



AEP's Mountaineer Carbon Capture and Sequestration (CCS) II Project and the National Environmental Policy Act

Public Scoping Meeting – June 22, 2010

Office of Fossil Energy



Welcome to the Public Scoping Meeting

June 22, 2010

Participants

- **American Electric Power (AEP)** – To design, construct, and operate a Carbon Capture and Storage (CCS) facility.
- **Department of Energy (DOE)** – Prepare Environmental Impact Statement (EIS)
- **Potomac-Hudson Engineering (PHE)** – Environmental consultants preparing EIS.



Agenda

5:00 – 7:00 pm INFORMAL SESSION DOE/AEP/PHE Representatives

- Answer questions/handout fact sheets, etc.
- Informal comment collection
- Commenter sign-up (at front desk)
- Poster session

7:00 – 9:00 pm FORMAL SCOPING MEETING DOE/AEP

- Welcome - Mark Lusk (DOE)
- Background and DOE's Role - Michael McMillian (DOE)
- AEP Project Overview - Brian Sherrick (AEP)
- NEPA Process - Mark Lusk (DOE)
- Public Comments Elected officials, general public, interested parties invited to comment on scope of project (please sign up in advance if you would like to provide comments).

9:00 pm ADJOURN

DOE's Clean Coal Power Initiative (CCPI) Program

- The CCPI program was established in 2002 as a government and private sector partnership to increase investment in clean coal technologies. Through agreements with private-sector partners, the CCPI program advances innovative technologies to commercialization.*
- These technologies include combustion improvements, control system advances, gasifier design, pollution reduction (including greenhouse gas reduction), and efficiency increases.*
- Under the Energy Policy Act of 2005, CCPI projects must “advance efficiency, environmental performance, and cost competitiveness well beyond the level of technologies that are in commercial service.”*
- DOE selects projects for its CCPI partnerships through open and competitive solicitations. Applications are reviewed according to criteria specified in the solicitation; these include technical, financial, environmental, and other considerations.*
- After selection, DOE enters into a cooperative agreement with the applicant that sets out the project's objectives and the obligations of the parties.*
- Applicants must agree to pay at least 50% of their project's cost; for most CCPI projects, the applicant's cost share is much greater.*

The Mountaineer CCS II Project's Selection for CCPI Funding

- *The CCPI program has conducted three rounds of solicitations and project selections:*
 - *Round 1: Projects demonstrating advanced technologies for power generation and improvements in plant efficiency, economics, and environmental performance.*
 - *Round 2: Projects demonstrating improved mercury controls and gasification technology.*
 - *Round 3: Projects demonstrating advanced coal-based electricity generating technologies that capture and sequester carbon dioxide emissions.*
- *Objective for Round 3 projects – to demonstrate technologies at commercial scale in commercial settings that:*
 - *Operate at a target 90% capture efficiency for CO₂.*
 - *Make progress towards capture and sequestration at less than a 35% increase in the cost of electricity for post combustion systems.*
 - *Sequester a minimum of 300,000 tons/year of CO₂ (Project will operate at 1,500,000 tonnes/yr).*
- *The AEP Mountaineer CCS II Project was one of three selected in the second phase of Round 3. DOE entered into a cooperative agreement with AEP on February 1, 2010, that calls for DOE to contribute \$334 million of the project's total cost, \$668 million.*
- *Much of the funding DOE intends to use for its contribution would come from the American Recovery and Reinvestment Act of 2009 (Recovery Act). Its objectives include job creation and preservation; infrastructure investment; and energy efficiency.*
- *Recovery Act funds expire on September 30, 2015.*



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Mountaineer Commercial Scale CCS Project

Agenda

- Project Overview
- Timeline
- Alstom's Chilled Ammonia Process
- CO₂ Transport and Storage

Project Details

- Purpose: Advance the development of the Chilled Ammonia CO₂ control technology

- Location: Mountaineer Power Plant and other AEP owned properties

- Preliminary cost estimate: \$668 million
 - Department of Energy will cost share 50% up to \$334 million

