



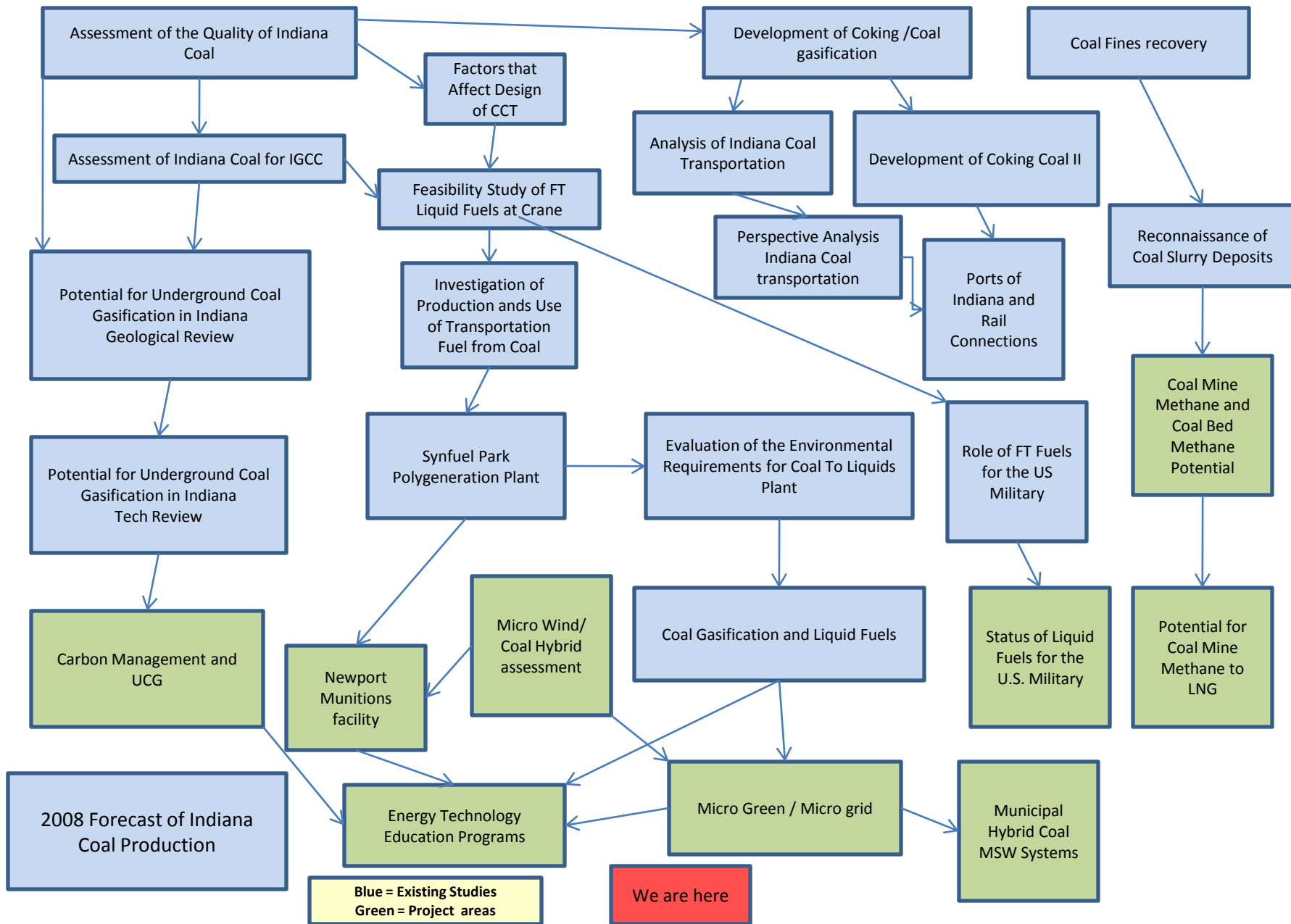
Indiana Center for Coal Technology Research

Located within the Energy Center in Discovery Park, Purdue University

CCTR Past, Present, and Future

Where do we go from here?

