Project Highlights

Integration of Only Commercially-Proven Technologies from World-Class Firms

- Technology partners include ExxonMobil, ThyssenKrupp Uhde, Linde Group and Haldor Topsoe
- Guaranteed performance and full compatibility of all system components with minimized construction cost risk

Proven Technology to Make Ultra-Clean Premium Gasoline

- One ton of coal feed stock into $300 in revenue
- 2.3 million tons per year of 12,000 Btu/lb bituminous thermal coal
- 250 million gallons premium zero sulfur gasoline
- Superior environmental performance of our gasoline compared to crude refining

Environmentally Sound Into the Future

- Fully permitted as a minor source
- Adams Fork was designed as a replicable project
- Emission profiles substantially less than conventional technologies
- Future regulation compliance should not pose problems
The Adams Fork site is located in the most supportive community in the most supportive mining state in U.S. (Mingo County, WV)

- Adams Fork is located within 75 miles of over 150 million tons per year of production (each dot is an active coal mine)
- Actual Adams Fork plant site
- Adams Fork has a 50-year lease from Mingo County, WV
- Site is able to enjoy a supply of coal with conveyor and/or truck delivery, enabling “minor source” permitting due to PM 2.5 thresholds
- Proximity to compliance coal supply allows delivery by conveyor and trucks minimizing the greatest threat to gasification permitting - dust
Mingo County, West Virginia
Site of Adams Fork Energy
Construction Progress
The Cross-State Air Pollution Rule (CSAPR), requires 27 states to significantly improve air quality by reducing power plant emissions that contribute to ozone and/or fine particle pollution in other states.

Sulfur in gasoline kills pollution control equipment in cars which produce 3 times more pollution than coal plants.

Northeast states’ study shows that lower sulfur in gasoline would allow all but PA to exceed or meet their requirements.

<table>
<thead>
<tr>
<th>Sources of NOx</th>
<th>Ozone Transport Region State</th>
<th>Comparison NOx Reductions (tons/year)</th>
<th>Health Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Road Gasoline</td>
<td>CSAPR</td>
<td>10 ppm S Gasoline</td>
<td>Avoided School Days Lost</td>
</tr>
<tr>
<td>Other Vechile</td>
<td>Connecticut</td>
<td>6</td>
<td>-3,100</td>
</tr>
<tr>
<td>Electric Utility</td>
<td>Delaware</td>
<td>15</td>
<td>-800</td>
</tr>
<tr>
<td>All Other</td>
<td>DC</td>
<td>0</td>
<td>-300</td>
</tr>
<tr>
<td></td>
<td>Maine</td>
<td>0</td>
<td>-1,500</td>
</tr>
<tr>
<td></td>
<td>Maryland</td>
<td>-375</td>
<td>-5,000</td>
</tr>
<tr>
<td></td>
<td>Massachusetts</td>
<td>41</td>
<td>-5,300</td>
</tr>
<tr>
<td></td>
<td>New Hampshire</td>
<td>-156</td>
<td>-1,300</td>
</tr>
<tr>
<td></td>
<td>New Jersey</td>
<td>-286</td>
<td>-6,700</td>
</tr>
<tr>
<td></td>
<td>New York</td>
<td>-1,160</td>
<td>-13,500</td>
</tr>
<tr>
<td></td>
<td>Pennsylvania</td>
<td>-15,110</td>
<td>-10,700</td>
</tr>
<tr>
<td></td>
<td>Rhode Island</td>
<td>0</td>
<td>-900</td>
</tr>
<tr>
<td></td>
<td>Vermont</td>
<td>0</td>
<td>-800</td>
</tr>
<tr>
<td></td>
<td>Virginia</td>
<td>-43</td>
<td>-1,700</td>
</tr>
<tr>
<td></td>
<td>OTR Totals</td>
<td>-17,068</td>
<td>-51,600</td>
</tr>
</tbody>
</table>

NOx Reduction Cost per Ton
Coal SCR $14,000 – Turbine SCR $19,120 – 10 ppm Gasoline $7,000

“Assessment of Clean Gasoline in the Northeast and Mid-Atlantic States”, NESCAUM Nov 2011
Crude refineries are extremely complex and have a higher operations requirement than coal to gasoline plant.

The ExxonMobil MTG path results in the most direct path with the least amount of post product refining.