- Project Objectives
 - 90% CO₂ removal from the stack gas
 - Minimize the increase in cost of electricity
 - Store 1.5 million metric tons of CO₂/year
 - Demonstrate commercial technology

Project Overview

- Why is AEP conducting this project?
 - Address expected CO₂ legislation
 - Keep coal and coal related jobs viable
 - Develop the technology to commercial scale

- How does this project benefit the community?
 - Cleaner environment
 - ~ 800 construction jobs
 - ~ 30 permanent jobs
 - Opportunities for local businesses
 - Helps maintain mining jobs

Timeline

□ Schedule

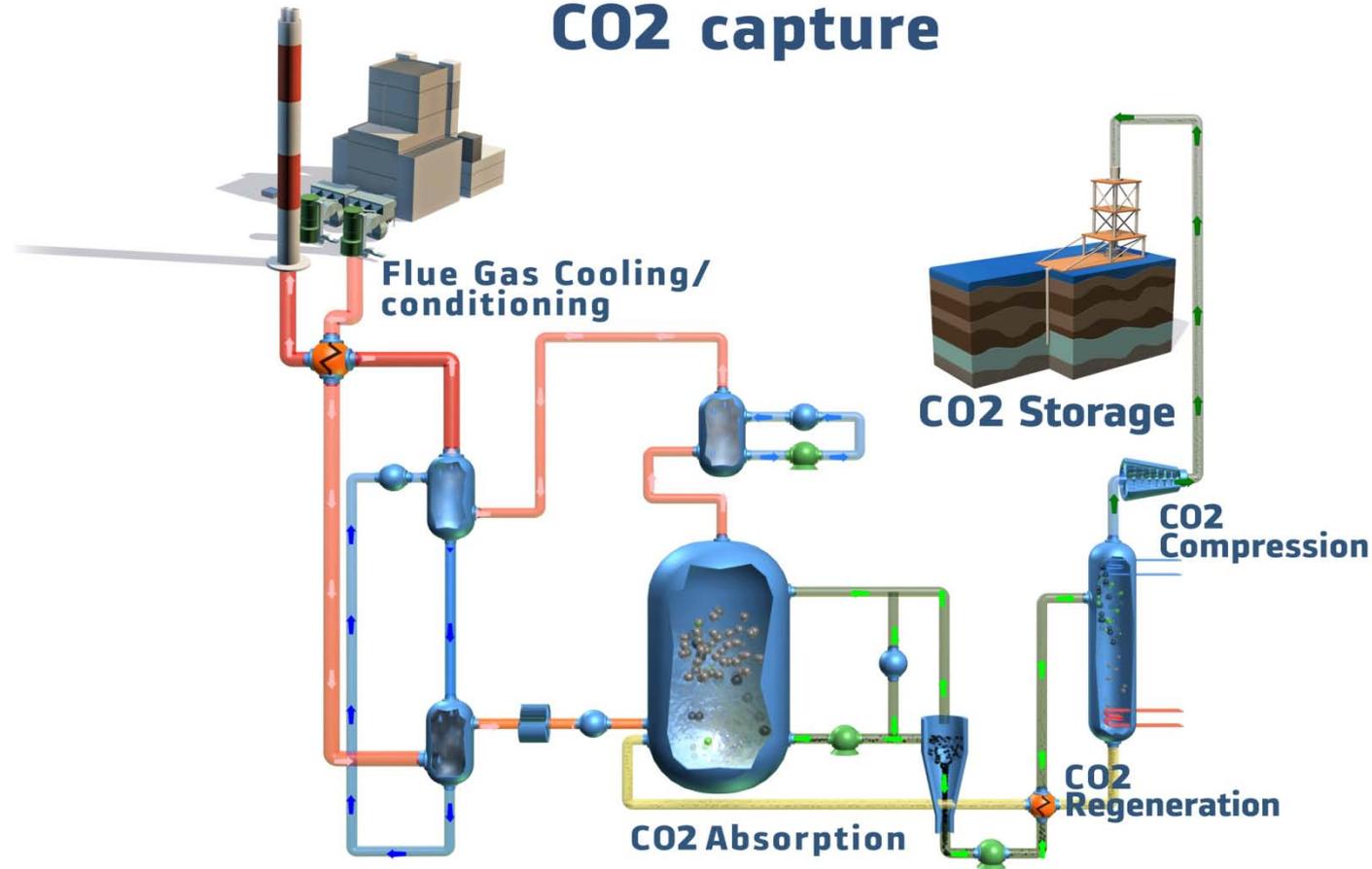
- Phase 1 Project Definition: present – 6/30/11
- Phase 2 Design and Permitting: 7/1/11 – 12/31/12
- Phase 3 Construction & Startup: 1/1/13 – 8/31/15
- Phase 4 Operations: 9/1/15 and beyond

