTION RESEARCH
- B-5 EOC AND SECURITY
- B-6 PUMP HOUSE
- B-7 NETL OHU AMBULANCE GARAGE
- B-8 GASIFICATION RESEARCH
- B-9 COAL FUEL DIESEL PROJECT
- B-10 VALVE TESTING DATA ACQUISITION & CONTROL
- B-11 MODULAR GAS CLEANUP RIG FACILITY
- B-12 WAREHOUSE, RECEIVING & MACHINE SHOP
- B-13 FUNDAMENTAL FLUIDIZATION RESEARCH PROJECT
- B-14 (FERP) COMPRESSORS & MOTOR CONTROL CENTER
- B-15 RESEARCH LAB
- B-16 ADMIN. RESTROOMS
- B-17 VALVE TEST CONTROL ROOM
- B-18 GASIFIER CONTROL ROOM
- B-19 FACILITY MAINTENANCE STORAGE
- B-20 DATA ACQUISITION & GAS CHRONOGRAPH
- B-21 GROUNDS MAINTENANCE
- B-22 TEMPORARY EQUIPMENT STORAGE BUILDING
- B-23 SITE MAINTENANCE FACILITY
- B-24 REVERSE OSMOSIS BUILDING
- B-25 PDU ELECTRICAL SHED
- B-26 PDU ELECTRICAL SHED
- B-27 SMOKING AREA
- B-28 OFFICES
- B-29 SMOKING AREA
- B-30 OFFICES
- B-31 OFFICES
- B-32 OFFICES
- B-33 OFFICES
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- B-97 OFFICES
- B-98 OFFICES
- B-99 OFFICES
- B-100 OFFICES

# FACILITY MAP

Albany



## Buildings

1. Administration Building  
*Albany Site Office  
Library  
Analytical Laboratory  
Information Technology Services*
2. Not in use
3. PDD Laboratory
4. PDD Laboratory  
*Laboratory, Safety Office*
5. SOD Shops  
*Carpentry  
Machine  
Plumbing  
Motor & Electrical*
6. SOD Storage
7. SOD Electrical & Electronics Shop
8. SOD Facilities Office
9. SOD Paint Shop
10. SOD Sheet Metal Shop
11. SOD Welding Shop
12. SOD Storage
13. SOD Equipment Storage
14. SOD Plumbing Storage
15. SOD Machine Shop Storage

20. PDD Graphite Shop / Storage

21. Warehouse (Storage)

22. Warehouse (storage)  
*ES&H Offices  
Shipping and Receiving*

23. PDD Laboratory  
*Offices & Laboratories*

24. PDD Laboratory  
*Offices & Laboratories*

25. PDD Laboratory

26. MPD Laboratory  
*Offices & Laboratories*

27. MPD Laboratory

28. MPD Laboratory  
*Offices & Laboratories*

29. MPD Laboratory  
*Offices & Laboratories*

30. PDD Laboratory  
*Fabrication Shop & Offices*

31. MPD Laboratory  
*Laboratories, Offices, &  
Conference Room*

32. Meeting Facility

33. Administration Building  
*Albany Site Office  
Illustration, Design & Photography  
Conference Rooms  
Security & Emergency Operations Center*