The single product focus allows smaller plants.

"The finished gasoline produced by the MTG technology are high quality and contain neither sulfur nor nitrogen."

ExxonMobil
# TransGas Clean Gasoline Specification

## Uhde MTG Product Specification

### 1 PRODUCT SPECIFICATION

#### 1.1 Products

##### 1.1.1 Gasoline

The given composition is preliminary and has to be confirmed during BE.

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Unit</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraffins</td>
<td>53</td>
<td>vol%</td>
<td></td>
</tr>
<tr>
<td>Olefins</td>
<td>12</td>
<td>vol%</td>
<td></td>
</tr>
<tr>
<td>Naphthenes</td>
<td>9</td>
<td>vol%</td>
<td></td>
</tr>
<tr>
<td>Aromatics</td>
<td>26</td>
<td>vol%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>vol%</td>
<td></td>
</tr>
<tr>
<td>Benzene</td>
<td>0.3</td>
<td>vol%</td>
<td></td>
</tr>
<tr>
<td>Sulfur</td>
<td>Nil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **RON**: 92
- **MON**: 82
- **RVP**: 7.6 (85°C) PSI (bar)

#### 1.1.2 Liquefied Petroleum Gas LPG

The given composition is preliminary and has to be confirmed during BE.

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Unit</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₄</td>
<td>62.81</td>
<td>mol%</td>
<td></td>
</tr>
<tr>
<td>C₅</td>
<td>34.09</td>
<td>mol%</td>
<td></td>
</tr>
<tr>
<td>C₆</td>
<td>2.16</td>
<td>mol%</td>
<td></td>
</tr>
<tr>
<td>C₇</td>
<td>6.84</td>
<td>mol%</td>
<td></td>
</tr>
<tr>
<td>C₈</td>
<td>0.08</td>
<td>mol%</td>
<td></td>
</tr>
<tr>
<td>C9+</td>
<td>0.0001</td>
<td>mol%</td>
<td></td>
</tr>
</tbody>
</table>

- **Min. Pressure**: 12.5 bar / a
- **Max. Temperature**: 45 °C

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**Sulfur**: Nil
Vehicle Emissions vs. Title V Thresholds

19 Pickup trucks operating 24/7 at 48 MPG will trigger the EPA title V threshold.

One year of full-time production of 19 Pickup Trucks will trigger the Title V threshold for emissions.

Our coal gasification facility which consumes a one mile trainload of coal every 24 hours does not trigger the Title V pollution threshold.

Co Emissions From 19 Pickup Trucks

Co Emissions From Gasification Plant

Title V threshold for emissions

One year of full-time production

Emissions of CO (Tons/Yr)
TRANSGAS coal to gasoline plants produce minimal hazardous air emissions. TRANSGAS gasoline is lower in hazardous volatile organic compounds like benzene and has zero sulfur and nitrogen.
Our Partners: Overview

**Industrial Contractors Inc.**
- Construction lead for only other gasifier project in US
- Experience in refinery and heavy industry construction and maintenance

**Uhde**
- Inventor of Prenflo PDQ gasifier technology, which will provide the raw syngas
- Over 101 gasifiers have been designed, built and put into operation by Uhde

**Linde**
- Air separation technology as well as the syngas cleanup
- Independently removes saleable CO2, sulfur and mercury
- Expert in hot gas cleaning system design and construction

**Haldor Topsoe**
- Methanol production technology, with over 40 world class methanol plants designed and constructed
- Converts clean syngas into methanol

**ExxonMobil**
- Methanol to gasoline technology
- Will produce sulfur-free 92 octane gasoline
- ExxonMobil scientists discovered the MTG chemistry in the 1970s
CB Richard Ellis and TransGas Development Systems are finalizing negotiations for a co-development partnership

- CB Richard Ellis 104 years continuous operations in 2010, founded in San Francisco in the aftermath of the 1906 earthquake
- World’s largest commercial infrastructure services firm with over 31,000 employees in 450+ offices in more than 60 countries
- $37.6 billion investment capital managed raised $4.8 billion in 2010 alone with more than $2 billion to deploy at year-end.
- Project Management – 2,900+ professionals, 30,000 projects annually
- Clients include 80 of the Fortune 100
- CBRE Infrastructure focuses on energy, environmental & logistics infrastructure.
Adams Fork Energy Project