□ Phase 1 Critical Activities

- National Environmental Policy Act process
- Geologic study of proposed injection sites
- Complete initial engineering & design
- Detailed cost estimate

Layout of Alstom's Chilled Ammonia Process

Chilled Ammonia CO₂ capture



● CO₂

● Ammonium Carbonate

● Ammonium Bicarbonate



Heat exchangers



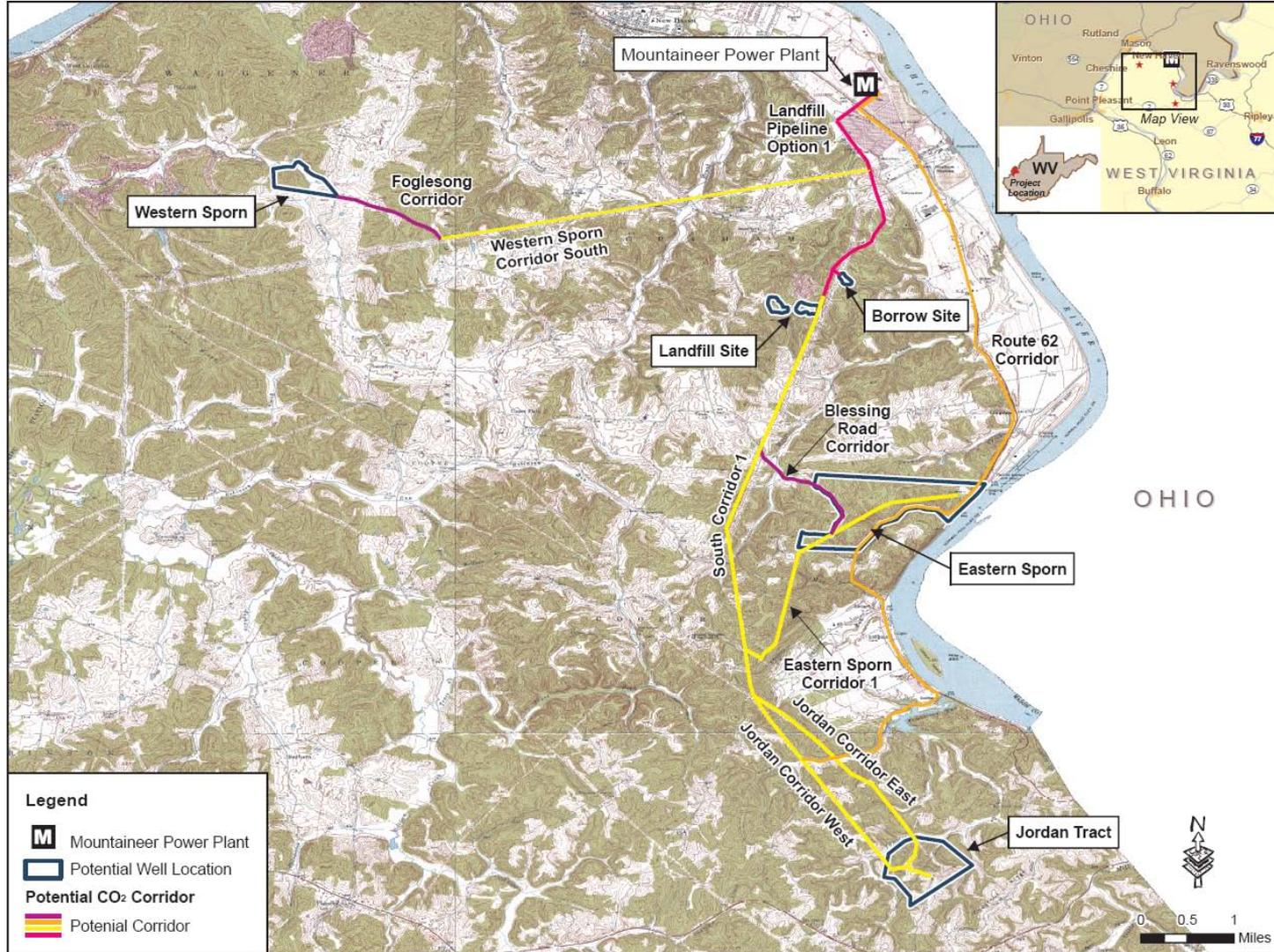
Pumps



Refrigeration



CO₂ Transport & Storage

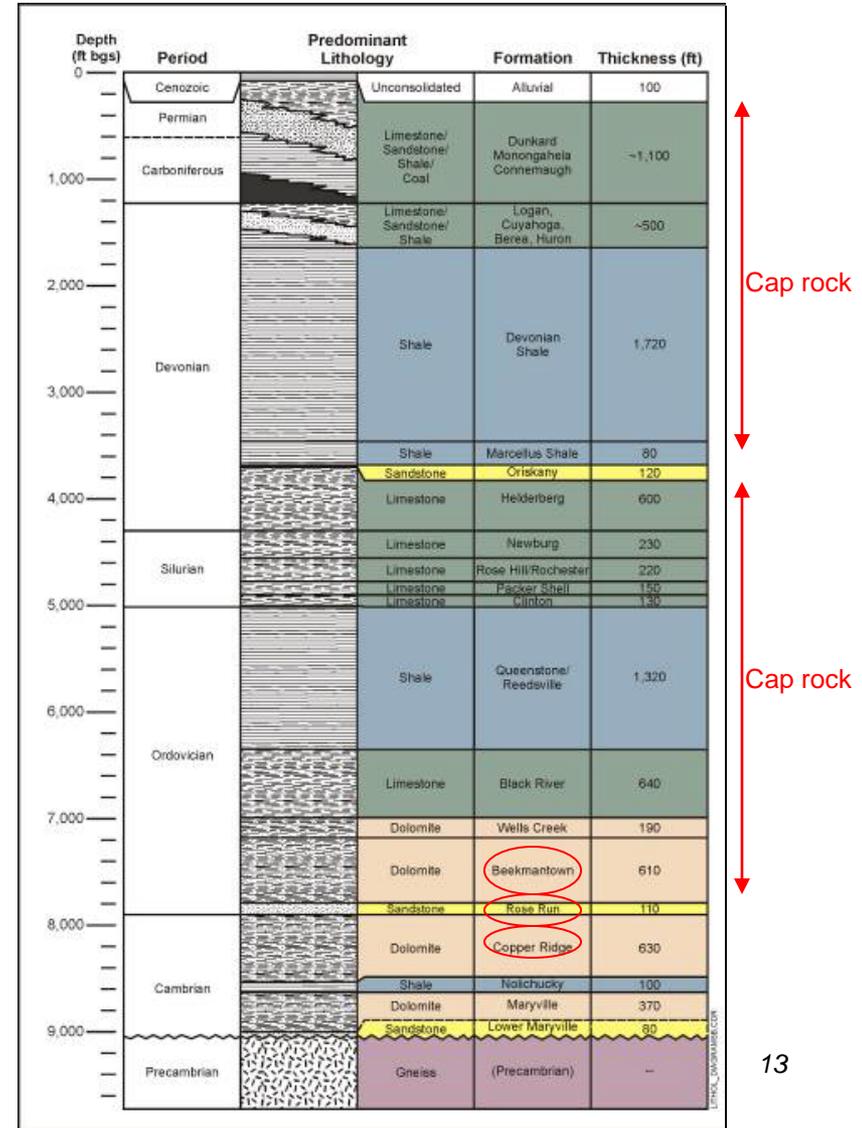


Mountaineer Power Plant and Potential Well Locations and Corridors Topographic Map
USGS 1:24,000 Topographic Quadrangles: Cheshire (38082-H1), Mount Alto (38081-G8), and New Haven (38081-H8)

