GreatPoint Opportunity Overview

• Commercializing a catalytic gasification technology to convert low cost coal, biomass, and petroleum coke into pipeline quality natural gas
  – Much cleaner alternative to combustion
    • Converting the dirtiest of all commercial fuels into the cleanest
  – Far lower cost than natural gas market price
    • Manufacturing is less expensive than incremental drilled and imported natural gas
    • Virtually unlimited reserves available

• North American strategy is to build, own and operate gas production facilities
  – Together with strategic partners
  – Licensing opportunities overseas
Company Overview

- Backed by leading strategic & financial investors
  - $140M - including one of the largest clean tech venture deals ever completed
- Experienced management team
- Strong IP position in catalytic gasification
  - Overall process, catalyst formulation, catalyst addition & recovery
- Successful operation at pilot plant facility
- Compelling economics
Why Natural Gas?

• U.S. natural gas market is huge
  – $150 billion (~$6/MMBtu) to $200 billion per year (~$9/MMBtu)

• Consumption is growing ...
  – Expected to increase from 22.5 TCF to over 31 TCF by 2025

• ... but supply is not keeping up
  – Gas depletion rates average 15%/yr; additional supply of 3.5 TCF/year required to maintain status quo

• Overseas LNG imports expected to rise from 3% in 2004 to 22% in 2015

• Prices have increased dramatically — $3/MMBtu in 2000 to >$7/MMBtu today

• Combined market factors present a significant untapped opportunity
Coal Is The Ultimate Feedstock

- Coal is domestic
  - U.S. has more coal than any other country in the world
  - More Btu’s of coal in just Illinois than Btu’s of oil in Saudi Arabia and Kuwait combined
  - 250+ years of known supply

- Coal is inexpensive
  - Costs 80-95% less than natural gas
  - $0.40-1.50/MMBtu for coal vs. $6.00-8.00/MMBtu for natural gas

- Coal is abundant worldwide
  - Russia — 173 billion tons
  - China — 126 billion tons
  - India — 93 billion tons
  - Australia — 90 billion tons

- Transporting coal is a major issue in the U.S.

- Coal has permitting and emissions challenges and generates over 30% of all carbon dioxide emissions

- Conversion to natural gas is a better alternative to combustion
**Conventional Gasification**

- Operates at high temperature (~1,400°C)
- Experiences issues with maintenance and reliability due to ash slagging
- Requires costly equipment (e.g., high temperature cooling system and O₂ plant)
- Produces only low grade syngas (hydrogen and carbon monoxide) — not pipeline grade natural gas

**Downstream Methanation**

- Requires four process plants
  - O₂ plant, gasifier, water gas shift plant, methanation reactor
  - Systems operate at vastly different temperatures
- Results in low overall efficiency — not heat balanced
- Capital cost and complexity is high
- Price per MMBtu of natural gas is high
GPE introduces a catalyst into the gasification system

- Coal or petcoke combines with steam in the presence of heat, pressure, and the catalyst to produce natural gas (99%+ methane) instead of low quality syngas
  - CO₂, ash, sulfur, trace metals and mercury are safely removed in gas cleaning process
- Catalyzes three reactions in one reactor
  - Gasification
  - Water Gas Shift
  - Methanation

Key Advantages

- Thermally balanced
- Low temperature operation (600-700°C)
- Simplifies the process and reduces costs
  - Lower cost of reactor materials and systems
  - Lower maintenance costs and higher reliability
  - Eliminates costly oxygen plant
- Produces pipeline-grade natural gas

One Catalyst — Three Reactions

<table>
<thead>
<tr>
<th>Reaction</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gasification</td>
<td>C + H₂O → CO + H₂</td>
</tr>
<tr>
<td>Water Gas Shift</td>
<td>CO + H₂O → H₂ + CO₂</td>
</tr>
<tr>
<td>Methanation</td>
<td>CO + 3 H₂ → CH₄ (Methane) + H₂O</td>
</tr>
<tr>
<td>Overall</td>
<td>2C + 2H₂O → CH₄ + CO₂</td>
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GPE Technology is Disruptive

Key Assumptions
- EPC cost of $1.8B for four-train (23.2k tpd) PRB coal project and $1.0B for two-train (7.7k tpd) petcoke project
- $7.21/ton coal cost (8,500 Btu/lb); $5.00/ton petcoke cost (13,877 Btu/lb)
- Financing of cost with 70% debt, 15 yr term, 8.5% rate
- Capex validation by Nexant and Dow

