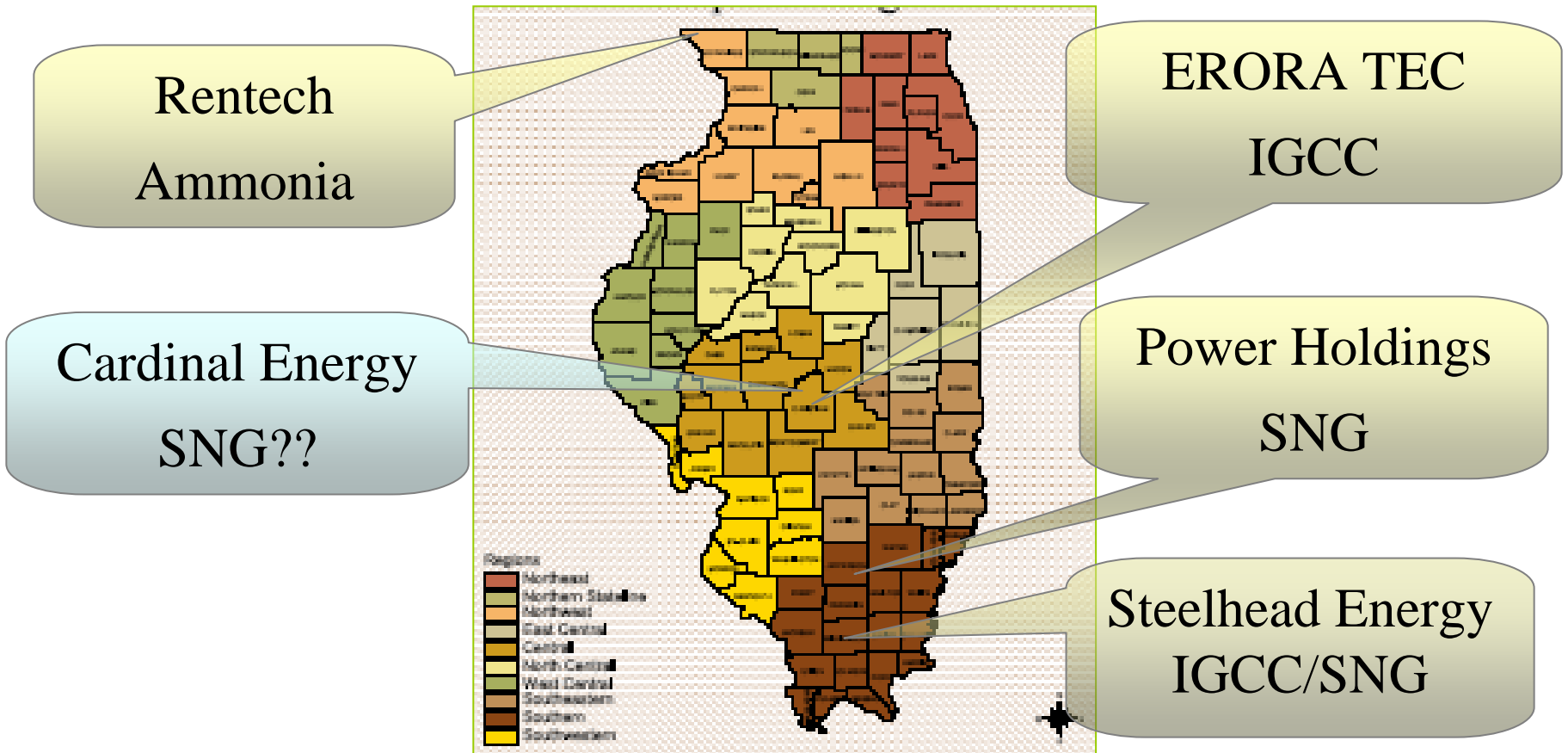


IGCC & Other Coal Gasification Projects In Illinois: An Air Pollution Control Update

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Illinois Coal Gasification Opportunities



Current Permit Applications

Steelhead Energy (Williamson County)

- aka Southern Illinois Clean Energy Center
- SNG & IGCC (638 MW Gross/544 MW Net)
- ConocoPhillips Technology
- Application Inactive, Steelhead reassessing plans...

Cardinal Energy (6 miles N. of Taylorville, Christian Cty.)

- Proposed SNG only
- Expect Application Soon

Current Permit Applications

(continued)

Taylorville Energy Center – TEC (2 miles N. of Taylorville, Christian County)

- aka ERORA Group; also Christian County Generation
- IGCC (770 MW Gross/630 MW Net)
- GE Gasification Technology
- Corresponding Project in KY – Cash Creek
- Application Active and Progressing

Current Permit Applications

(Continued)

Power Holdings (Mt. Vernon, Jefferson County)

- SNG
- Proposes to Use CO₂ for Oil Recovery
- Will Supply 5% of “natural” gas in the State
- GE Gasification Technology
- Application Active But Progressing Slowly

Rentech (East Dubuque, Jo Daviess County)

- Existing: N.G. to Ammonia Production
- Proposed: Syngas → Ammonia, FT Fuels, 70 MW
- ConocoPhillips Technology
- Application Just Received; Will Net Out of PSD
- Of the Gasification Projects, Appears the Most Definite

Typical Emission Units

	IGCC	SNG
Combustion Turbines/HRSG	X	
Superheaters		X
Auxiliary Boiler(s)	X	X
Flare	X	X
Cooling Tower(s)	X	X
Sulfur Conversion/Recovery	X	X
Startup Scenario	X	X
Coal Handling	X	X
Emergency Generator	X	X
Diesel Fire-Water Pump	X	X

Maximum Emissions, tons per year

Pollutant	TEC (IGCC) (2 Million tpy Coal) Selexol – 99.8%	Power Holdings (SNG) (3.5 Million tpy Coal) Rectisol – 99.9%
NO _x	633	151
SO ₂	304	603
PM ₁₀	163	172
CO	923	866
VOM	29	73
H ₂ SO ₄	66	33

IGCC BACT Rates – Combustion Turbines, lb/mmBtu (Warning! – fuels & averaging times vary)

	Tampa Electric (Coal/pet)	Wabash River (pet/Coal)	Global Energy (Waste Coal)	Steelhead Energy (Ill #6)*	TEC (Ill #6)*
NO _x	0.08	0.15	0.097	0.059	0.0246
SO ₂	0.17	0.10	0.021	0.033	0.0117
PM ₁₀	0.13	0.005	0.010	0.00924	0.0063
CO	0.041	0.056**	0.137	0.04	0.036
VOM	0.0012	0.0021**	0.0082	0.0031	0.0017
H ₂ SO ₄	---	---	---	0.0042	0.0026

* Proposed BACT Rate

**Test Results

Notable Review Issues for IGCC:

1. Should SCR be Required as BACT for Combustion Turbines? (Actually, this entails the use of Selexol for sulfur cleanup of the raw fuel gas)
IEPA asked TEC about SCR as possible BACT, which they then chose to adopt
Rumblings from USEPA that SCR may be BACT
2. To avoid backsliding, IEPA still requires companies who propose PC (or CFB) boilers to consider IGCC in analysis
3. Endangered Species Act consultation (IEPA administers PSD under delegation)

As regulators, be prepared for:

- Gaps – Request for Additional Information
- Downtime / Delays... Fits & Starts
- Revisions
- Paperwork / Documentation
- USEPA HQ Rulings

Summary

- Despite Illinois' Desire for New IGCC/SNG Plants, Proposals Seem to Face Slow Going (why? - PSD details, \$\$, design changes)
- Rentech May Be the Exception (commitment plus netting out of PSD helps, too!)