Office of Fossil Energy
Office of Clean Coal

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Office of Clean Coal
Advancing Clean Coal Technologies

Making Coal Plants More Efficient
Gasification, Advanced Turbines, Advanced Combustion, CBTL, and Fuel Cells

Capturing More CO₂
Cost-effective carbon capture for new and existing power plants

CO₂ Utilization and Storage
New pathways to utilize captured CO₂
Safe use and permanent storage of CO₂ from power generation and industry

Bringing it All Together
Crosscutting technology development program
Historic Program Focus

1. Increase Efficiency & Reliability for new and existing units
   • Advanced power cycles
   • Solid oxide fuel cells & turbines
   • High performance materials
   • Sensors & controls

2. Coal & Carbon Utilization
   • Modularization / Gasification
   • Rare earth elements

3. Carbon Capture
   • Discovery of new capture materials (solvents, sorbents, membranes)
   • Advanced separation and compression

4. Subsurface Storage
   • Minimize subsurface risks
   • Develop commercial opportunities
   • Enhanced Oil Recovery
10% of all US coal reserves are on tribal lands (IA-DEMD)
30% of coal reserves west of Mississippi River are located on tribal lands (Keybank 2016)
An early assessment of coals with high concentrations (>700 ppm) of REEs suggests significant amounts of the high value Heavy REEs (25% to 40% of total).