

GE Energy Financial Services

Coal: A fuel for all seasons

**Presented to 2006 EIA Energy Outlook
and Modeling Conference**

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March 27, 2006**



GE- The Right Mix for Growth

GE Key Facts/Honors:

- Founded by Thomas Edison in 1878 as the Edison Electric Co.
- Only company still listed in Dow Jones Industrial Index since 1896
- 6 global businesses operating in more than 100 countries
- 315,000 employees worldwide
- \$149.7 billion in revenues, 2005
- AAA Rated
- World's Most Respected Company (1999-2004) Financial Times
- Global Most Admired Company (2005) Fortune Magazine

GE Infrastructure



Energy Financial Services

GE Industrial



Energy

GE Commercial Finance



Water

GE Consumer Finance



Oil & Gas

GE Healthcare



Rail

NBC Universal



Aircraft Engines



Aviation Financial Services

GE Is Delivering Gasification Solutions Worldwide

Licensing to Turnkey IGCC Plants



Coal to Chemicals - Coal to Liquids

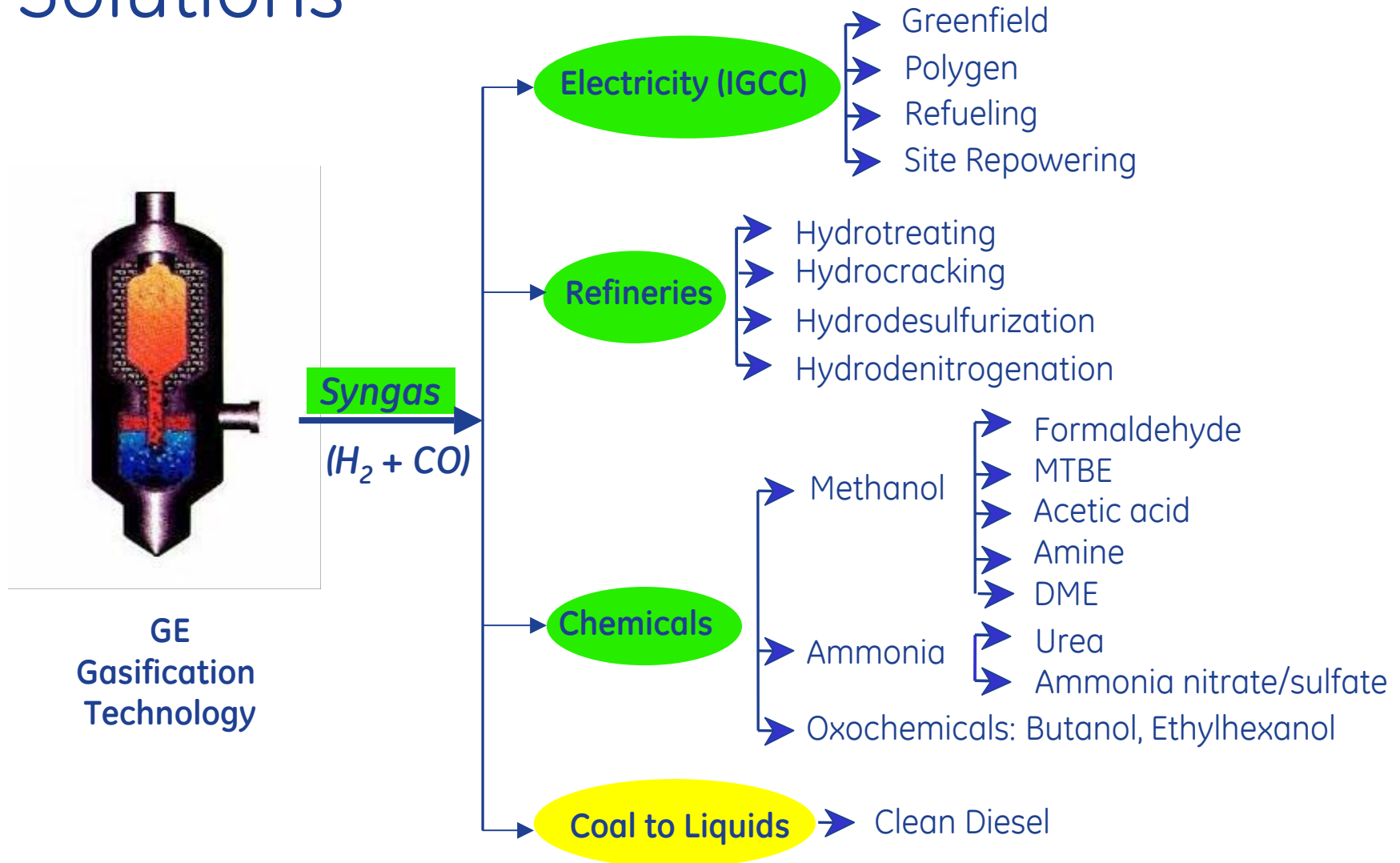


Electricity (IGCC)

