CCS is one of a number of measures to address CO2 emissions, and without CCS, it will be extremely difficult, if not impossible, to reduce CO2 emissions to the levels needed to mitigate climate change effects.

-- Carbon Sequestration Leadership Forum
Technology Roadmap

TX Energy
Carbon Management and Gasification Project

Advancing CCS Capabilities

EASTMAN

TX Energy, LLC

CSLF Technical Group
October 11, 2009

Eastman Chemical Company

A Pioneer in Industrial Gasification

- Longest continuously producing U.S. coal gasification facility (Kingsport, TN)
- Over 26 years of scientific, engineering, and operational expertise
  Worldwide reputation for outstanding operational performance

EASTMAN

TX Energy, LLC

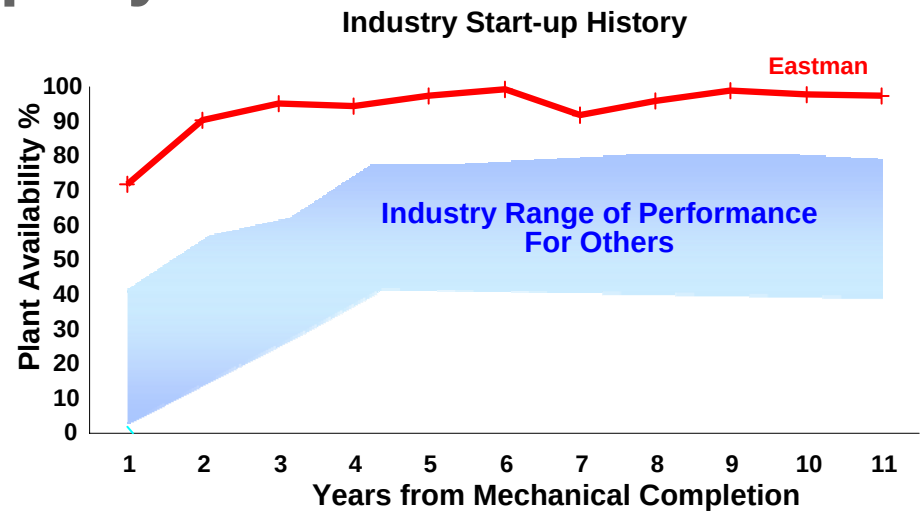
carbon sequestration leadership forum

Eastman Chemical Company

Gasification Credentials

- Pioneer in Coal Gasification
- Best-in-Class Performance
- High Availability Record
- Continuous Process Improvement

Best-In-Class Performance

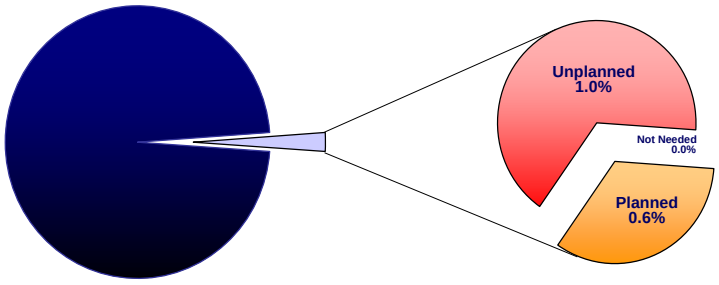


Source, excluding Eastman data: J. Phillips, EPRI, "Integrated combined cycles with CO2 capture", GCEP research symposium, Stanford University, June 13-16, 2005.

Eastman Gasifier Availability *

Three-Year Cycle (July 2005 - June 2008) including planned shutdown

[* Overall Availability of Clean Syngas]



On-Stream 98.4 %

Estimated single train availability would be 88% - 90%

Eastman Syngas Production Rate

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TX Energy Carbon Management and Gasification Project

