

KENTUCKY PIONEER ENERGY IGCC

- Ultra Clean, High Tech
- Low Cost Power

Trapp, Kentucky
USA

March 4, 2003



GLOBAL ENERGY

ENVIRONMENTAL TECHNOLOGY



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IGCC

- 45x cleaner than Baseload Coal
- 15x cleaner than Clean Air Act Coal



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THE ECONOMIST

July 6th 2002

“It is this idea, known as the integrated gasifier combined cycle (IGCC) approach, that has Environmentalists excited.”

“true visionaries will notice that, since it produces hydrogen, it permits the generation of electricity by fuel cells”

“Fuel cells are a critical component of most projections of what a hydrogen economy might look like.”



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THE ECONOMIST

September 21st – 27th 2002

“The biggest stir of all; however, is coming from a new form of generation called ‘Integrated Gasification Combined Cycle’ (IGCC).”

“A subsidiary of Global Energy is building a second plant, with the help of the Department of Energy, in Trapp, Kentucky.”

“Suddenly, energy engineers are talking about ‘clean coal’ technology being on the brink of commercialization.”



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International Energy Technology Assessment Project

“Since 1973, the Arab nations have refused to supply South Africa with any crude oil. This made the country very dependent on Iranian crude oil supplies. These, in turn, were cut off in 1979. These events brought about serious consideration and implementation of greater use of country’s coal reserves by expanding the synthetic fuels industry.”

Oak Ridge National Laboratory

Lawrence Livermore National Laboratory

Union Carbide Corporation

U.S. Department of Energy

10/81



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The Winchester Sun
February 10, 1999

“WOW! Proposed power plant great news.”

“Hopefully there’ll be no unanticipated delays, because the technology proposed for the new facility has proven itself in power applications around the world.”

“Clark County is now poised to enter the 21st Century embracing technology that a few years ago was only a dream, but which today holds the key for a brighter tomorrow for Kentucky and indeed, the nation!”



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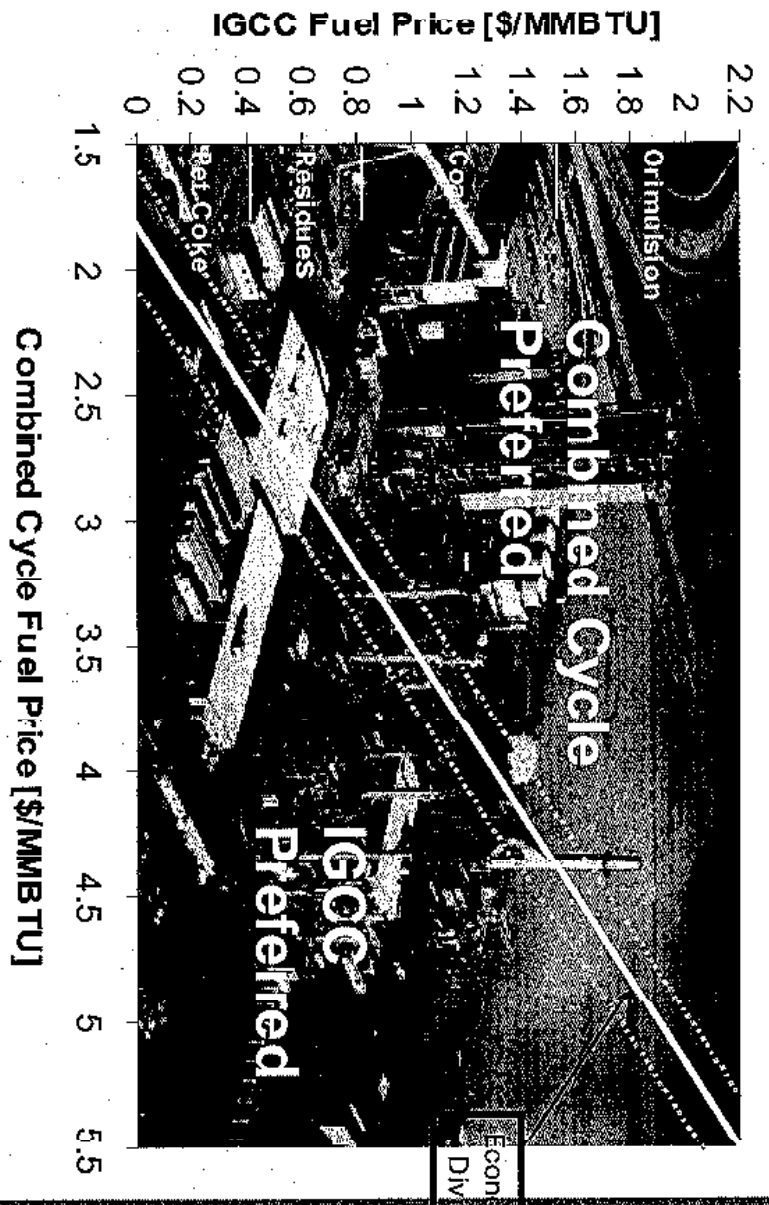
GE Power Systems

