

Environmental Issues and Fischer-Tropsch Commercialization

**CCTR Advisory Panel Meeting
Terre Haute, June 1, 2006**

Linda S. Lee

Department of Agronomy

lslee@purdue.edu (765-494-8612)

<http://www.purdue.edu/DP/environment/>

Environmental Considerations in CTL and Scaling Up the Use of Coal

Expanding the use of coal by using CTL technologies will diversify our energy portfolio, thus potentially enhancing U.S. energy independence and reducing energy price volatility while enhancing economics of IL basin coal. However, the potential environmental or ecological impacts from increased coal mining to gasification byproducts and the public insecurities regarding implications of scaling up CTL needs to be addressed.

Enhance Long Term Success of CTL, F-T Exemplify “Foresight”

- Build Environmental Criteria into Design
- Enhance public support
- Avoid expensive retrofiting
- Avoid need for remediation
- Avoid public backlash regarding siting and operation of facilities

Generating and applying sound science will win socio-political favor, minimize barriers, and reduce legacy problems to future generations.

Environment & Health

- Scale
- Air Emissions (*Total must be considered*)
 - Criteria air pollutants
 - GHG (CO₂, CH₄, N₂O)
- Water Use
- Water Quality Impacts
- Placement of Production Facilities
- Biofuels *versus...and...* CTL fuels?

CTL F-T Opportunities

- CTL-FT production involves mobilization of large quantities of raw materials
- Not all raw materials are incorporated into final products
- Couple fuel production with other production systems
- Create useful co-products from wastes – resulting in added value and reduction of adverse environmental impacts

Three Essential Objectives

- Identify air and water pollution emissions during the CTL, F-T operation
- Identify material flow including inputs and by-products/wastes
- Develop a project agenda for beneficial reuse of wastes and mitigation of associated environmental hazards

Expected Outcomes & Potential Impacts

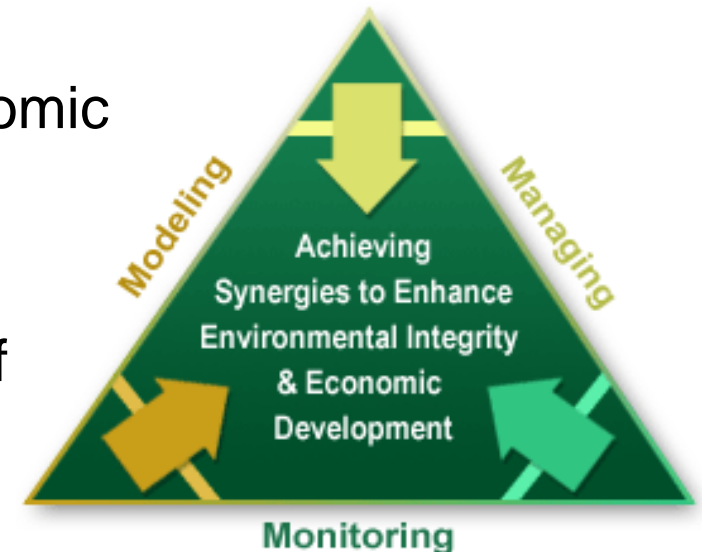
- Material Throughput Model
- Catalogue of potential environmental concerns for use in prioritizing research towards simultaneous economic and environmental enhancements
- Cooperative research agenda

Consider Unusual Partnerships Potential Win-Win Opportunities

Co-processing of coal, coal refuse, and biomass wastes for syngas production?

Center for the Environment Mission

To enhance environmental integrity, economic development, and the quality of life by enlightened stewardship and innovative monitoring, modeling, and management of natural resources.



...protecting environmental integrity is essential to prosperity and the quality of life ...