

Projects in Development
Kentucky Pioneer Energy
Lima Energy
Gasification Technologies 2001
Panel Discussion
October 9, 2001

RA Bailey, Senior Vice President

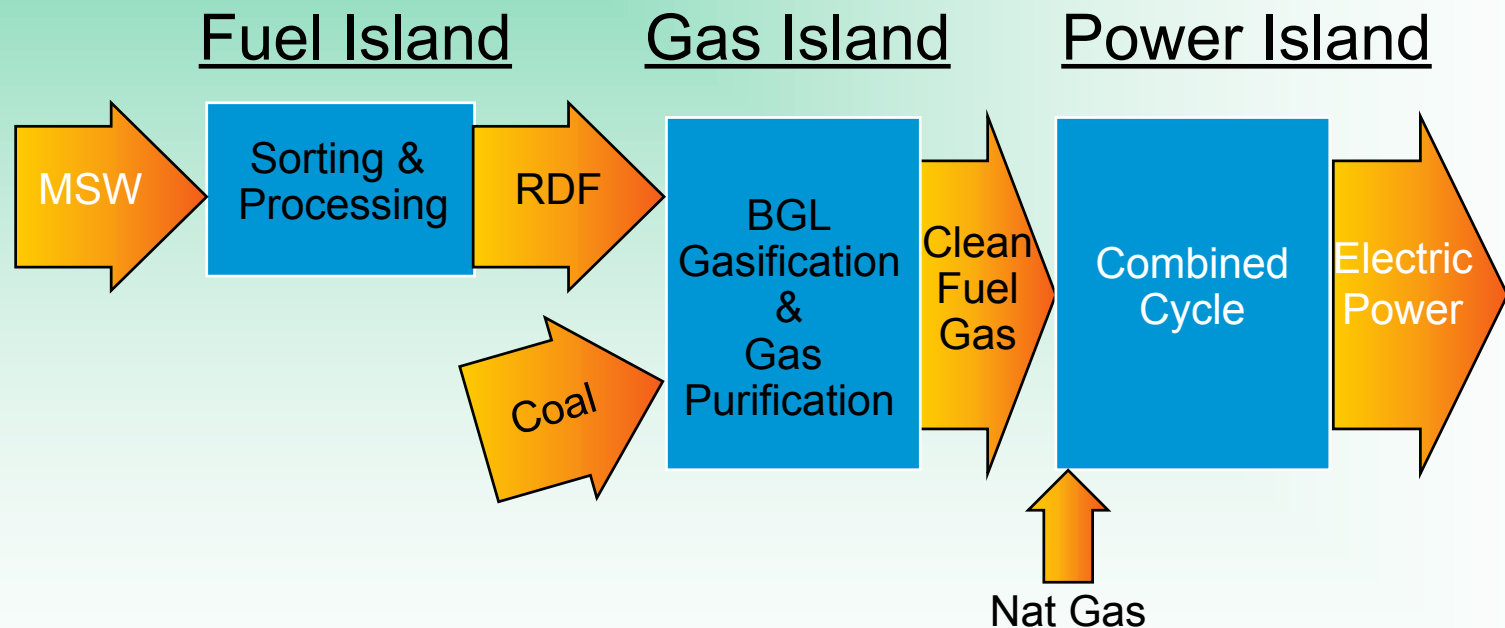


Project Description

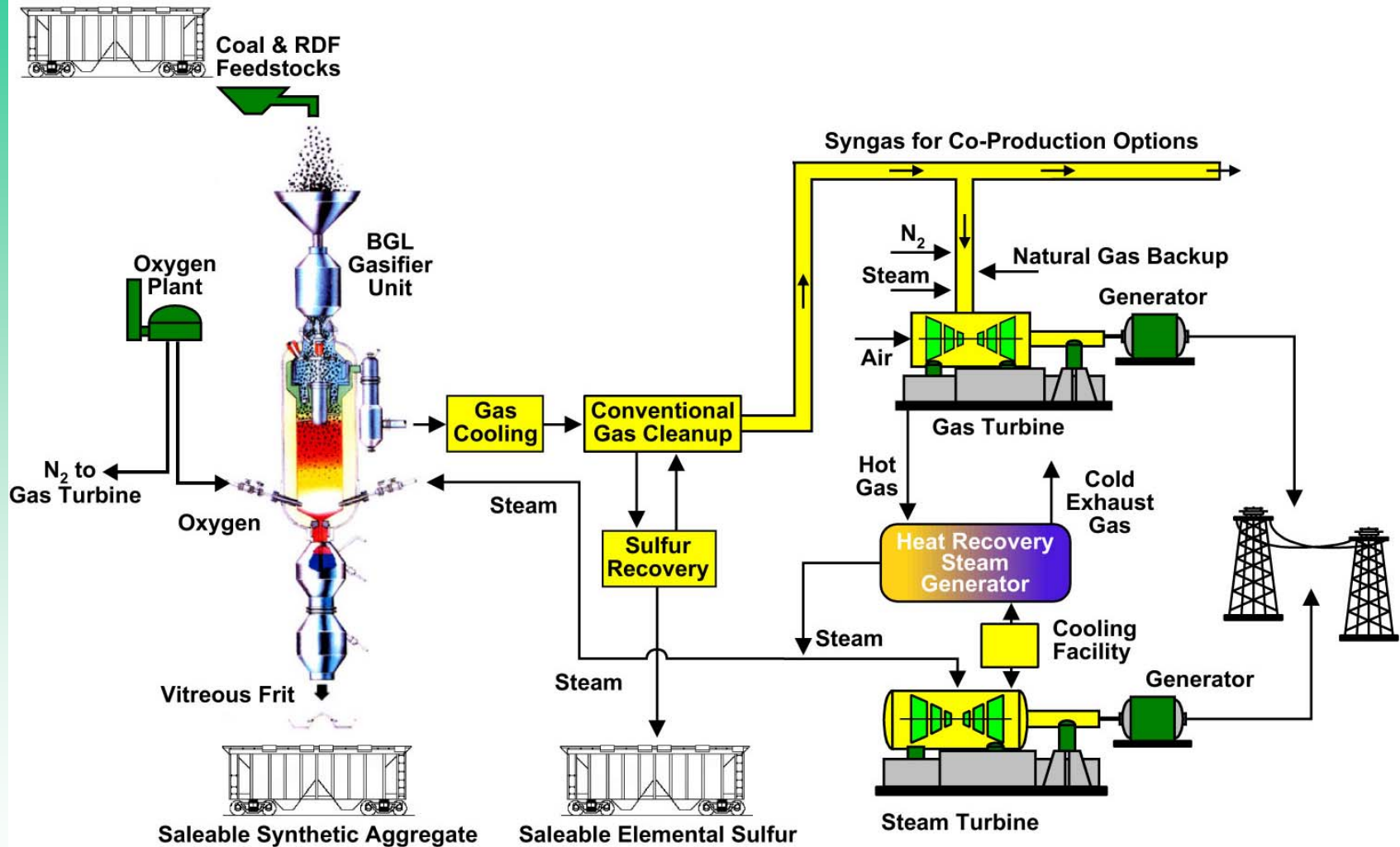
- Kentucky Pioneer Energy and Lima Energy
- Each - 540MW Integrated Gasification Combined Cycle (IGCC)
- BGL Gasification Technology
- Multi fuel capability – Coal plus Refuse Derived Fuel (RDF) Pellets
- Natural gas backup
- Co-production options – syngas to hydrogen or F-T liquids

Multi Fuel - IGCC Technology

Three Proven and Separate Processes



BGL – IGCC Process



Performance

Heat Input	3862 MMBTU/hr
Gross Generation	592 MW
Auxiliary Load	51 MW
Net Generation	541 MW
Heat Rate	7139 MMBTU/KWh – LHV
Net Thermal Efficiency	47.8%

Environmental Performance

Compared to Conventional Coal Plant {lb/MM-Btu Basis}

NO_x

- 10% of Vintage (Pre-NSPS) Plant
- 15% of Current NSPS Requirements
- 50% of Pending NO_x SIP Call Requirements

SO₂

- 25% of Current NSPS Requirements
- 99% Sulfur Removed From Syngas before Use as Fuel

PM

- 33% of Current NSPS Requirements

CO₂

- 80% of Conventional Plant on Combustion Efficiency Basis
- Up to 50% of Conventional to Extent Biomass Renewable Feed Used