Where We are and How we Got Here



CCTR Basic Facts

- [File #1 - "Coal Gasification & Fischer Tropsch"](#)
- [File #2 - "Basic Mercury Data & Coal Fired Power Plants"](#)
- [File #3 - "Coal-To-Gas & Coal-To-Liquids"](#)
- [File #4 - "Technologies for CO2 Capture From Electric Power Plants"](#)
(updated 03/27/08)
- [File #5 - "Sulfur Dioxide Control Technologies in Electric Power Plants"](#)
- [File #6 - "Coal Utilization By-Products"](#)
- [File #7 - "Coal Transportation Economics"](#)
- [File #8 - "Coal Characteristics"](#) (updated 10/08)
- [File #9 - "Coal Reserves"](#) (updated 10/08)
- [File #10 - "What to do with CO2"](#) (updated 02/19/08)
- [File #11 - "Coal by Wire & MISO"](#)
- [File #12 - "Underground Coal Gasification \(UCG\)"](#) (updated 10/06/08)
- [File #13 - "Coal Mine Site Selection"](#) (new 08/27/08)

2009 Reports

2009 Indiana Coal Report

Estimating the State and Regional Benefits of the Mining and Use of Illinois Basin Coals ~

F.T. Sparrow, F.T. Sparrow & Associates (September 2009)

Oxy-Fuel Combustion: Laboratory and Pilot Scale Experiments ~ *E.J. Miklaszewski, Y. Zheng, and S.F. Son, School of Mechanical Engineering, Purdue University (July 2009)*

The Potential for Underground Coal Gasification in Indiana ~ *Evgeny Shafirovich, Arvind Varma, School of Chemical Engineering, Purdue University; Maria Mastalerz, Agnieszka Drobniak, John Rupp, Indiana Geological Survey, Final Report (March 2, 2009)*

2008 Final Reports

- [Assessment of the Quality of Indiana Coals for Integrated Gasification Combined Cycle \(IGCC\) Performance](#) ~ Maria Mastalerz, Agnieszka Drobniak, John Rupp and Nelson Shaffer, Indiana Geological Survey (November 2008)
 - [Appendix 1 - Coal supply and demand in Indiana](#)
 - [Appendix 2 - Coal, electricity and gas transportation systems in Indiana](#)
 - [Appendix 3 - Major point sources of CO2 emissions](#)
 - [Appendix 4 - Indiana Railroad System](#)
 - [Appendix 5 - Danville coal maps](#)
 - [Appendix 6 - Hymera coal maps](#)
 - [Appendix 7 - Springfield coal maps](#)
 - [Appendix 8 - Seelyville coal maps](#)
 - [FINAL85 Figures](#)

Note: Appendices 4, 5, 6, 7, 8 and "FINAL85 Figures" are the six extra files that constitute the IGS CCTR Nov 2008 Final Report. Appendices 1, 2, and 3 are additional files that are not part of this CCTR Nov 2008 Final Report.
- [The 2008 Forecast of Indiana Coal Production & Use](#) ~ F.T. Sparrow, F.T. Sparrow & Associates (July 2008)
- [Coal Gasification and Liquid Fuel - An Opportunity for Indiana](#) ~ Science Applications International Corporation (July 2008)
- [Evaluation of the Environmental Requirements to Construct and Operate a Coal-To-Liquids Plant](#) ~ Science Applications International Corporation (February 2008)
- [Synfuel Park/Polygeneration Plant: Feasibility Study for Indiana](#) ~ Paul V. Preckel and Zuwei Yu, Purdue University; John A. Rupp and Fritz H. Hieb, Indiana Geological Survey (Revised June 26, 2008) [Click here for Appendices A-D](#) ~ [Click here for Appendix E](#)
- **2008 Interim Reports** [The Potential for Underground Coal Gasification in Indiana](#), Phase I Report ~ Shafirovich, Mastalerz, Rupp, and Varma, August 31, 2008
- [The Potential for Underground Coal Gasification in Indiana](#), Phase II Report ~ Mastalerz, Drobniak, Rupp, Shafirovich, and Varma, December 1, 2008

2007 Final Reports

- [Investigating the Production and Use of Transportation Fuels from Indiana Coals](#) ~ *Ribeiro et al., Purdue University, March 1, 2007*
- [A Feasibility Study for the Construction of a Fischer-Tropsch Liquid Fuels Production Plant with Power Co-Production at NSA Crane \(Naval Support Activity Crane\)](#) ~ *CCTR, SUFG, and IGS, May 31, 2007*
- [A Prescriptive Analysis of the Indiana Coal Transportation Infrastructure](#) ~ *Thomas F. Brady and Chad M. Pfitzer, Purdue University, May 2007* [Click here for Appendix 1](#) ~ [Click here for Appendix 2](#)
- [Reconnaissance of Coal-Slurry Deposits in Indiana](#) ~ *Denver Harper, Chris Dintaman, Maria Mastalerz, and Sally Letsinger, Indiana Geological Survey, Indiana University, August 2007*
- [Development of Coking/Coal Gasification Concept to Use Indiana Coal for the Production of Metallurgical Coke, Liquid Transportation Fuels, Fertilizer, and Bulk Electric Power \(Phase II\)](#) ~ *Robert Kramer, Purdue University Calumet, September 30, 2007*