IGCC Economics

IGCC versus Conventional Natural Gas Combined Cycle

Economic Comparison of IGCC versus Combined Cycle

based on 2001 real COE for large power plants

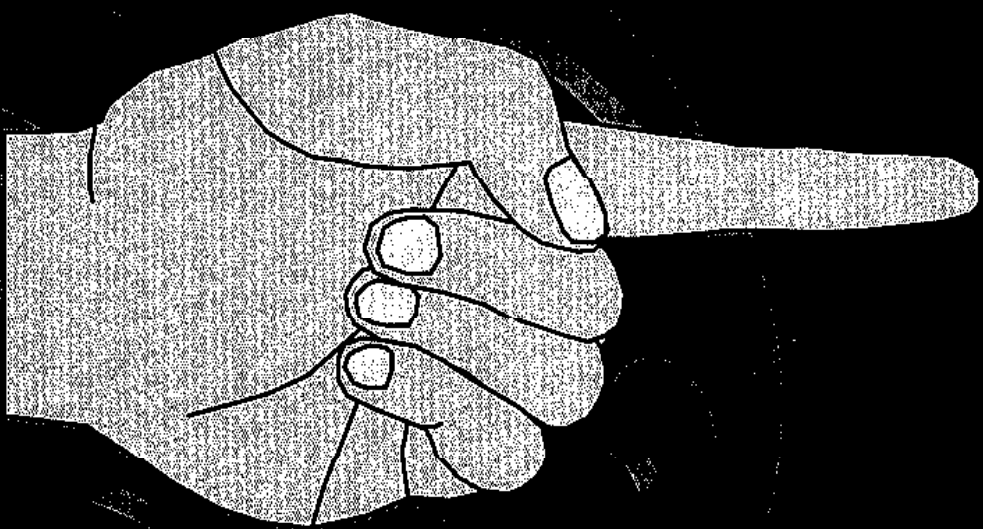


Economic Divide



GE Power Systems

**IGCC is
currently the
most
competitive
new Power
Plant option in
the US.**



IGCC

Improvements vs. First Generation

CAPEX: 35% Reduction

OPEX: 40% Reduction

Source: GE Inc. Operating data and New IGCC EPC.



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America's Solid Fuel

Coal

Pet Coke

Renewables



+ \$1 / mbtu

-\$2 / mbtu

Key to:

- Economic Prosperity
- Energy Security
- Freedom from Imported Fuel



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IGCC: Ultra Clean, High Tech

America's
Solid Fuel

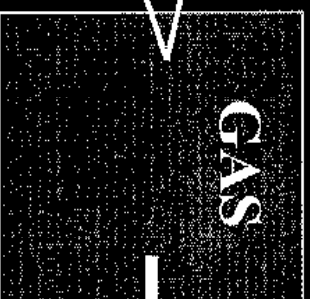
Coal

+ \$1 / mbtu

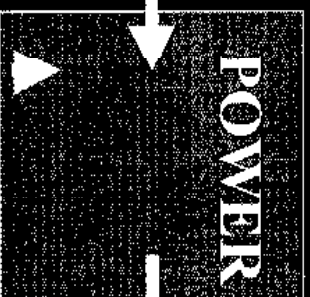


Renewables
- \$2 / mbtu

IGCC



SG



PPA

\$2 / mbtu Converter

NG



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IGCC POWER OPTIONS

- Refuel
- Repower
- Greenfields

Note: IGCC is low cost CO₂ and Mercury Capture Ready.



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IGCC Co-Production Options

1. Power and Hydrogen
2. Power and Ultra Clean Fuels
3. Power and SG (Industry)
SNG (Pipeline)

- Top three Options available now.



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SG vs. NG

2005

NG \$3.50 / mbtu

\$.50 / mbtu spread

SG \$3.00 / mbtu

2010



SG is lower cost and more flexible than NG.