34. PDD Laboratory  
*Furnaces*

36. PDD Laboratory

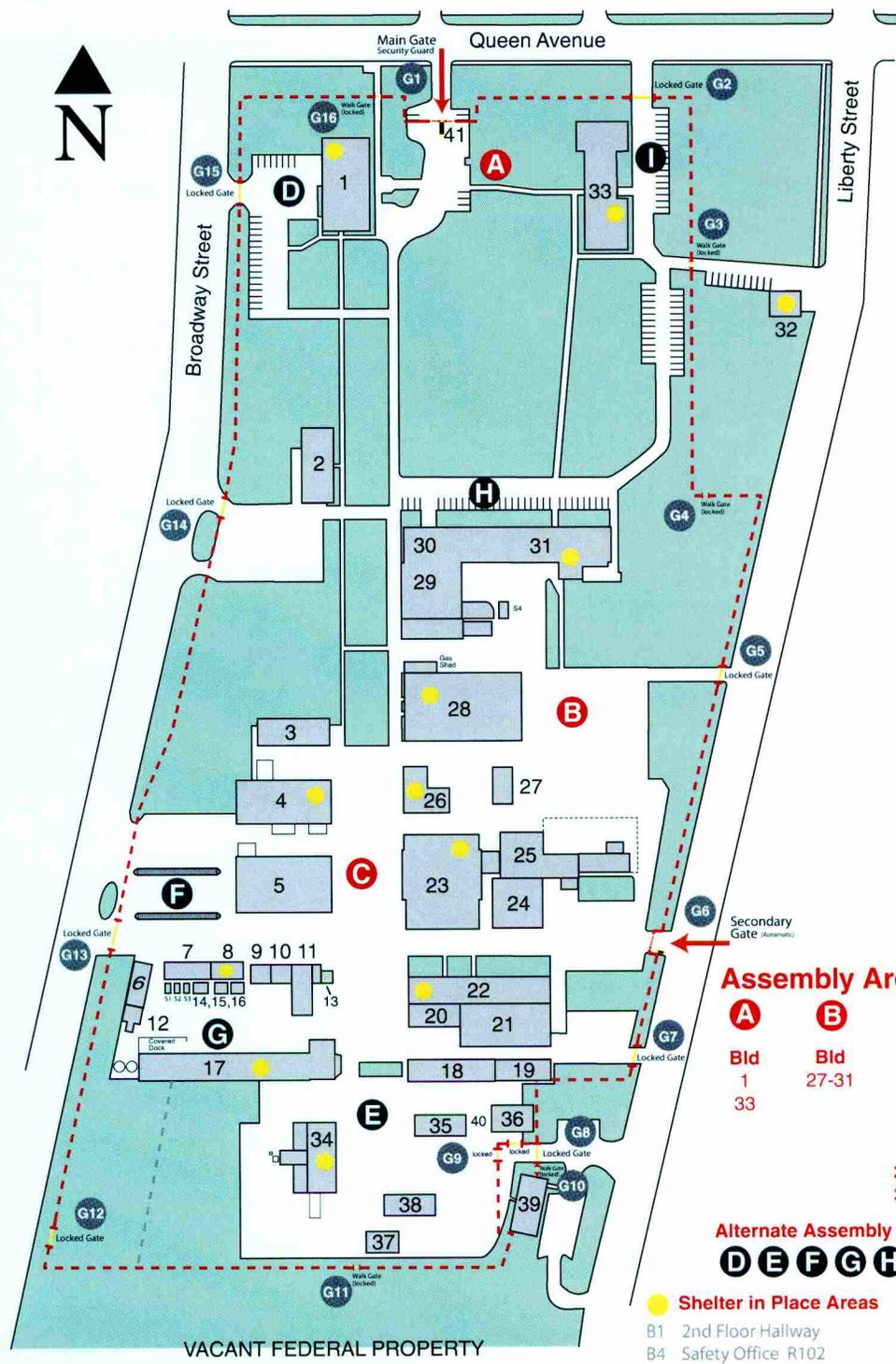
37. PDD Storage

38. PDD Storage

39. Leased

40. Excess Equipment  
*Salvage Staging Area*

41. Guard House



### Assembly Areas

A	B	C
Bld 1	Bld 27-31	Bld 3-5
33		7-11
		17
		20
		21-26
		34-36

### Alternate Assembly Areas

**D E F G H I**

Shelter in Place Areas	Phone
B1 2nd Floor Hallway	Radio
B4 Safety Office R102	5883
B8 Lunch Room R102	5913
B17 Mineralogy Lab R112	2265
B22 Shipping R124	5978
B23 Conference Room R113	5866
B26 Lab R102	2168
B28 Office R115	5851
B31 Office R108	5929
B32 Conference Building	5981
B33 Kelly Room R107	5915
B34 Control Room	5888

Note: Dashed line indicates perimeter fence.



**Key**

ASO	Albany Site Office
SOD	Site Operations Division
MPD	Materials Performance Division
PDD	Process Development Division
ES&H	Environment, Safety & Health
G1	Gate Numbers

# National Energy Technology Laboratory

## Description:

The National Energy Technology Laboratory (NETL) is a science, technology, and energy laboratory owned and operated by the U.S. Department of Energy (DOE). As part of DOE's national laboratory system, we support DOE's mission to advance the national, economic, and energy security of the United States.

## Locations:

NETL has sites in Albany, Oregon; Fairbanks, Alaska; Morgantown, West Virginia; Pittsburgh, Pennsylvania; and Tulsa, Oklahoma. Together, these sites have 119 buildings and 16 major research facilities on nearly 250 acres.