2006 Reports

- [2006 Indiana Coal Report](#)
 - **2006 Interim Reports**
- [Potential for Fine Coal Recovery from Indiana's Coal Settling Ponds](#)
~ *R.E. Mourdock & Associates LLC*
- [A Prescriptive Analysis of the Indiana Coal Transportation Infrastructure"](#) ~ *Thomas F. Brady and Chad M. Pfitzer*
- [Investigating the Production and Use of Transportation Fuels from Indiana Coals](#) ~ *F.T. Sparrow, et al.*

2005 Reports

2005 Interim Reports

- ["Assessment of the Quality of Indiana Coals for Integrated Gasification Combined Cycle Performance; Analysis of the existing data and proposal of new research."](#) ~ *Maria Mastalerz, Indiana Geological Survey*
- ["Factors that Affect the Design and Implementation of Clean Coal Technologies in Indiana."](#) ~ *Ronald L. Rardin, Purdue Energy Modeling Research Groups*
- ["Development of Coking / Coal Gasification Concept to Use Indiana Coal for the Production of Metallurgical Coke and Bulk Electric."](#) ~ *Robert Kramer, Energy Efficiency & Reliability Center, Purdue Calumet*

2005 Final Reports

- ["Assessment of the Quality of Indiana Coals for Integrated Gasification Combined Cycle Performance; Analysis of the existing data and proposal of new research."](#) ~ *Maria Mastalerz, Indiana Geological Survey*
- ["Factors that Affect the Design and Implementation of Clean Coal Technologies in Indiana."](#) ~ *Ronald L. Rardin, Purdue Energy Modeling Research Groups*
- ["Development of Coking / Coal Gasification Concept to Use Indiana Coal for the Production of Metallurgical Coke and Bulk Electric."](#) ~ *Robert Kramer, Energy Efficiency & Reliability Center, Purdue Calumet*

Special Reports & Papers

["A Primer on Market-Based Approaches to CO2 Emissions Reductions"](#) ~ *Purdue Climate Change Research Center Policy Brief* (September 2007)

["The Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations"](#) ~ *Kenneth R. Richards and Stephanie Hayes Richards, Indiana University* (April 2009)

[CTI & FT Fuels at NSA Crane Feasibility Study](#) ~ *Marty W. Irwin and Brian H. Bowen, CCTR* (May 31, 2007)

["Sustainable Fuel for the Transportation Sector"](#) ~ *Proceedings of the National Academy of Sciences* (March 2007)

["Expanding the Utilization of Indiana Coals"](#) ~ *Brian H. Bowen, Forrest D. Holland, F.T. Sparrow, Ronald Rardin, Douglas J. Gotham, Zuwei Yu, Anthony F. Black* (August 18, 2004; Revised August 27, 2008)

["Characterization of Indiana's Coal Resource; Availability of the Reserves, Physical, and Chemical Properties of Coal, and Present and Potential Uses"](#) ~ *Maria Mastalerz, Agnieszka Drobniak, John Rupp, and Nelson Shaffer* - *Indiana Geological Survey, Indiana University, 611 North Walnut Grove, Bloomington, IN 47405-2208* (July 2004)

Staff Presentations 2009

- ["COAL: Part of the Solution, Part of the Problem, or Both?"](#) F.T. Sparrow, CCTR, presented to WALLA, West Lafayette, IN, November 10, 2009.
- ["Power Generation & CO2 Emissions in Indiana,"](#) Zekarias Hussein, Department of Agricultural Economics, Purdue University, presented at the CCTR Advisory Panel Meeting, Vincennes University, Vincennes, IN, September 10, 2009.
- [Site visit presentation to Babcock & Wilcox Power Generation Group,](#) Barberton, Ohio, May 26, 2009.
- [21st Century Coal Technology for Indiana,"](#) Brian H. Bowen, presented to the Kazakhstan Visiting Team to Purdue Energy Center, West Lafayette, IN, May 6, 2009.
- ["Coal: Meeting Future Energy Needs in an Economic and Environmentally Sound Manner,"](#) Marty W. Irwin, presented at the Environmental Science and Policy Seminar, School of Public and Environmental Affairs, Indiana University, Bloomington, IN, March 5, 2009.
- ["Energy Technology Efficiency, Economics & Environment,"](#) Brian H. Bowen, presented to the Purdue Energy Club Meeting, February 26, 2009.