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America's Solid Fuel

- Low Cost
- Price Stability
- Huge Supply in U.S.

History of Liquid (Oil) and Gaseous (Gas) fuels

- Price Volatility
- Supply constraints
- Distribution constraints
- Major Offshore Influence (Geo-Political and Economic)



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Renewable Fuel

- Germany eliminates landfill of MSW by end of 2004; EU to follow.
- Great Britain offers large Renewables Order Credits (ROC's) for Renewables-based generation (IGCC w/ MSW is included.)
- £17 / tonne gate fee to U.K. Government encourages markets to reduce / eliminate landfill.
- If USA matched Great Britain's fee, the U.S. Government would generate \$5 Billion per year and encourage top environmental results.
- America will be cleaner and greener while the energy products are lower cost.



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Kentucky Pioneer Energy IGCC

- \$40MW IGCC using Coal & RDF fuel
- \$61M DOE Award for IGCC
- 20 Year Power Sales Agreement with East Kentucky Power
- Public Service Commission approval of contract - Complete
- Existing power plant site with existing roads, rail, transmission, natural gas and raw water supply
 - \$50M savings to Project
- Air Permits and “Authority to Construct” issued June 2001
- NEPA Completed and Record of Decision received January 2003
- Start of Construction 2nd Half 2003
- Commercial Operations 1st Half 2006



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IGCC: Ultra Clean, High Tech

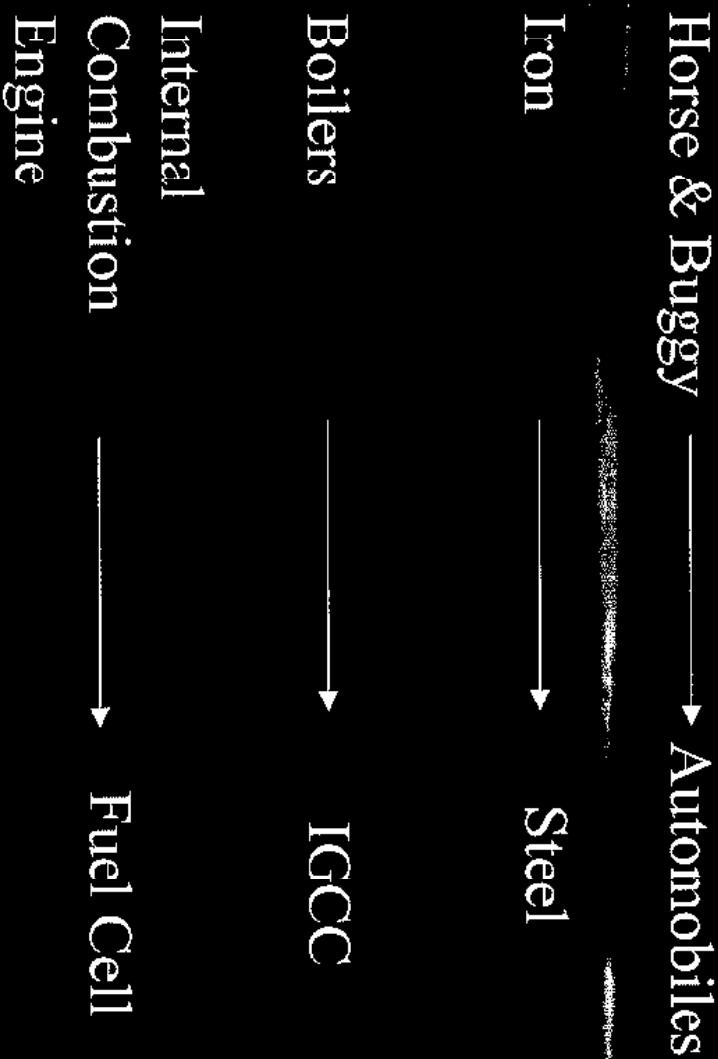
- The Flexible Energy Facility for the future.
- Co-production will enable lower cost products.
- CO₂ and Mercury Capture are readily available and low cost.
- IGCC is bridge to Hydrogen economy from Coal and Renewables.
- SG is the next generation of clean fuel for Power, Gas, and Transportation Fuel Industries.
- SG will enable low cost hydrogen and enable widespread Fuel Cell use for Power and Transportation.
- U.S. EPA must enforce Clean Air Act rules in order to pave the way for IGCC, Fuel Cells and superior environmental results.



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America is built on Technology

Innovation and Revolution



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