



ILLINOIS CLEAN COAL INSTITUTE

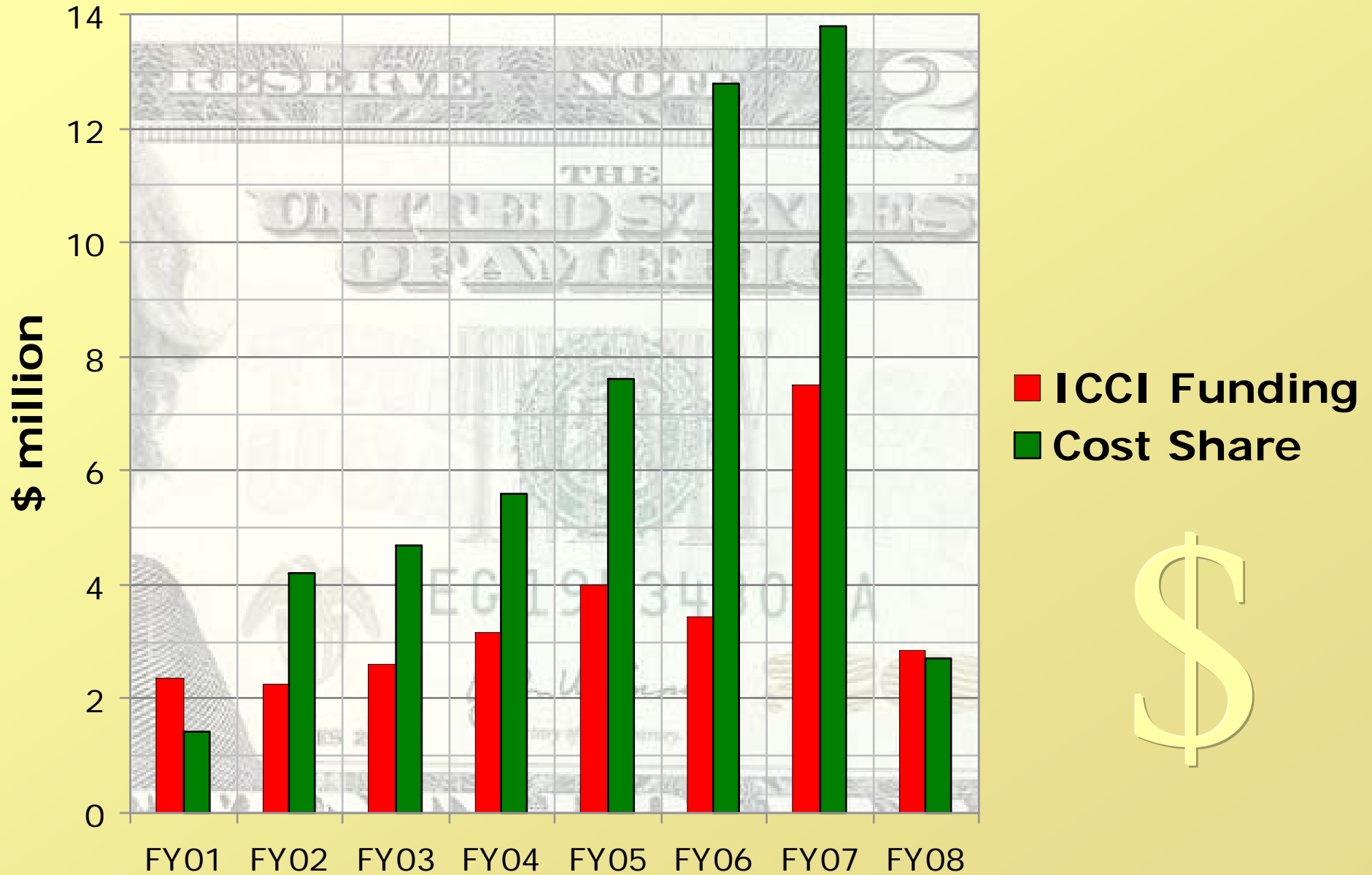
***Energy Research for a Cleaner
Environment***

2008 Program

**ILLINOIS
COAL**

Discover the Power

Funded R&D Projects Program 2008



- **Advanced Coal Mining Technologies**
- **Coal Preparation**
- **Power Generation**
- **Flue Gas Cleaning**
- **Coal Chemistry**
- **Coal Gasification**
 - **Gasification Economics**
 - **Coal Liquids**
 - **Syngas Cleanup**
 - **Gasification Byproducts**
- **Carbon Management**
- **Coal Residuals Management**
- **Exploratory Research**