Staff Presentations 2008

- [Underground Coal Gasification \(UCG\),](#) Brian H. Bowen, presented to Heritage Research Laboratory, Indianapolis, October 21, 2008.
- ["Now Is the Time, Indiana Is the Place,"](#) Marty W. Irwin, Director, CCTR, presented to the Indiana State Department of Agriculture, July 15, 2008.
- ["Now Is the Time, Indiana Is the Place,"](#) Marty W. Irwin, Director, CCTR, presented at the CCTR Advisory Panel Meeting, Bloomington IN, June 5, 2008.
- ["Coal Gasification ... Now is the Time ... Indiana is the Place,"](#) B. Bowen and M. Irwin, Indiana Center for Coal Technology Research, presented at the TATA Chemicals Innovation Centre Visit, Purdue University, West Lafayette, IN, May 22, 2008.
- ["Indiana's Stake in the CO2 Control Debate,"](#) M. Irwin, Director, Indiana Center for Coal Technology Research, presented at the CCTR Advisory Panel Meeting, Indianapolis, IN, March 6, 2008.
- ["CCTR & Indiana's Clean Coal Initiative,"](#) B. Bowen, Indiana Center for Coal Technology Research, W. Lafayette, IN, presented at the ASME Central Indiana Section meeting, Indianapolis, IN, January 16, 2008

Staff Presentations 2007

- [“Indiana Coal is Economic Development,”](#) M. Irwin, CCTR, presented at the Energy Summit for Southwestern Indiana, Evansville, IN, August 30, 2007.
- [“Indiana’s Growth and Coal Development: Minerals matter,”](#) M. Irwin, CCTR, presented at the National Minerals Education Conference, Bloomington IN, June 25, 2007.
- [“Synfuel Park for NSA Crane Feasibility Study,”](#) M. Irwin and B. Bowen, CCTR, presented at the CCTR Advisory Panel Meeting, Purdue North Central, Westville IN, June 5, 2007.

Staff Presentations 2006

- [“Challenges of U.S. Energy Goals: Determinism, Stewardship, Technology,”](#) Brian Bowen, presented at The Richard G. Lugar Symposium for Tomorrow’s Leaders, University of Indianapolis, December 9, 2006.
- [“Indiana Coal is Economic Growth,”](#) Marty W. Irwin, presented to the Indiana Coal Council, Indianapolis, December 7, 2006.
- [“The Future of Illinois Basin Coal Feedstock,”](#) F.T. Sparrow, presented to the Indiana Society of Mining and Reclamation, Jasper IN, December 5, 2006. INDIANA COAL REPORT 2009 *APPENDICES A-6*
- [“Future U.S. Energy Supplies,”](#) Brian H. Bowen, presentation at Huntington University, Huntington IN, November 21, 2006.
- [“Coal Essentials for the Future,”](#) Marty W. Irwin, Director, CCTR, presented at the CCTR Advisory Panel Meeting, West Lafayette IN, August 30, 2006, and National Governors Association, Best Practices, Dover Delaware September 2006
- [“2006 Activities Update,”](#) Marty Irwin, CCTR Director, presented at the CCTR Advisory Panel Meeting, Terre Haute IN, June 1, 2006.
- [“CCTR Activities in 2006,”](#) Marty Irwin, Director, CCTR, Energy Center at Discovery Park, Purdue University, presented at the CCTR Advisory Panel Meeting, Indianapolis IN, February 28, 2006.

Staff Presentations 2005

- [“The 2005 Energy Policy Act Illinois Basin Coal Indiana Perspective,”](#) Marty W. Irwin, Director, Center for Coal Technology Research, Purdue University, presented at the Clean Coal for Transportation Fuels Workshop, Purdue University, December 2, 2005.
- [“The Future of Indiana Coal,”](#) F.T. Sparrow presentation to the Indiana Chamber of Commerce, Energy Committee, Indianapolis IN, October 30, 2005.
- [“Indiana Center for Coal Technology Research, Round 2 Research Topics, 2005,”](#) CCTR Staff Presentation, presented at the CCTR Advisory Panel Meeting, Bloomington IN, June 10, 2005.
- [“Activities of the Center Technology Research; 2002 to Present,”](#) F.T. Sparrow presentation to the Indiana Energy Association, Indianapolis IN, November 30, 2004.