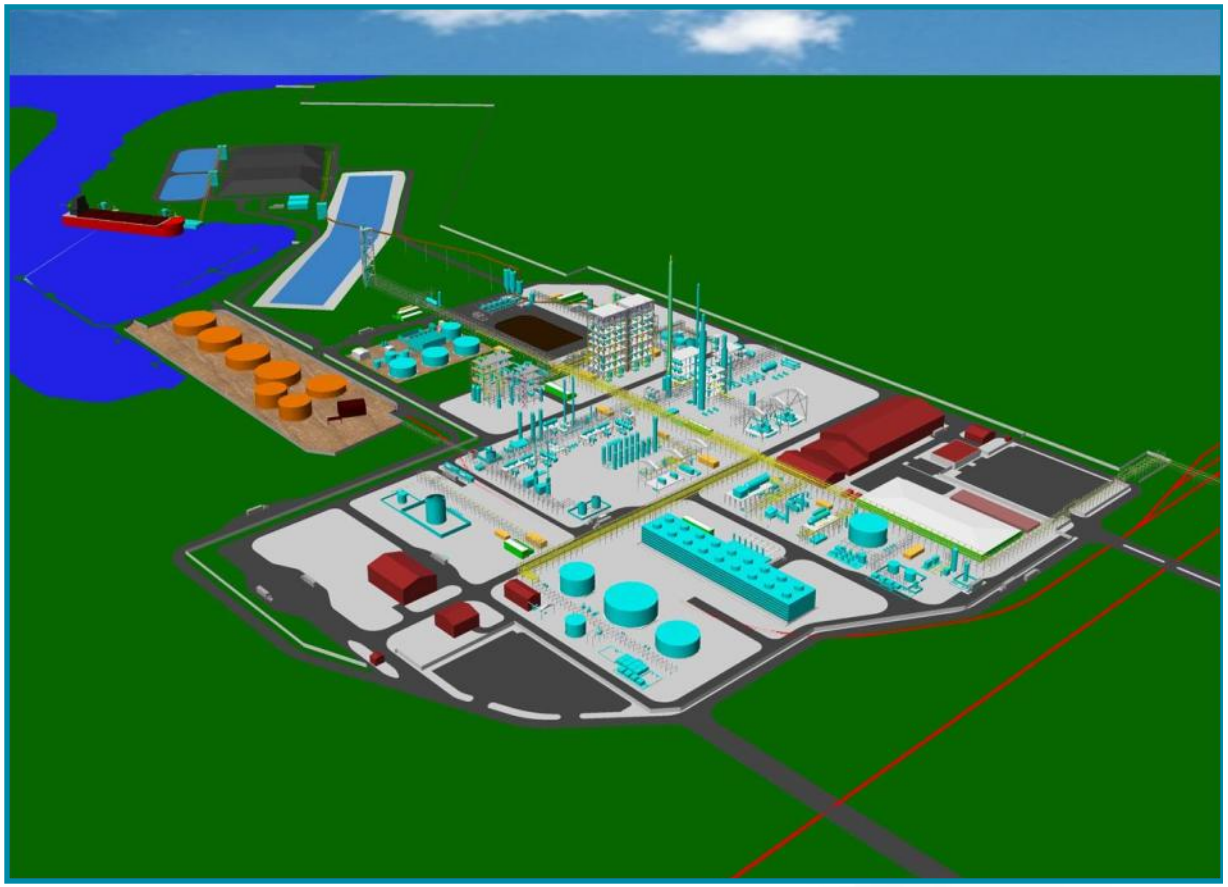
Advancing Carbon Management

Project Goal

Commercialize an industrial gasification project that involves:

- Polygeneration
- World-scale CCS

Five million tons per year of carbon dioxide sequestered



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TXE Carbon Management and Gasification Project

- One of the largest gasification and CCS projects under active development in the world
- Advanced stage of project development
  - FEED Complete
  - Financing planned via US DOE Federal Loan Guarantee Program
  - Permits and Environmental Impact Assessment expected early 2010
- First-of-a-kind world-scale industrial polygeneration facility, serving three industries:
  - Chemicals (methanol)
  - Fertilizers (ammonia)
  - Industrial gases (hydrogen)
- A model for transforming global industry to use gasification of abundant feedstocks while reducing carbon footprint
- Demonstration of technologies optimized for world-scale CCS, enabling future projects

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TXE Carbon Management and Gasification Project
Beaumont, Texas (USA)

EASTMAN EXPERIENCE!

Abundant Feedstock

Gasification

Ultra-Clean Syngas

Methanol

Strategic Chemicals for Eastman and/or Direct Sales

Baseload Products

Hydrogen

Ammonia

Deep Removal of Sulfur and Other Contaminants

Carbon Dioxide

~ 5 million tons/yr of CO_2 sequestered

Geologic Sequestration via EOR or other Sequestration

Accomplished in cooperation with strong partners and project team members.