## Research:

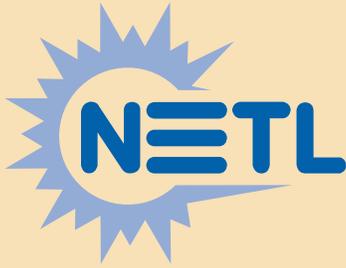
Using unique capabilities in energy system dynamics, geological and environmental systems, computational and basic sciences, and materials science, NETL conducts cutting-edge research and technology development on site. We also apply extensive technology- and project-management capabilities to shape, fund, and manage research in the United States and more than 40 foreign countries. Our portfolio of onsite and contracted research includes more than 1,800 projects, with a total award value over \$9 billion and private sector cost-sharing over \$5 billion.



## Mission:

Our mission is to implement a research, development, and demonstration program to resolve the environmental, supply, and reliability constraints of producing and using fossil resources.

# National Energy Technology Laboratory



## National Energy Technology Laboratory

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David J. Anna  
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412-386-4646

Visit the NETL website at:  
[www.netl.doe.gov](http://www.netl.doe.gov)

Customer Service:  
**1-800-553-7681**



U.S. Department of Energy  
Office of Fossil Energy

December 2006

### FY 2006 Budget:

**\$803 million**

Fossil Energy R&D	\$562 million
Energy Efficiency and Renewable Energy	\$166 million
Energy Assurance	\$ 45 million
Other DOE Work	\$ 9 million
Work for Other Federal Agencies	\$ 21 million

### Staff:

Over 1,200 employees work at NETL's five sites; roughly half are Federal employees and half are site-support contractors.

#### Federal Employees

Scientists	22%
Engineers	36%
Technical	9%
Professional	11%
Administrative	20%
Other	2%

#### Site-Support Contractors

Scientists	10%
Engineers	26%
Technical	18%
Professional	12%
Administrative	18%
Other	16%

### Regional Economic Benefits:

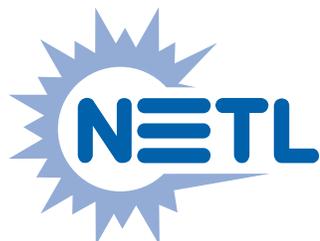
NETL contributes nearly \$125 million annually to our local economies through payroll, small purchases, site-support contracts, and conferences. More than \$25 million is obligated annually to local colleges and universities.

### Major Site-Support Contractors:

Eagle Facility Management Services  
Performance Results Corporation  
ProLogic, Inc.  
Research and Development Solutions, LLC  
Technology & Management Services, Inc.

# R & D facts

U.S. DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY  
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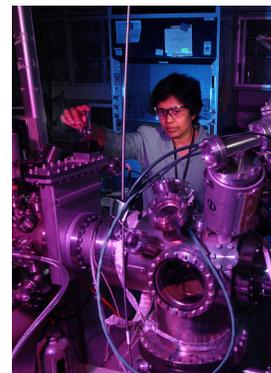


## Office of Research and Development

04/2008

## OFFICE OF RESEARCH AND DEVELOPMENT

The National Energy Technology Laboratory (NETL), one of the Department of Energy's 17 national laboratories, is leading research, development, and demonstration programs to resolve the environmental, supply, and reliability constraints of utilizing fossil fuels, including coal — the nation's most abundant fossil fuel resource. In support of this mission, NETL's Office of Research and Development (ORD) provides the DOE Fossil Energy R&D Program an onsite "corporate laboratory," where fundamental and applied fossil energy R&D is performed. Through its research, NETL is advancing scientific understanding of key fossil energy technologies; generating new ideas and directions for future programs; collaborating with regional and national universities; and helping to develop our nation's future scientific and energy engineering experts. For example, NETL researchers are addressing energy and environmental needs including: secure and reliable energy supplies, future roles for hydrogen, clean power generation from coal, global climate change research, and critical infrastructure assurance. While pursuing knowledge, science, and technology, NETL also has received numerous licensable patents.



NETL's researchers utilize state-of-the-art capabilities and facilities in Morgantown, WV; Pittsburgh, PA; and Albany, OR. The R&D program is conducted by a core group of some 150 Federal scientists and engineers, supplemented with support contractors and academic partners — attracting world-class researchers who work in unique facilities. NETL provides an impartial evaluation of new concepts and materials, along with expert, authoritative reviews of external R&D proposals. NETL also provides a venue for other Federal agencies (e.g., DOD, NASA) and research organizations to participate in collaborative research.

In addition, NETL conducts R&D in collaboration with external academic and industry partners. These collaborative efforts are designed to help overcome barriers to the commercialization of advanced power system, fuels, and environmental and waste management technologies. One benefit of this collaboration is the availability of onsite NETL research facilities, which eliminates the need for outside groups to build separate test platforms for each research concept.