($/MMBtu)

<table>
<thead>
<tr>
<th></th>
<th>PRB</th>
<th>Petcoke</th>
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</thead>
<tbody>
<tr>
<td>Feedstock</td>
<td>$0.63</td>
<td>$0.29</td>
</tr>
<tr>
<td>Catalyst</td>
<td>0.72</td>
<td>0.44</td>
</tr>
<tr>
<td>By-Product Revenue</td>
<td>(0.70)</td>
<td>(0.96)</td>
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<tr>
<td>Fixed Costs</td>
<td>1.12</td>
<td>1.29</td>
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<tr>
<td>Financing</td>
<td>2.15</td>
<td>2.28</td>
</tr>
<tr>
<td>Total</td>
<td>$3.92</td>
<td>$3.34</td>
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</tbody>
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Note: Excludes equity return and tax credits.
Environmental Profile Better than Alternatives

- **GreatPoint’s Advantage**
  - The bluegas™ process eliminates nearly all NOx, SOx and particulate emissions
  - GreatPoint expects to remove nearly 100% of the mercury (meeting natural gas pipeline transmission quality specifications)
  - Unlike IGCC, bluegas™ plants will produce a sequestration-ready stream of CO2 with no additional cost except for compression
    - For IGCC to produce sequestration-ready CO2, its efficiency will be reduced by approximately 17%
  - GreatPoint plans to build gasification facilities in remote coal and pet coke regions amenable to CO2 sequestration and EOR
  - Pipeline grade natural gas can be transported anywhere in North America by the extensive gas transmission infrastructure

- **Enhanced Oil Recovery (EOR)**
  - EOR is a commercial process which sequesters CO2
  - EOR is used in 80 U.S. projects, producing an incremental 234,000 barrels/day¹
  - In the U.S. alone, an additional 100 billion barrels can be produced using EOR technology²

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¹ "CO2 Injection Gains Momentum," Oil & Gas Journal, April 17, 2006.
³ Cost and Performance Baseline for Fossil Energy Plants Volume 1: Bituminous Coal and Natural Gas to Electricity, DOE/NETL 2007.
Pilot Status

• 10 successful pilot plant campaigns
  – Gasification reactor works as our models predicted
  – Chemistry works as expected; PRB and petcoke converted to methane
  – Catalyst can be successfully added and removed and recovered

• We can operate the unit successfully
  – ~1200 hours of operations online time
  – 17 stable, steady state yield periods
  – Start-up and shutdown managed successfully
  – Gained significant operating experience
Roadmap to Growth

- **2006**: Pilot Development
- **2007/08**: Pilot Operations and Engineering & Design for Demonstration
- **2009/10**: Demonstration Plant Operations/Engineering and construction of 1st commercial plant
- **2011 and Beyond**: Build-Own-Operate Growth

Increasing Value

GreatPoint Energy Confidential
Commercial Development Strategy

**Partnering Strategy**
- Develop strategic relationships with investment grade partners who can enter into long term agreements:
  - Feedstock suppliers (coal and petcoke suppliers)
  - Offtake partners (gas purchasers)
  - Construction and operating partners (such as Bechtel, Fluor)

**Siting Strategy**
- Focus on sites which can be readily permitted at or near:
  - Feedstock supply (minemouth)
  - Interstate gas transportation and strong basis
  - CO₂ sequestration regions (EOR) with access to other by-product markets (power, sulfur, ammonia)
  - Available water supply
  - Existing infrastructure to reduce capital cost

**Project Execution Strategy**
- Minimize construction and operational risks:
  - Standardized, extensively modularized plant designs
  - Building extensive internal engineering and project management capabilities
  - Sequential development plan for predictability and best use of personnel, EPC and manufacturers
Summary

• **Vision:** To be the premier technology-driven natural resources company
  - Natural gas manufacturing, coal reserves (valuation gap), oil (EOR), pipelines, power (clean energy credits)

• Substantial market opportunity
  - Alternatives to declining domestic natural gas production are limited or expensive

• Significant competitive advantages
  - bluegas™ is lower cost, higher efficiency and more reliable than conventional gasification
  - Produces methane rather than syngas — pipeline ready

• Experienced management and industry leading technical team

• Compelling economic returns driven by strong revenue growth and margins