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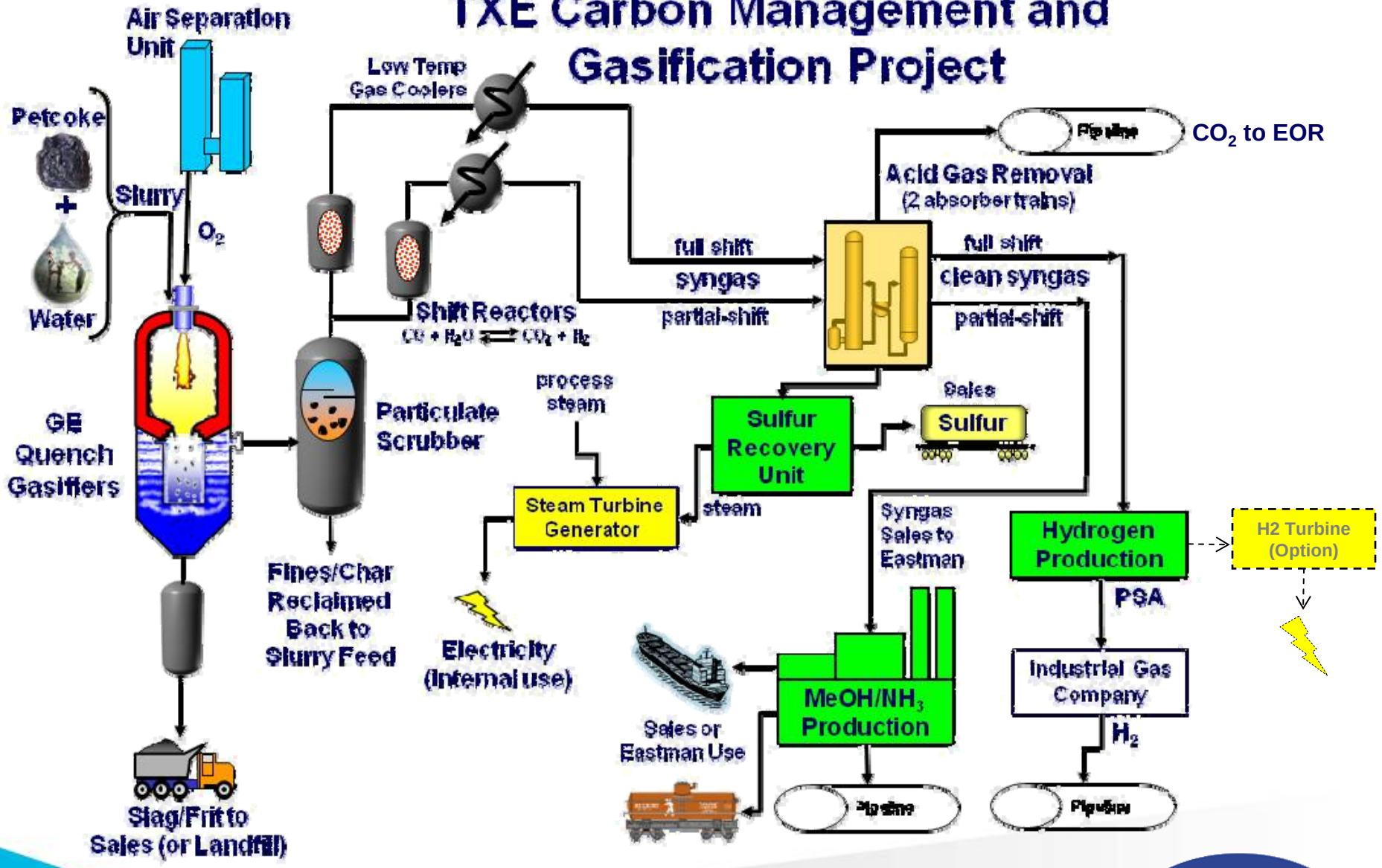
TXE Carbon Management and Gasification Project