To maintain a high level of quality and relevance, ORD conducts a comprehensive peer review of its research projects annually. Teams of external science and technology experts review research projects, providing a broad and comprehensive assessment of the current and planned R&D portfolio.

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## Four Focus Areas

Research is conducted in four primary focus areas that build upon R&D strengths at NETL, and that address long-range issues central to continuing fossil fuel use in an environmentally and cost-effective manner.

**Computational and Basic Sciences** integrates physical and chemical experimental research with computational sciences as the preferred method for understanding and developing technologies, advanced materials, and multi-scale energy systems ranging from the molecular-scale to device-scale to plant-scale. Onsite computational and basic science research includes: computational chemistry, device simulations, advanced fuel systems including hydrogen, and gas hydrates.

**Energy System Dynamics** conceives, analyzes, and develops pre-commercial energy technology that minimizes the environmental impact of fossil fuel use, and maximizes reliable use of domestic energy sources and infrastructure. Some examples include research on: fuel cells/hybrids, gas turbine combustion, carbon capture, and new zero-emission technologies (e.g., FutureGen).

**Geological and Environmental Systems** conducts research into minimization and abatement of environmental problems associated with the development and use of fossil fuels. Research concentrates on geological sequestration of carbon dioxide, oil and gas exploration and production, air pollution/ particulate matter issues, removal of toxins from coal utilization system emissions, as well as water and coal utilization by-products.

**Materials Science** specializes in formulating, characterizing, and/or melting of most metals, alloys, and ceramics; casting, fabrication, and prototype development; and the recycle and remediation of waste streams associated with these processes. Research includes alloy development, materials production, physical and chemical analysis, and performance testing. NETL is one of the few places in the world where alloy development, melting, casting, fabrication, physical and chemical analyses and performance testing (wear, erosion, and various forms of corrosion) can be performed in one place.



## University Collaboration Initiative

In 2005, ORD launched a new regional University Research Initiative that has greatly enhanced the collaborative nature of NETL's research. A wide-ranging set of collaborations with regional universities on fossil energy research issues is providing hands-on fossil energy technology training for experienced postdoctoral researchers, graduate students, visiting professors, and undergraduate students. The research is being conducted at NETL laboratories in Morgantown and Pittsburgh, in direct collaboration with NETL researchers.

## Carbon Management Research

National and global concerns about the role of carbon dioxide (CO<sub>2</sub>) in global climate change are driving the development of new CO<sub>2</sub> management technologies. The vision of NETL's Carbon Management Research Program is to conduct the research and analysis needed to develop energy-efficient and cost-effective methods to manage CO<sub>2</sub> that results from energy production. This research is focused on three areas: carbon capture, permanent storage, and risk assessment associated with permanent CO<sub>2</sub> storage. ORD's carbon management research directly supports the NETL Carbon Sequestration Program, and collaborative efforts developing through the Carbon Sequestration Regional Partnerships.



# R & D facts

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Office of Research  
and Development

03/2008



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## UNIVERSITY RESEARCH INITIATIVE

The National Energy Technology Laboratory is collaborating with universities to overcome a growing national problem. While energy is the cornerstone of the nation's economy, recent collegiate trends have shown a decreasing interest in science and engineering, more specifically in the energy and energy-related environmental arenas. Building on long standing relationships with major universities (Carnegie Mellon and University of Pittsburgh in Pittsburgh, PA, and West Virginia University in Morgantown, WV), NETL has taken steps to continue and expand upon university collaborations with its Office of Research and Development, with a focus on coal and power system research.

NETL has entered into 50 collaborative projects since 2005, where university and NETL researchers work side-by-side on an ongoing basis for the duration of each project. Unlike other programs where "visiting" students spend a week or month conducting research in a government or private laboratory, this program establishes long-term relationships between the university and NETL researchers. They work collaboratively on projects ranging from materials development, to mathematical simulations, control systems, and process development. All research for these projects is being conducted at NETL laboratories in Morgantown and Pittsburgh.

Building closer ties with the local universities helps to prepare the next generation of scientists and engineers who will address the next generation of challenges related to fossil fuel use. Through these collaborations, NETL hopes to tap the kind of student talent for medicine, computers, and robotics that is drawn to these major regional universities, and apply that talent in the energy arena. A goal of the university participants is to allow students the opportunity to view real-world issues and experience research in a non-academic setting. These collaborations are a natural outgrowth for a region that has a rich energy history. This new collaborative program will further distinguish the tri-state region as the research center for clean coal technologies in the 21st century.