A System to Evaluate Prime Farmland Reclamation Success Based on Spatial Soil Properties

Robert Dunker, UIUC Crop Sciences

Advanced Mining Technologies to Reduce Underground Production Costs

Paul Chugh, SIUC Mining Engineering

IBD Mine Tool Prototype Development and Demonstration

Peter Filip, SIUC Center for Advanced Friction Studies

Remote Underground Coal Mining – Phase 2

Bane Kroeger, SIUC Mining Engineering

**Development and Demonstration of Alternate Room and Pillar Mining
Geometry in Illinois – Phase 2**

Paul Chugh, SIUC Mining Engineering

Effective Noise Control for Improved Health and Safety in Coal Mines

Farzad Pourboghrat, SIUC Electrical & Computer Engineering

**Assessment of a Geophysical Coal Exploration Method in a Faulted
Terrene**

Brett Denny, Illinois State Geological Survey

**Advanced Coal Mining Technologies
Funded Projects for FY08**

2008 Program

**Development of Improved Roof Support Systems for Illinois
Underground Coal Mines**

Paul Chugh, SIUC Mining Engineering

**Respirable Dust Control in Room-and-Pillar and Longwall Mining
Operations**

Paul Chugh, SIUC Mining Engineering

Underground Mine Productivity Program

John Mead, SIUC Coal Research Center

Coal Preparation Recent Projects

2008 Program

Best Management Practices to Minimize Sulfate and Chloride Discharges

Paul Chugh, SIUC Mining Engineering

Fluidized Bed Drying of High Moisture Illinois Coals Using Power Plant Waste Heat: Phase 1

Edward Levy, Lehigh University Energy Research Center

Application of Pulsewave Disintegration to Comminution, Drying and Cleaning of IL Coal

Richard Sumner, Pulsewave, LLC

Integrated Pressure Modulation for Fine Coal Cleaning and Dewatering

Vik Malhotra, SIUC Physics

Automation and Performance Improvement of Spiral Concentrator

Manoj Mohanty, SIUC Mining Engineering

Motorless-Rotorless Cell Advanced Development

Chris Manrique, Dynamic Separations

**Coal Preparation
Funded Projects for FY08**

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Recovery of High Grade Magnetite from Illinois Coal Flyash

Manoj Mohanty, SIUC Mining Engineering

Onsite Evaluation of the MST Separator

Manoj Mohanty, SIUC Mining Engineering

**Feasibility Evaluation of a Direct Carbon Fuel Cell (DCFC)
Operation on Illinois Coal**

Chuck Sishtla, Gas Technology Institute

**Feasibility of a Commercial Demonstration PFBC Combined Heat
and Power Facility**

Calvin Hartman, Worley-Parsons, Inc.

**Power Generation
Funded Projects for FY08**

2008 Program

**Increasing Efficiency and Reducing Emissions of Existing
Pulverized Coal-Fired Units**

Nenac Sarunac, Lehigh University Energy Research Center

**Economic Evaluation of Illinois Coal and Western PRB Coal Under
Different Pollution Control Scenarios**

Scott Chen, Illinois State Geological Survey

**Long-Term Evaluation of Mercury Monitoring Systems at Illinois Coal
Fired Boilers**

Wei-Ping Pan, Western Kentucky University

Life Cycle Assessment of Mercury in Illinois Coals

Vinodkumar Patel, Illinois State Geological Survey

Flue Gas Cleaning Funded Projects for FY08

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Limestone Fines - an Economically Viable Source of Sorbents for Desulfurization?

Zak Lasemi, Illinois State Geological Survey

Understanding Multi-Interactions of SO₃, Mercury, Selenium, and Arsenic in Illinois Coal Flue Gas

Ye Zhuang, University of North Dakota EERC

Mercury Control Technologies for Electric Utilities Burning Bituminous Coal

Jason Laumb, University of North Dakota EERC

Mercury Measurement: Methods and Hands-On Training

Denny Laudal, University of North Dakota EERC

On-Site Production of Activated Carbon for Removal of Mercury from Coal Flue Gas

Massoud Rostam-Abadi, Illinois State Geological Survey

Oxidative Hydrothermal Dissolution of Illinois Coal

Ken Anderson, SIUC Geology

**Coal Chemistry
Funded Projects for FY08**

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**Environmentally Benign Production of High Yield Value Chemicals
from Illinois Coal**