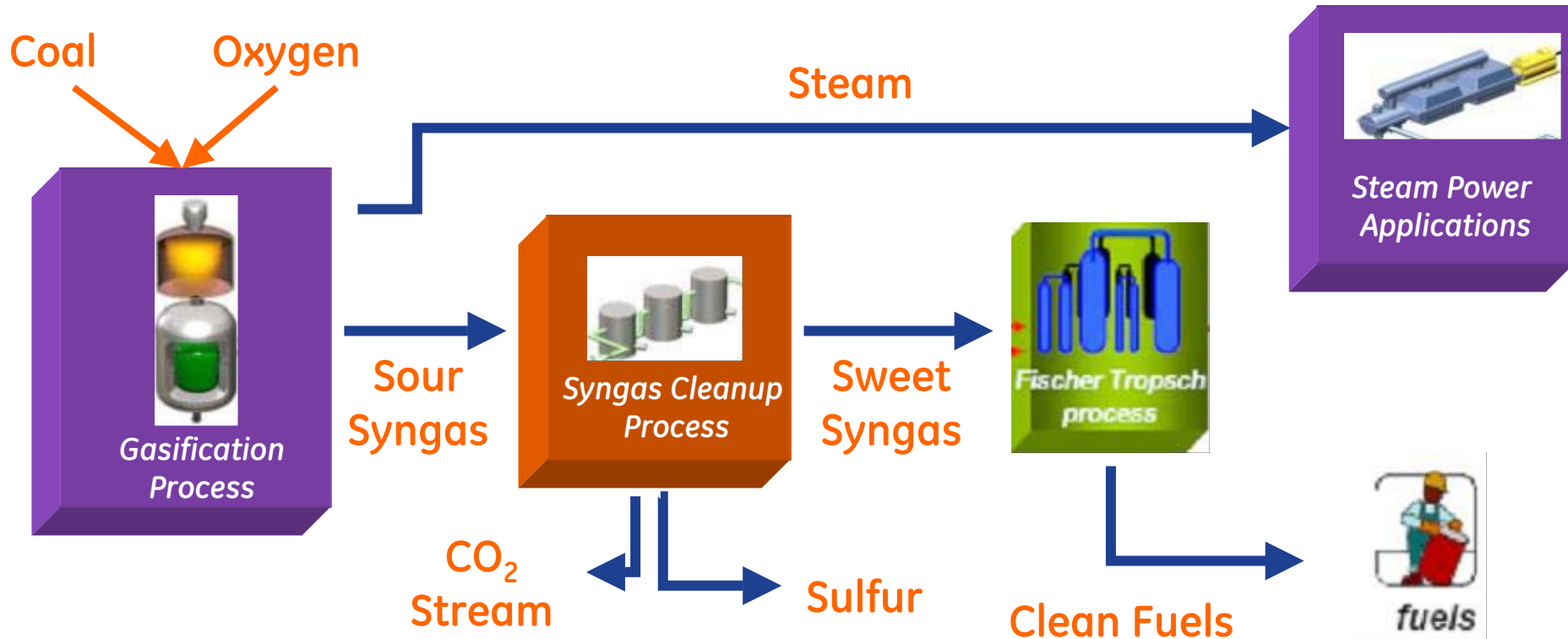


Polygeneration

Gasification–Multiple Cleaner Coal Solutions



Coal-to-Liquids Process



CTL Technology

- Coal gasification produces syngas - $\text{CO} + 2 \text{H}_2$
- Common FT Technology converts syngas to liquids
- Tail gas opportunity fuel for power generation

CTL Environment Risk Assessment

PRB Minemouth 80,000 bbl/d Coal-to-Liquids Plant

22MM TPY of CO₂ emissions

- Sasol CTL in South Africa is the largest single point source of CO₂ in the world
- Carbon capture will be a requirement