Projects support research needs for technologies ranging from materials development to modeling, sensors and controls, process simulations, fuel cells, gas hydrates, and measurement, mitigation and verification. The first phase of project awards resulted in 18 individual projects. The second phase had an added component that required each project to involve at least two of the three universities, and resulted in the award of 32 projects. All projects are negotiated for a one-year initial period, with options to extend for additional one-year increments. The list of projects reflects needs in fossil energy programs such as Hydrogen Storage and Transportation, Carbon Sequestration, Gas Turbines, Combustion Science, Advanced Fuels, Water Management, Security Systems Analysis, Infrastructure Security, and Coal Supply Vulnerability.



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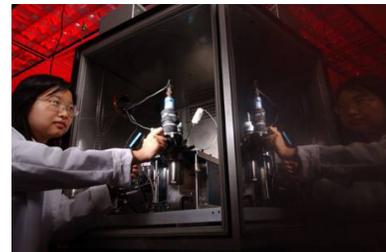
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WVU PhD student Alex Tsai and NETL researcher Dave Tucker describe the hybrid turbine/fuel cell research to Secretary of Energy Samuel Bodman.

For example, one project with the University of Pittsburgh has a goal of improving the existing understanding of the properties of methane hydrates. This collaboration is focusing on fundamental modeling studies, and could lead to potential hydrocarbon production from the vast untapped methane hydrate reserves. According to some estimates, the energy locked up in methane hydrate deposits is more than twice the global reserves of all conventional gas, oil, and coal deposits combined.



University of Pittsburgh student in NETL's hydrates thermoconductivity laboratory

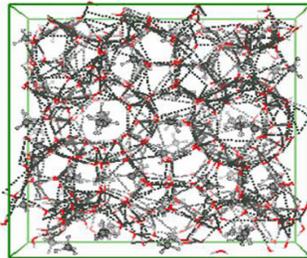


Image of methane hydrate structure, derived from modeling data (100 million "Monte Carlo" calculations) collected at the molecular level. These experiments will help develop methods to extract methane from the ice crystal safely and efficiently.

A joint Carnegie Mellon University (CMU) Engineering and West Virginia University (WVU) Physics project is focusing on geological sequestration and oil and gas extraction and production. This collaboration is joining NETL's onsite computed tomography (CT) imaging research with WVU simulations and CMU microfluids experiments. Participants are combining their computational modeling expertise with NETL expertise to study the internal flows of potential carbon sequestration reservoir materials, to develop and validate models. The resulting data and the mathematical models derived from that data will be used to ensure that when carbon dioxide is injected in geological formations, it remains sequestered and does not escape.



Grant Bromhal, NETL, and Martin Ferer, WVU, check CT scanner installation at NETL

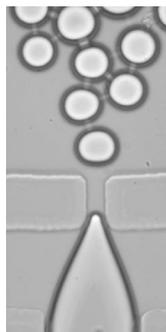


Image of injection of fluid into a micromodel constructed at Carnegie Mellon University. The experiment simulates the injection of carbon dioxide into a brine-saturated geologic formation.



Hybrid turbine/fuel cell experiment at NETL

In a third project, WVU researchers are investigating hybrid turbine-fuel cell control development. This collaboration is combining WVU control expertise with NETL hybrid experimental studies. Utilizing waste heat from the turbine to preheat fuel entering the fuel cell leads to a combined system efficiency that is greater than each stand-alone device could achieve. Further research is needed to determine how fuel cells respond to routine turbine transient conditions (such as differences between start-up and shut-down conditions).

U.S. DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY  
NATIONAL ENERGY TECHNOLOGY LABORATORY



## NETL'S ONSITE RESEARCH

As the lead field center for the DOE Office of Fossil Energy's research and development program, the National Energy Technology Laboratory has established a strong onsite research program conducted by Federal scientists and engineers who work closely with employees of contractor organizations and researchers from universities. Onsite R&D – managed by NETL's Office of Research and Development – makes important contributions to NETL's mission of implementing a research, development, and demonstration program to resolve the environmental, supply, and reliability constraints of producing and using fossil resources.

