# 6 on Fortune 500 List (2010)
3rd Largest U.S. Integrated Energy Company
4th Largest Refiner in World
7th Largest Reserve Holder (Non-Govt)
Approximately 29,900 Employees
Operations in nearly 40 Countries

- Oil
- Coal
- Oil Sands
- Natural Gas
- Petroleum Coke
- Transportation Fuels
- Coal Bed Methane
- Gasification
- Electricity
- BioFuels
- LNG
ADVANTAGES

Two stage for carbon conversion and heat recovery efficiency

Separate Fire-tube Syngas Cooler generating HP steam

Dry Char Recycle – No Wastewater Generation, No Carbon Lost

Continuous Slag Removal – No Lock-hoppers

Single Train Capacity to 3000 mTPD on bit Coal and Petcoke
4000 mTPD on Sub-Bituminous
Wabash River IGCC Plant

One of the Cleanest Solid Fuel Power Plants in the World

- Fuel flexibility
  - 1.7 million tons bituminous coal
  - Over 3.5 million tons of petcoke
- 2500 ton/day bituminous coal feed
- Operational since 1995 at Duke Energy’s Wabash River Station
- 262 MWe net output by repowering 1953-vintage PC 100MW STG (+ GTG)
- sgSolutions LLC owns Syngas Plant
- ConocoPhillips provides technical and professional services on site
Project Development in 1991

- Unknown & Unproven Technology
- Mild Natural Gas Price Volatility
- Relatively Immature DOE Program
- Strong Community Support
- 50% Cost Share

- DOE Selection to Start-Up, including NEPA ~ 4 years
1Q2007: General Industry consensus is that 4-8 New, ‘Real’ projects could be starting up 2011-2014.
U.S. Coal Projects

Low Cost Shale Gas
Anti-Coal Movement
Climate Change Regs
Capital Costs
Lack of Load Growth

Coal

Jobs
Incentives to Demonstrate Energy Security
North American Gasification Projects
Current Development Activity?

- CCPI Round 2
- CCPI Round 3
- FLG Round 1
- FLG Round 2
- Industrial CCS
- FutureGen

Projects:
- IGCC
- Ammonia
- CTL
- Chemicals
- Hydrogen
- SNG

General areas of existing and proposed CO2 pipelines
Mesaba Energy Project

Fuel Flexible IGCC
600 MW per Phase
Final EIS received Nov 2009
Kentucky NewGas

- ConocoPhillips and Peabody Energy are co-developers
- Domestic supply of clean natural gas increased by 60-70 BCF annually
- Emissions are 20 times less than a typical pulverized coal plant
- Greater than 90% carbon capture – “storage ready”
Project Overview

- **Oxygen**
- **Coal**
- **Petroleum Coke**
- **ASU**
- **NEW MINE**
- **REFINERY**
- **Slag**
- **METHANATION**
- **GASIFICATION**
- **SYNGAS CONDITIONING**

- 60-70 BCFY of SNG
- 1.8-2.1 TCF over 30 year life

**Outside of Project Scope**

**Fertilizer Feedstocks**
- Ammonium Thiosulfate
- Sulfur

**CO₂ for future EOR or storage**
Electricity produced from Kentucky NewGas with geologic storage results in lower CO$_2$ emissions compared to other fossil fuels.

Source: Battelle Memorial Institute study, 2008
Funded Western KY CO2 test well. Early testing indicates good storage potential.

Negotiating EOR solution

Collaborating to advance framework for permanent CO₂ storage
Sweeny IGCC/CCS Project Update

- 2+1 E-Gas™ Technology gasifiers with 3CGT x 1ST
- 6,900 st/sd pet coke to 693 MW(net)
- 85% CO$_2$ capture – store 5 million Te/yr
- Filing air permit with TCEQ 1Q 2010
Mississippi Gasification Project

- Mississippi Gasification LLC, a Leucadia affiliate
- Petroleum Coke to SNG
- 2+1 E-Gas™ Technology gasification trains
- 123 MM SCF/D SNG Production Capacity
- Carbon Capture to Denbury CO₂ Pipeline
Asia Coal Projects

Low Cost Shale Gas
Anti-Coal Movement
Climate Change Regs
Capital Costs
Lack of Load Growth

Coal

Jobs
Incentives to Demonstrate Energy Security
Load Growth
China’s National Development Reform Council (NDRC) has approved four SNG plants and a dozen more have been announced.
ConocoPhillips E-Gas™ Technology Selected for POSCO Gasification Project


The project, located near POSCO's Gwangyang steel mill near Gwangyang, Korea, will allow POSCO to produce 500,000 metric tons of pipeline quality SNG annually from the gasification of approximately 1.8 million tons of coal. Preliminary design work began in 2008 and site preparation is now underway.

"We look forward to this opportunity to work with POSCO on the first SNG project in Korea," said Mike Swenson, Manager, Power Generation & Technology. "Our E-Gas™ Technology will help them provide clean SNG to fuel industry in their country."

Under the agreement, ConocoPhillips will provide process engineering design and technical support relating to the gasification technology process block of the SNG facility. This process design package will be developed in the company’s Houston offices.

POSCO is one of the world's largest steel makers. Headquartered in Pohang, South Korea, the company has approximately 30,000 employees.
Thank you.

Phil.Amick@ConocoPhillips.com

Commercialization Manager, Gasification