6 B gal/y of makeup water used

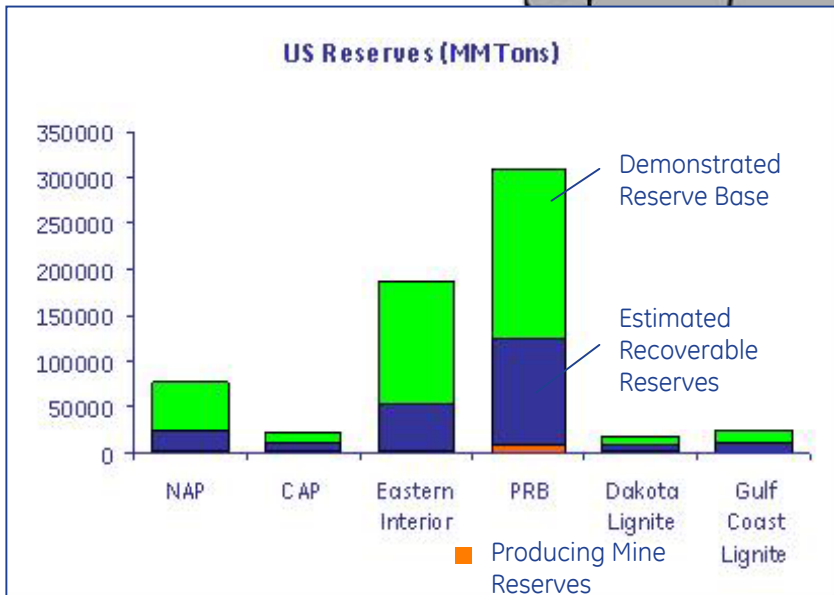
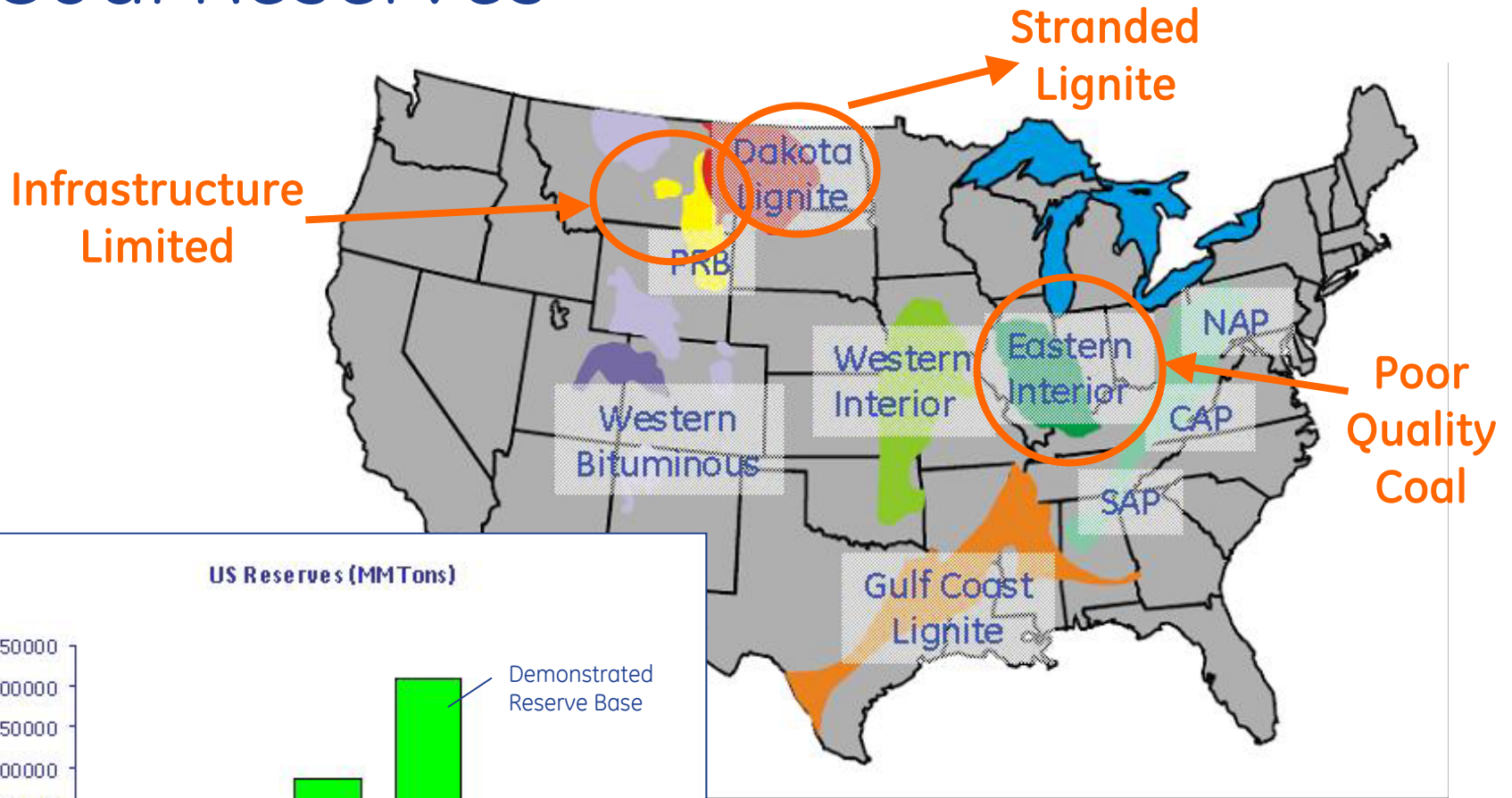
- Western US is water scarce
- Zero liquid discharge is possible requirement