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Researchers in NETL's Office of Research and Development perform onsite R&D in support of NETL's technology lines and for external government and industry customers. In addition, NETL's onsite research pursues knowledge, science, and technology with broad societal and industrial interest. NETL onsite R&D helps industrial and academic partners solve problems that would otherwise become barriers to commercializing power systems, fuels, and environmental and waste management technologies. NETL uses a variety of partnership mechanisms to conduct R&D of mutual interest with academic and private-sector organizations. The Office of Research and Development provides DOE's Fossil Energy program an onsite "corporate laboratory" at NETL. The onsite R&D efforts utilize state-of-the-art capabilities and facilities in Morgantown, West Virginia; Pittsburgh, Pennsylvania; and Albany, Oregon. About one-fourth of NETL's approximately 1,100 Federal and contractor employees are involved with onsite research activity. NETL is DOE's only government-owned, government-operated national laboratory; the onsite research program has a core group of about 150 Federal scientists and engineers. Supplemental site support comes from contractors who are selected through a competitive process, as well as research fellows and associates at the faculty, postdoctoral, graduate, and undergraduate levels.

Onsite research is conducted in four primary focus areas: Computational and Basic Sciences, Energy System Dynamics, Geological and Environmental Systems, and Materials Science.

### Computational and Basic Sciences Focus Area

The focus area has developed a strategy to assemble computational models from *ab initio* (atomic and molecular) through device-scale, and to integrate the device-scale models into virtual plant simulations. In concert with this modeling work, experimental R&D is conducted in selected program areas in close, often iterative, collaboration with the computational efforts.



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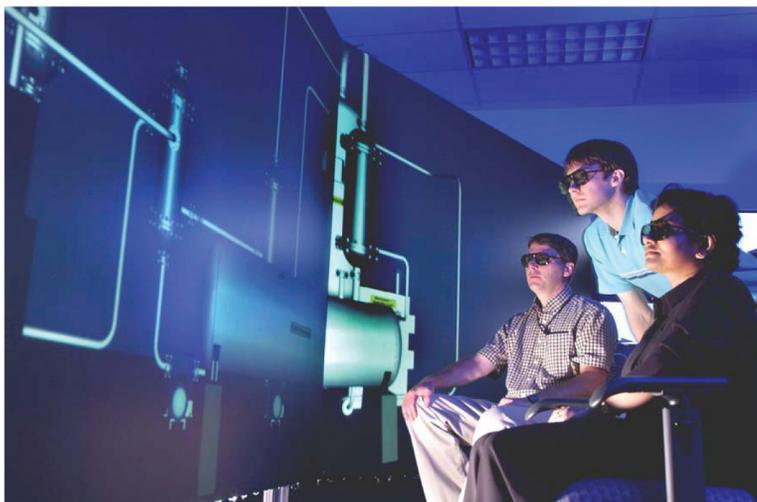
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## Focus Area Research

The scope of the focus area research includes: quantum mechanical simulations, multiphase flow simulations, device-scale simulations using computational fluid dynamics (CFD), advanced process engineering co-simulations (APECS), integrated virtual plant modeling, hydrogen technology research and development, natural gas hydrates research and development, validation testing at each scale, and energy infrastructure security and interdependency analysis. The focus area supports activities in coal power systems and natural gas and oil technologies. It also strives to meet national energy security goals, including future technologies that can be used in a FutureGen prototype.

The long-term objective of the focus area is to provide the underlying science, engineering and computational foundations necessary for the environmentally friendly, highly efficient energy systems of the future. This area will:

- Develop the capability to accurately and robustly simulate reactive, heavily-loaded, gas/particle flows using methods of computational fluid dynamics
- Support DOD in its efforts to have a specification approved for a fully synthetic jet fuel for military applications
- Produce a technology base for robust, sulfur-tolerant, hydrogen separation membrane materials for coal gasification syngas streams
- Conceive and make available a suite of materials tailored to meet DOE goals for gas separations, storage and high-temperature applications in coal gasification, gas separations and fuels synthesis that will facilitate DOE objectives for the hydrogen economy and FutureGen
- Demonstrate an APECS steady-state FutureGen application that exploits advanced co-simulation, reduced order modeling, parallel solution, and virtual engineering
- Prototype APECS dynamic simulation capabilities
- Demonstrate FutureGen power plant simulation employing CFD device-scale models
- Develop the capability to design tailored materials using *ab initio* computational methods in conjunction with laboratory experiments



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## NETL'S ONSITE RESEARCH

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Onsite research is conducted in four primary focus areas: Computational and Basic Sciences, Energy System Dynamics, Geological and Environmental Systems, and Materials Science.