Local Geology

- 2003 site characterization study funded by the DOE identified two feasible injection reservoirs with several thousand feet of excellent cap rock
 - Rose Run Sandstone
 - Copper Ridge B-Zone

- Test project validating CO₂ model





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National Environmental Policy Act (NEPA)

- **U.S. Federal Law - effective January 1, 1970**
- **Applies to all Federal agencies**
- **National charter for protection of the environment**
- **Promotes environmental considerations in decision-making**



NEPA Mandate

- **Environmental information must be available to public officials and citizens before Federal decisions are made and before Federal actions are taken**
 - **High quality information**
 - **Accurate scientific analyses**
 - **Expert agency comments**
 - **Public involvement**



NEPA Process for the AEP Mountaineer CCS II Project Initiated

- **EIS Determination – March 8, 2010**
 - Official agency decision that an EIS is needed
- **Notice of Intent – June 7, 2010**
 - Official announcement to stakeholders
 - Begins the 30-day public scoping period



Content of a Typical Environmental Impact Statement (EIS)

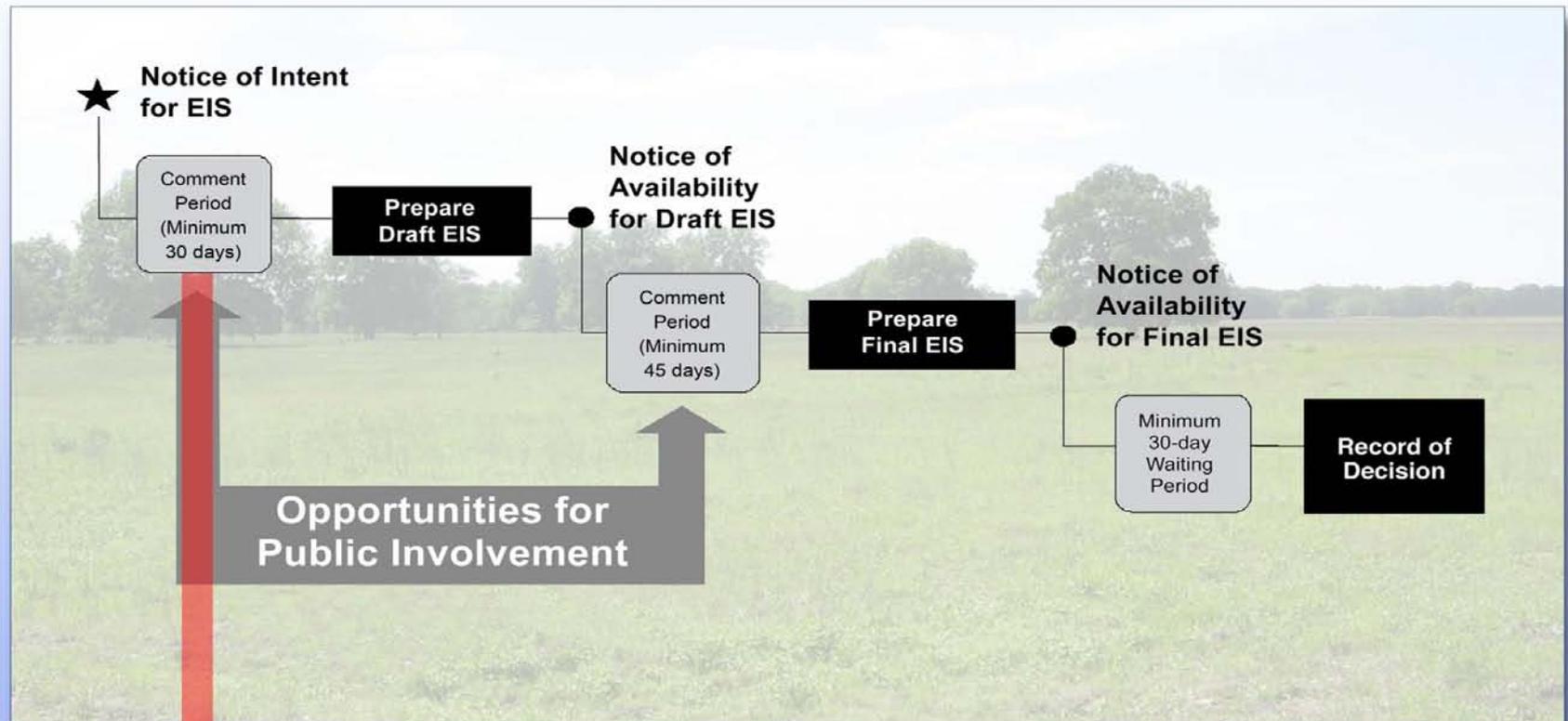
- **Purpose and Need for Agency Action**
- **Proposed Agency Action & Reasonable Alternatives**
- **Proposed Project & Project Alternatives**
- **Description of the Affected Environment**
- **Analysis of Potential Environmental Consequences**
- **List of Agencies, Organizations, and Persons Contacted**
- **Public Participation and Responses to Public Input**