20MM TPY of coal consumed

- Must have dedicated mines

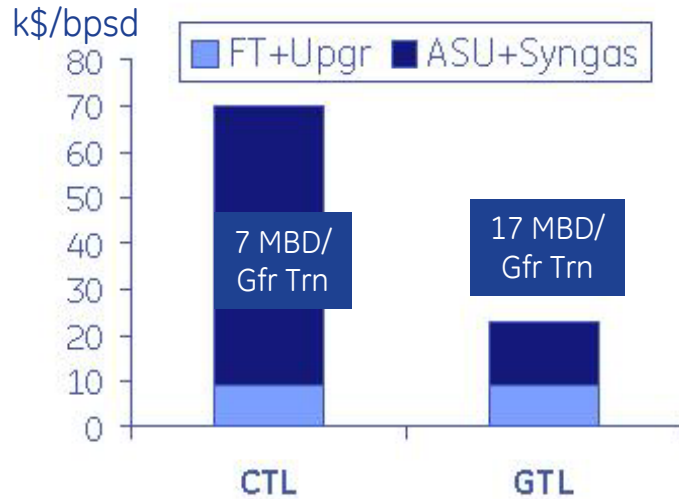
Source: Northern Plains
Resource Council, 2005

Coal Reserves



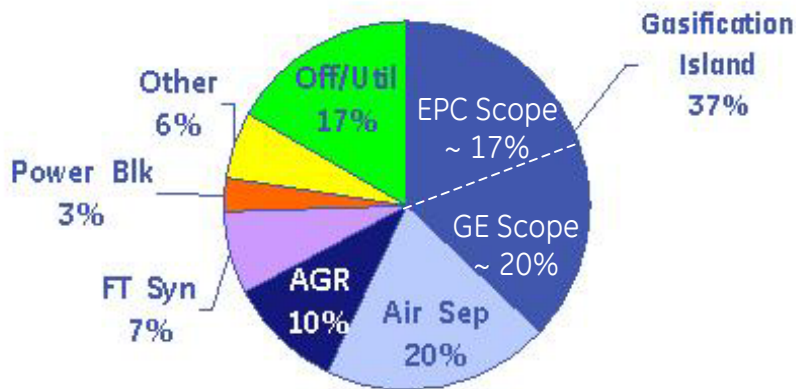
CTL Economics

Capital Cost

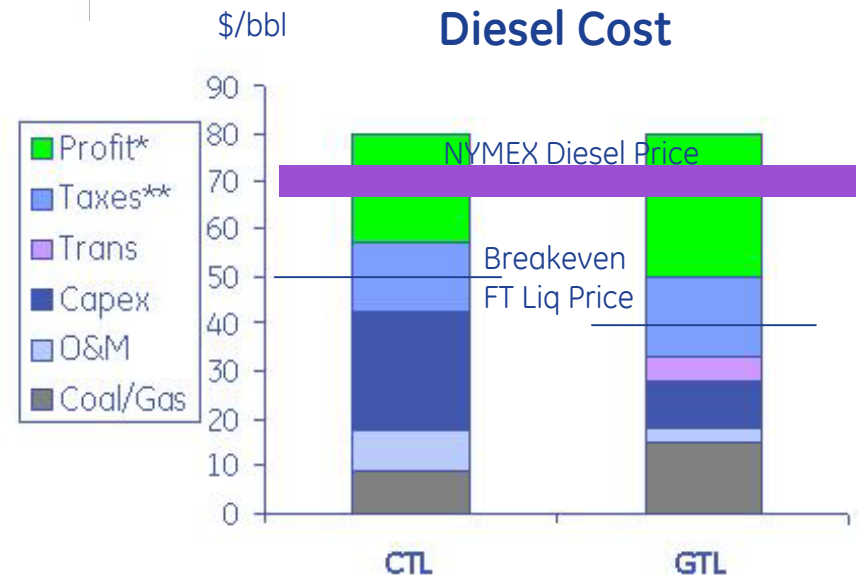


\$2-3B CTL Plant Equivalent to 3 600MW IGCC Plants breakeven oil price - \$35-40/bbl

CTL Capital Costs



Diesel Cost



* Based on 10% premium for FT diesel over NYMEX diesel

** Based on host country laws/agreement for GTL - (potential gas price increase).

(Source: GTL - E-Metaventure Inc., 2003, Sasol UBS Global Oil & Gas Conf, Sep 2005)

What would it take to replace 8 MMbbl/d of crude imports with coal?

James Roberts of Foundation coal recently estimated:

- 1.9 billion ton increase in coal production
- 217 new coal mines (net)
- 62,557 new coal miners
- \$59 billion in new supply side investment
- \$545 billion capital cost for CTL facilities

What is the lead time required to develop 100 new 80,000 bbl/d CTL facilities?

How many projects per year is realistic?

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