## Energy System Dynamics Focus Area

The Energy System Dynamics Focus Area conceives, analyzes, and develops pre-commercial energy technology that minimizes the environmental impact of fossil fuel use and that maximizes reliable use of domestic energy sources and infrastructure. The focus area addresses turbines and fuel cell hybrids, fuel cells, fuel processing for fuel cells, gasification, carbon dioxide capture for pulverized coal and for integrated gasification combined cycle (IGCC) systems, reciprocating engines, and sensor/control methods for all these energy systems. This focus area is a recognized source of expertise and research leading to commercially viable technology that improves fossil-fuel-based energy systems.



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## Focus Area Research

The focus area supports research and development in coal power systems, provides concepts that will be integrated into the FutureGen prototype, and supports the President's Global Climate Change Initiative.

The focus area investigates and tests new energy system concept and technologies, such as:

- Technologies that can capture carbon dioxide during energy generation with minimal cost and efficiency impact
- Methods to use hydrogen combustion in turbines and engines without collateral pollutant emissions or efficiency penalties
- Performance of DOE-developed fuel cells to assist program planning, to validate and establish a common approach to reporting fuel cell performance
- Methods to make fuel cells tolerant to coal gas impurities, allowing fuel cell integration with coal gasification technology
- A core understanding of SOFC fuel cell degradation related to design and operation issues
- Sensors and control techniques that will allow load following in hybrid turbine fuel cell systems
- Fuel reforming and gas cleanup technology that can allow SOFC fuel cells to operate on existing infrastructure fuels (diesel fuel, coal syngas).

# R & D facts

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OFFICE OF FOSSIL ENERGY  
NATIONAL ENERGY TECHNOLOGY LABORATORY

Geological and  
Environmental Systems

03/2008



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Researchers in NETL's Office of Research and Development perform onsite R&D in support of NETL's technology lines and for external government and industry customers. In addition, NETL's onsite research pursues knowledge, science, and technology with broad societal and industrial interest. NETL onsite R&D helps industrial and academic partners solve problems that would otherwise become barriers to commercializing power systems, fuels, and environmental and waste management technologies. NETL uses a variety of partnership mechanisms to conduct R&D of mutual interest with academic and private-sector organizations. The Office of Research and Development provides DOE's Fossil Energy program an onsite "corporate laboratory" at NETL. The onsite R&D efforts utilize state-of-the-art capabilities and facilities in Morgantown, West Virginia; Pittsburgh, Pennsylvania; and Albany, Oregon. About one-fourth of NETL's approximately 1,100 Federal and contractor employees are involved with onsite research activity. NETL is DOE's only government-owned, government-operated national laboratory; the onsite research program has a core group of about 150 Federal scientists and engineers. Supplemental site support comes from contractors who are selected through a competitive process, as well as research fellows and associates at the faculty, postdoctoral, graduate, and undergraduate levels.

Onsite research is conducted in four primary focus areas: Computational and Basic Sciences, Energy System Dynamics, Geological and Environmental Systems, and Materials Science.

## Geological and Environmental Systems Focus Area

The Geological and Environmental Systems Focus Area conducts research into minimization and abatement of environmental problems associated with the development and use of fossil fuels. Research concentrates on geological sequestration of carbon dioxide, oil and gas exploration and production, and removal of toxins from emissions from coal utilization systems. The focus area performs research to assess the capacity, suitability, and permanence of potential carbon sequestration reservoirs, to assess the ability of unconventional reservoirs to produce gas and oil and assist in that production, to improve environmental performance of existing power plants, and to be recognized for performing sound science, achieving excellence, and meeting goals.



## CONTACTS (cont.)

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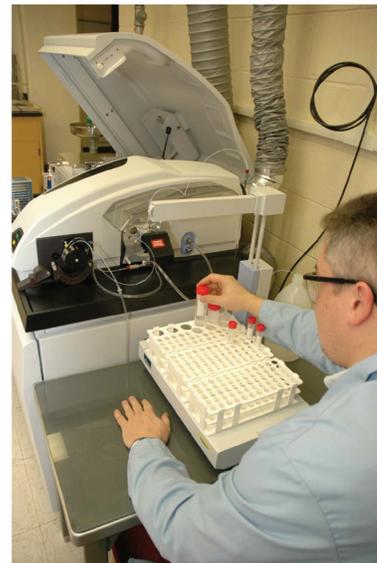
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## WEBSITE

**www.netl.doe.gov**

## Focus Area Research

The scope of the focus area research includes geological sequestration; ensure permanent carbon sequestering; resources assessment; production modeling; development of unconventional gas and oil resources; fate of air toxics such as mercury; byproduct utilization; and water issues related to existing coal-fueled electric power plants. Sequestration simulation and field work expertise provides a valuable internal capability for NETL in assessing external activities. The focus area is working closely with sequestration field-testing activities and plans to develop a range of collaborative activities with the regional sequestration partnerships being developed by DOE. The focus area directly supports the President's Global Climate Change Initiative, carbon sequestration technologies, natural gas and oil technologies, and clean power generation. NETL researchers in this focus area have achieved significant R&D successes and are widely recognized for their expertise and quality research.