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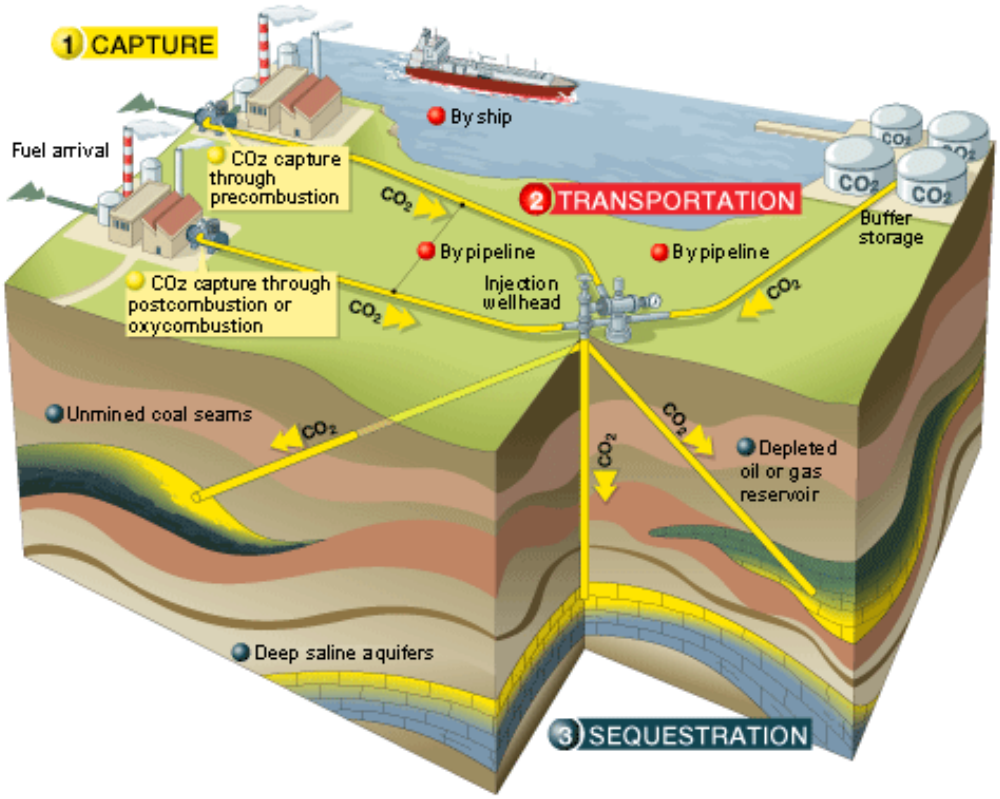
TX Energy

Multiple options for sequestering CO_2

- **Enhanced oil recovery** (primary)
- **Deep saline aquifer storage**
- **Depleted oil/NG reserves**
- **Deep ocean storage**



TX Energy

Advancing Carbon Management

- The project would **incorporate carbon capture and storage at a world scale**.
  - Would exceed the combined total of all other current anthropogenic carbon capture and storage operations in the world.
  - Would exceed the combined planned demo projects for all seven U.S. DOE Regional Sequestration Partnerships.
- Project would reduce the **net carbon footprint by several million tons per year** compared to current business-as-usual alternatives.
- The project would actually **generate 50-60% more energy than it consumes** due to CO_2-enabled EOR

The combined use of deep removal of sulfur and other contaminants and the concentrated capture and storage of carbon would make the project one of the most environmentally friendly solids-fed gasification facilities in the world, with direct application to other coal or petcoke-based projects.

TX ENERGY - NET CARBON FOOTPRINT REDUCTION

Net Footprint Reduction of Several Million Tons per Year of CO_2 Emissions
Average Equivalent to Removing over Half a Million Autos from the Highway*

TXE's total natural gas displacement and enhanced oil recovery supply increases would **reduce the need for new energy discovery by the equivalent of ~ 50,000 barrels of oil per day**, enough to feed a medium-sized refinery, without new drilling.

* Based on EPA estimated average of 11,450 lbs of CO_2 emissions per year per passenger car

TXE Carbon Management and Gasification Project

Global Benefits

Demonstration of industrial gasification and integrated CCS at world scale.

Demonstration of technologies, equipment, methodologies, and supporting infrastructure for each step of the industrial gasification and integrated CCS processes at world scale.

Demonstration of the synergistic benefits of polygeneration (utilization of gasification to serve multiple industries at a single site).

A leading edge model for advanced clean coal power generation – hydrogen production coupled with carbon capture and storage.

Utilization of solid carbonaceous feedstocks in a manner that substantially reduces the net carbon footprint compared to conventional alternatives.

Production of large volumes of hydrogen at very high availabilities via solids gasification

Creation of a model for sustainable growth of industrial businesses and jobs in a carbon-constrained world.