Ken Anderson, SIUC Geology

Coal Gasification- Gasification Economics Recent Projects

2008 Program

Coal Gasification Reforming Using Low-Temperature Plasma

Mike Roberts, Gas Technology Institute

Preparation of NEPA Documents for the Mattoon and Tuscola Sites for the FutureGen Project

Chris Burger, Patrick Engineering

400 Million BTU/Hour Fuel Gas Production Plant for the Gateway Ethanol Project

Dennis d'Ambrosi, Econo Power International Corp. (EPIC)

Coal Gasification- Gasification Economics Funded Projects for FY08

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Analysis of Coal Gasification Permitting Issues in Illinois
Steffen Mueller, University of Illinois at Chicago

Coal Gasification- Coal Liquids Recent Projects

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State of Illinois 2006 Participation in Coal Fuels Alliance

Tomasz Wiltowski, SIUC Coal Research

Multifunctional Catalyst/Reactor Development for Product Defined Fischer-Tropsch Synthesis

Tomasz Wiltowski, SIUC Coal Research

No new projects were funded in this area for FY08.

Single Membrane Configuration for Separation of Hydrogen, Carbon Dioxide, and Hydrogen Sulfide

Mike Roberts, Gas Technology Institute

Development of an Integrated Multi-Contaminant Removal Process for Syngas Cleanup

Howard Meyer, Gas Technology Institute

Coal Gasification- Syngas Cleanup Funded Projects for FY08

2008 Program

Integrated Multi-Contaminant Removal Process for Syngas Cleanup – Phase 2

Howard Meyer, Gas Technology Institute

**An Assessment of Geological Carbon Sequestration Options in the
Illinois Basin: Phase II**

Robert Finley, Illinois State Geological Survey

**Prediction of Gas Quality and Flow “Trend” in Coalbed Methane
Operations in Southern Illinois**

Satya Harpalani, SIUC Mining Engineering

**An Assessment of Geological Carbon Sequestration Options in the
Illinois Basin: Phase II**

Robert Finley, Illinois State Geological Survey

**Assessment of Gas in Place and Production in Illinois CBM
Reservoirs**

Satya Harpalani, SIUC Mining Engineering

**Development of Concrete Composites made with Illinois CCBs
Having Potential for Commercial Use**

Sanjeev Kumar, SIUC Civil Engineering

**Evaluation of Sulphate Attack from Illinois Fly Ash on Concrete
Structures**

Sanjeev Kumar, SIUC Civil Engineering

Value-Added Products from FGD Sulfite-Rich Scrubber Material

Vik Malhotra, SIUC Physics

Coal Residuals Management Funded Projects for FY08

2008 Program

No new projects were funded for FY08

Exploratory Research Recent Projects

2008 Program

Dynamic Modeling of a Fluidized-Bed Fischer-Tropsch Reactor

Kanchan Mondal, SIUC – Mechanical Engineering

Cost and Environmental Impacts on Out-of-Seam Dilution on Illinois Clean Coal

Amit Patwardhan, SIUC – Mining Engineering

Exploratory Research Funded Projects for FY08

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Effect of Preparation Plant Water Recycling on As-Shipped Mercury Content

Chris Manrique, Dynamic Separations Inc.

A Novel Photocatalytic Process for the Conversion of Carbon Dioxide to Methanol

Tomasz Wiltowski, SIU Coal Research Center

Suitability of Illinois Coal for a Multipurpose Coke Facility

Robert Kramer, Purdue University

A Novel Process for De-Sulfurizing and De-Ashing Illinois Coal

Joseph Pomykala, Argonne National Laboratory

A Synergistic Analysis of Coal Based IGCC and Corn Based Ethanol Production

Donald Chmielewski, Illinois Institute of Technology

Exploratory Research Funded Projects for FY08

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Electrochemical Method for Chloride Removal from Wet FGD Liquids

Chris Martin, University of North Dakota EERC

Distribution and Mode of Occurrence of Sulfur and Trace Elements in Illinois Coal

Lilly Lefticariu, SIUC Geology

Fundamental Studies of Electro-Separation

Asghar Esmaaeli, SIUC Mechanical Engineering

Bamboo Derived Sorbent Cartridge (BDSC) for Mercury Removal from Flue Gases and Water

Jarlen Don, SIUC Mechanical Engineering

Environmental Analysis of Illinois Coal Entry into the Transportation Market

James Mathias, SIUC Mechanical Engineering