Waste Recycling

- ~ 1.5 million TPY converted to syngas, instead of landfill

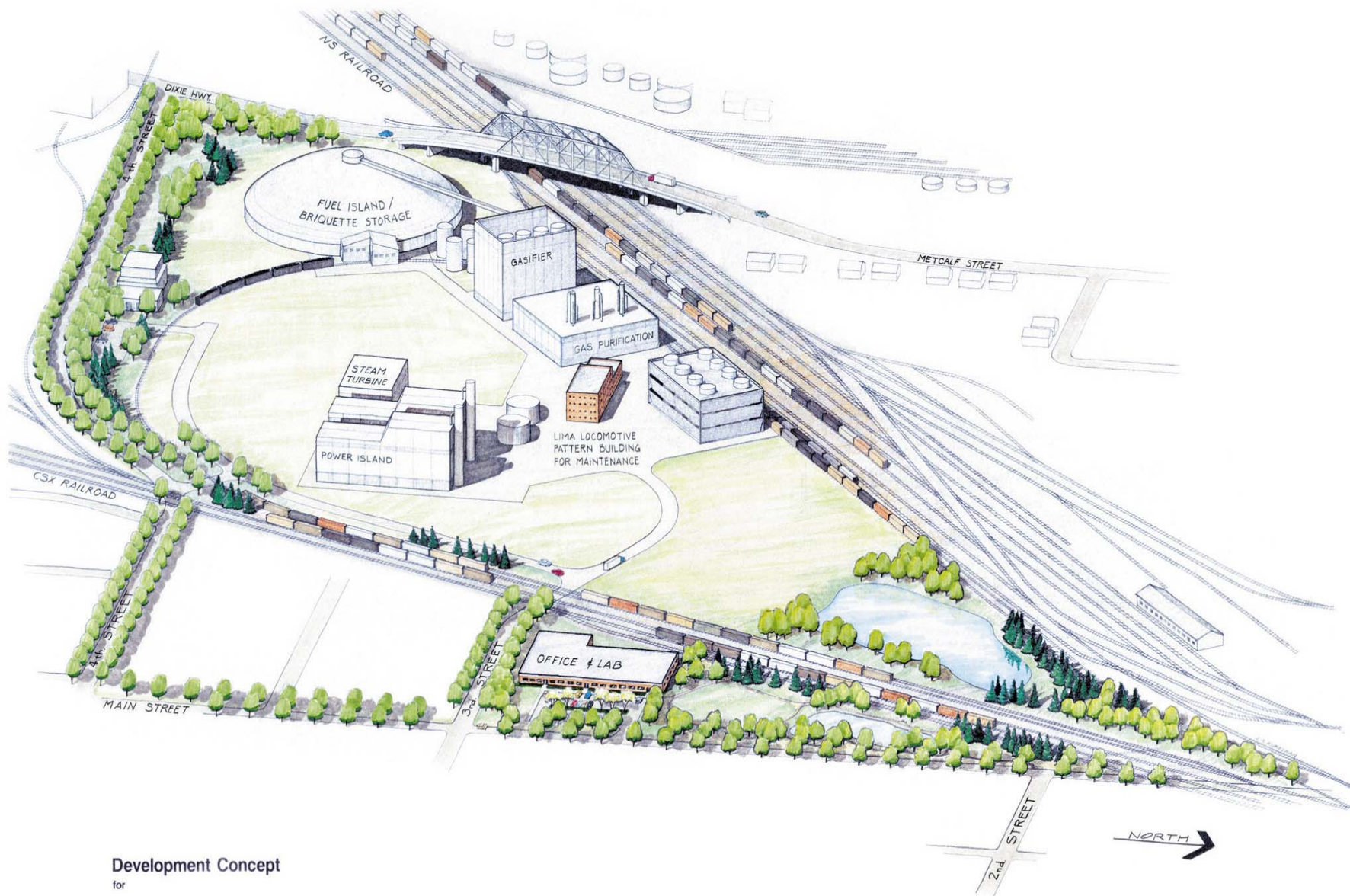
Kentucky Pioneer Energy - Status

- \$78Million DOE Clean Coal Technology Award
 - Includes 2MW Fuel Cell Energy program
- 20 Year Power Sale Agreement with EKPC
- Long term lease on existing power plant site with roads,rail, transmission, natural gas and raw water supply in place
 - \$50M savings to Project
- New Source Review – complete
 - Air Quality Permit and Authority to Construct: issued 06/01
- NEPA EIS (DOE participation only)
 - Draft approved 10/3/01
 - Final Record of Decision target 12/01
- Financial Close Target: 2nd Q02
- Commercial Operation Target: 2nd Q05



Lima Energy (Ohio) - Status

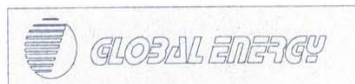
- 540MW Base Load BGL-IGCC using Coal & RDF feedstock
- Negotiating power sales contracts with regional utility and industrial customers
 - Power delivery through AEP system
- Class 1 rail access via CSX and Norfolk Southern
- Liberty Commons Brownfield Site – strong governmental support
 - Purchase agreement with City of Lima
- Air Permit application complete – permits expected 4Q01
- Public Commission Siting Board - approval expected 4Q01
- Project Financing - Closing expected 1Q02
- Commercial Operation expected 2Q05



Development Concept
for

Lima Energy Ltd.

at Liberty Commons
Lima, Ohio



Prepared by

Bassett Associates
Landscape Architects & Planners April 20, 2000

ENVIRONMENTAL TECHNOLOGY



GLOBAL ENERGY