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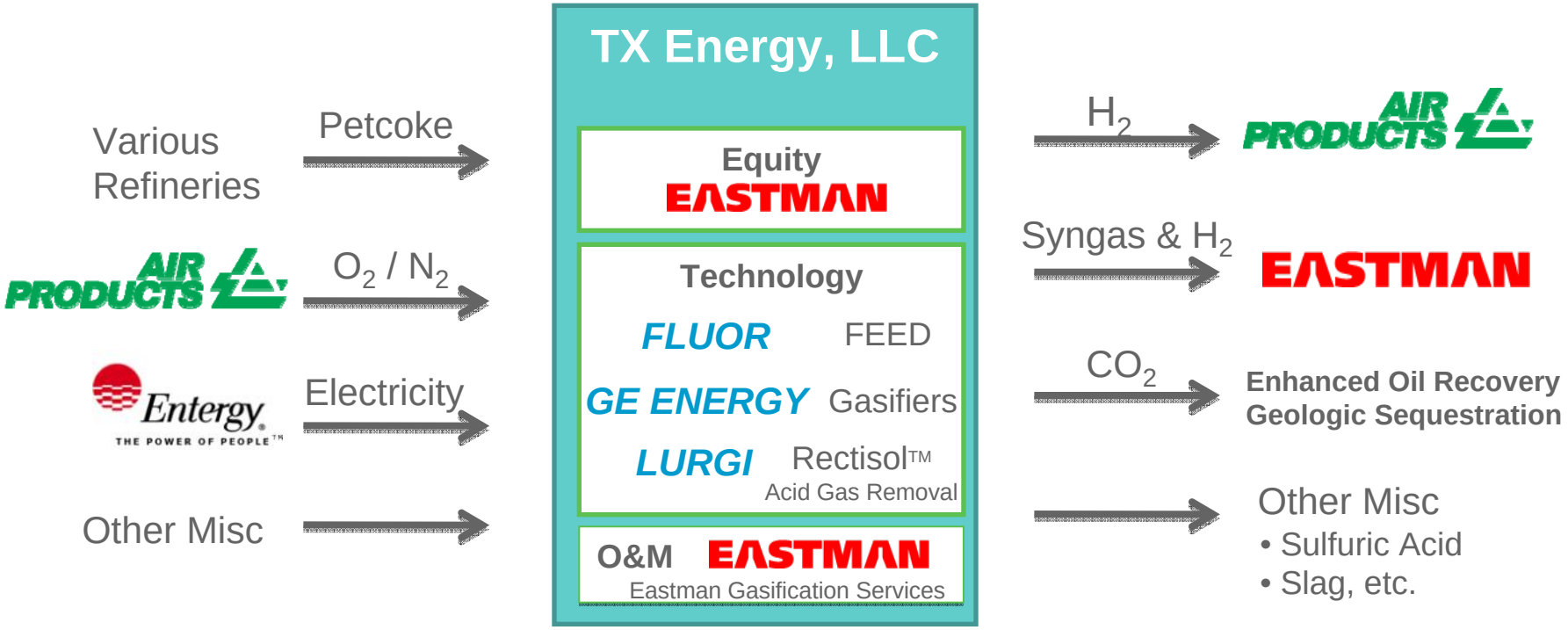
TX Energy
A Strong Project Team



MARSH & McLENNAN COMPANIES
Oliver Wyman
Risk / Financial Modeling

Blue Source
CO_2 Consultants

McGUIREWOODS
Relationships That Drive Results
Counsel

PURVIN & GERTZ INC.
Market Consultants

RBS
The Royal Bank of Scotland
Project Finance Advisor

STANDARD & POOR'S
Credit Rating

R·W·BECK
Independent Engineer

Wood Mackenzie
Market Consultants

FM GLOBAL
Engineering Risk Consultant

JE JACOBS
Market Consultants

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TX Energy

Involvement Across the Globe

Technology

•Licensing - US, Germany, France

Key equipment and materials sourcing prospects

•Vessels - Belgium, Netherland, Italy, Spain, Korea, Malaysia, Japan, India
•Compressors – Germany, Japan, Italy
•Steel – US, China
•Instrumentation – multiple countries
•Rotating Equipment - Italy, Japan, Sweden, Germany, Scotland
•Heat Exchangers / Boilers – China, Germany, Japan, Italy
•Large Electric Motors – Japan, Korea

Professional Services prospects

•US, Canada, India, Malaysia, Philippines, China, Czech Republic, Russia, Romania, Poland, Mexico, and Taiwan.

Thank You for Your Attention!

Questions?