The long-range objective of the focus area is to conduct research in carbon sequestration, natural gas and oil, and environmental research. Specific objectives include:

- Develop underpinning science to ensure safe, essentially permanent carbon sequestration; develop reliable measurement, monitoring and verification technologies acceptable to permitting agencies; and develop sequestration site selection criteria acceptable to external organizations (e.g., regional partnerships).
- Develop and validate mathematical models that correctly predict field results for reservoir flows and leaks (e.g., coal seams), resulting in models that are “transparent,” and that represent significant improvement over current codes.
- Participate with regional partnerships in field activities to test and evaluate technologies; validate and couple geo-mechanical and flow reservoir models to provide accurate and reliable simulations in fractured reservoirs based on an explicit fracture simulator.
- Improve drilling rates in the field by 20 percent through a state-of-the-art advanced drilling research laboratory.
- Identify opportunities for the natural gas and oil program to expand gas resource base by better resource characterization.
- Develop technology to reduce cost of mercury control while achieving at least 90 percent capture; characterize potential environmental impacts of byproducts of advanced fossil energy coal technologies; improve management of produced waters from coal-bed methane production; and develop cost effective power plant water management technology.



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## NETL'S ONSITE RESEARCH

As the lead field center for the DOE Office of Fossil Energy's research and development program, the National Energy Technology Laboratory has established a strong onsite research program conducted by Federal scientists and engineers who work closely with employees of contractor organizations and researchers from universities. Onsite R&D – managed by NETL's Office of Research and Development – makes important contributions to NETL's mission of implementing a research, development, and demonstration program to resolve the environmental, supply, and reliability constraints of producing and using fossil resources.

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## Materials Science Focus Area

The Materials Science Focus Area specializes in life cycle research starting with the formulation, characterization, and melting of most metals, alloys, and ceramics; casting and fabrication, prototype development; and the recycling and remediation of waste streams associated with these processes.

## Focus Area Research

**Materials Performance** research runs the gamut from defining and understanding the basic mechanisms of wear and corrosion, and the synergy between them; to providing input on materials performance and specifications for specific operating environments; to developing methodologies for real-time materials performance monitoring in the field. Researchers work closely with industry, academia, and government agencies to ensure that the research is relevant and effective in addressing materials performance needs that can assure current- and next-generation energy reliability.



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Researchers specialize in the understanding and assessment of materials performance issues, including:

- Materials Selection and Specifications for High-Temperature, Erosive and Corrosive Environments
- Real-Time Materials Performance Monitoring
- Corrosion and Wear Mechanisms
- Lifetime Predictions

**Process Development** research targets the development of processes to:

- Model, formulate, and produce high temperature alloys for use in high temperature environments;
- Efficiently produce prototype parts, castings, and/or plate or sheet from ferrous, non-ferrous, and refractory alloys;
- Recover or recycle valuable materials from wastes;
- Improve material production by melting or smelting;
- Sequester greenhouse gas emissions; and
- Improve efficiencies of high temperature melting or smelting systems.

Research facilities include the Severe Environment Corrosion Erosion Research Facility (SECERF) for assessing materials performance in a variety of simulated high-temperature environments typical of fossil energy systems; a complete laboratory for the small-scale production and characterization of refractory ceramic materials; a range of tests simulating erosive and abrasive wear, as well as impact damage; a variety of laboratory and field tests for aqueous corrosion; and an analytical physics laboratory for assessing microstructural response to severe environments.

Facilities allow researchers to melt, alloy, cast, forge, roll, and heat treat materials from a few grams up to 100s of kilograms. A complete feed preparation facility capable of crushing, grinding, sizing, mixing, and agglomerating feed in batches from a few kg up to 1,000s of kg is available. For melting and smelting experimentation, a state-of-the-art facility allows for laboratory scale (a few kg) up to pilot scale (500 to 1,000 kg per hour of product) experimental trials that can be designed to last from a few seconds to more than 100 hours of continuous operation.

The extremely creative, versatile, and multi-disciplined staff includes materials engineers, metallurgists, ceramists, chemists, chemical engineers, and mechanical engineers.