American Electric Power (AEP) Mountaineer CCS II Project



NEPA PROCESS AND EIS MILESTONES



We are here
June 22, 2010

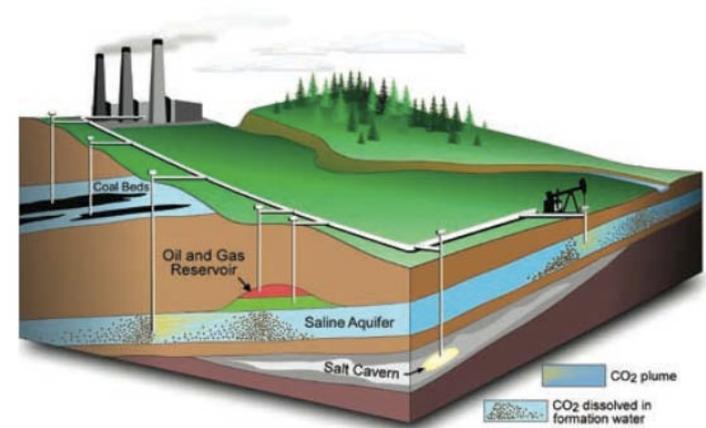
Anticipated Schedule

	GOAL	SCHEDULE
NEPA Initial Site Visit	Apr 2010	April 27, 2010
Notice of Intent (NOI)	Jun 2010	June 7, 2010
Draft Environmental Impact Statement (EIS)	Dec 2010	
Public Hearing	Jan 2011	
Final EIS	Jun 2011	
Record of Decision (ROD)	Jul 2011	



Purpose of Public Scoping Meeting

- Invite comments and input from all interested persons on:
 - Scope of the EIS**
 - Issues to be addressed in the EIS
 - Data to be collected
 - Analyses to be performed
 - Stakeholder concerns



DOE Wants Your Participation!

- **Send written comments to:**
 - **Mark W. Lusk, NEPA Document Manager**
DOE - National Energy Technology Laboratory
MS B07, P.O. Box 880
Morgantown, WV 26507-0880
 - **Email to: Mountaineer.EIS0445@netl.doe.gov**
 - **Fax to: (304) 285-4403**
- **Comments due by: Friday - July 9, 2010**

Scoping Meeting Logistics for Oral Comments

- **Five (5) minutes per speaker, please!**
- **Additional opportunities to speak, time permitting**
- **Selected govt. officials & pre-registered speakers will go first – sign up to speak**
- **An official transcript will be made**
- **Speakers should state their name and speak clearly**
- **Comment sheets are also available**