Guest Speaker Presentations

[“Coal Transportation in Indiana,”](#) Keith Bucklew, Indiana Department of Transportation, Freight Mobility, presented at the CCTR Advisory Panel Meeting and Briefing, Hammond, IN, December 11-12, 2008.

[“Business, Energy & the Environment: Fighting the Good Fight,”](#) Frank Maisano, Bracewell & Giuliani LLP, presented at the CCTR Advisory Panel Meeting and Briefing, Hammond, IN, December 11-12, 2008.

[“Ports of Indiana: Connecting Indiana to the World,”](#) Jody Peacock, Ports of Indiana, presented at the CCTR Advisory Panel Meeting and Briefing, Hammond, IN, December 11-12, 2008.

[“Coal Gasification in Indiana: Solutions for a Low Carbon Footprint Environment,”](#) Christopher Peters, CHOREN USA, presented at the CCTR Advisory Panel Meeting and Briefing, Hammond, IN, December 11-12, 2008.

[“Coal and the Economy,”](#) **Robert W. Shanks, Arch Coal Inc.,** presented at the CCTR Advisory Panel Meeting and Briefing, Hammond, IN, December 11-12, 2008.

[“CO2 Transportation,”](#) Ken Havens, Kinder Morgan Energy Partners, presented at the CCTR Advisory Panel Meeting, Bloomington, IN, June 5, 2008.

Guest Speaker Presentations

- [“Kentucky Carbon Sequestration Activities and the National Research Council Recommendations for Coal Research Priorities,”](#) James Cobb, Kentucky State Geological Survey, presented at the CCTR Advisory Panel Meeting, Bloomington IN, June 5, 2008.
- [“A Regional Concept for a CO2 Pipeline Network,”](#) Klaus Lambeck, Ohio Siting Authority, presented at the CCTR Advisory Panel Meeting, Bloomington IN, June 5, 2008.
- [“EOR: The Economically Viable CCS Solution,”](#) Denbury Resources, presented at the CCTR Advisory Panel Meeting, Bloomington IN, June 5, 2008.
- [“The Anatomy and Evolution of U.S. Climate Change Bills in the U.S. Senate,”](#) Ken Richards, School of Public & Environmental Affairs, Indiana University, presented at the CCTR Advisory Panel Meeting, Bloomington IN, June 5, 2008.
- [“CHOREN Industries Company Presentation,”](#) Christopher Peters, CHOREN USA, Houston, TX, seminar at Purdue University hosted by CCTR and the Energy Center, West Lafayette, IN, May 12, 2008.

Guest Speaker Presentations

- [“CO2 Capture from Existing Coal-Fired Power Plants,”](#) Jared Ciferno, National Energy Technology Laboratory, Pittsburgh, PA, presented at the CCTR Advisory Panel Meeting, Indianapolis, IN, March 6, 2008.
- [“Carbon Management & Underground Coal Gasification,”](#) S.J. Friedmann, Lawrence Livermore Laboratory, Livermore, CA, presented at the CCTR Advisory Panel Meeting, West Lafayette, IN, December 11, 2007.
- [“An Overview of Clean Coal Research at CAER,”](#) Donald Challman, Center for Applied Energy Research (CAER), University of Kentucky, presented at the CCTR Advisory Panel Meeting, Vincennes University, Vincennes IN, September 6, 2007.
- [“Illinois Clean Coal Research,”](#) R.H. Carty, Illinois Clean Coal Institute, presented at the CCTR Advisory Panel Meeting, Purdue North Central, Westville IN, June 5, 2007.
- [“Indiana’s New Air Quality Rules for Utilities,”](#) Kathryn Watson, Office of Air Quality, IDEM, presented at the CCTR Advisory Panel Meeting, Indianapolis IN, March 1, 2007. INDIANA COAL REPORT 2009 APPENDICES A-4
- [“Indiana Coal to SNG,”](#) John Clark, Director, Indiana Office of Energy and Defense Development, presented at the CCTR Advisory Panel Meeting, Hammond IN, December 6, 2006.
- [“The Role of Fischer Tropsch Fuels for the US Military,”](#) William E. Harrison III, Air Force Research Laboratory, Wright-Patterson AFB, presented at the CCTR Advisory Panel Meeting, West Lafayette IN, August 30, 2006.