Welcome
PORT OF SOUTH LOUISIANA
Largest Tonnage Port in the Western Hemisphere

- Over 291 million short tons transported via, on average, 4,000 vessels & 55,000 barges
- Value: Over $13 billion exports, Over $15 billion imports
- Over 40 liquid and bulk terminals

Largest grain port in the U.S. (50% of all the nation’s grain exports)

- Seven grain elevators
- #1 energy transfer port in the U.S.
- Four major oil refineries & Seven crude oil storage terminals

Foreign Trade Zone #124 ranked second in the U.S.

- Received over $50 billion in merchandise
- 12 subzones
2014 Total Throughput (in million short tons)

- Petrochemicals: 57.3 (20%)
- Crude Oil: 78.6 (27%)
- Maize: 43.0 (15%)
- Soybean: 40.1 (14%)
- Coal/Lignite/Coke: 9.5 (3%)
- Concrete/Stone Products: 0.4 (<1%)
- Edible Oils: 0.7 (<1%)
- Ores/Phosphate Rock: 10.8 (4%)
- Milo: 1.6 (<1%)
- Wheat: 3.7 (1%)
- Animal Feed: 7.4 (3%)
- Other: 2.0 (<1%)
- Steel Products: 5.7 (2%)
- Rice: 0.5 (<1%)

291.83 million short tons  # vessel calls: 4,377 | # barge movements: 57,350
## Economic Development

<table>
<thead>
<tr>
<th></th>
<th>Parish</th>
<th>Capital Investment</th>
<th># Direct Jobs Created</th>
<th>Average Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yuhuang Chemical</td>
<td>St. James</td>
<td>$1.85 billion</td>
<td>400</td>
<td>$85K</td>
</tr>
<tr>
<td>South Louisiana Methanol</td>
<td>St. James</td>
<td>$1.3 billion</td>
<td>63</td>
<td>$66K</td>
</tr>
<tr>
<td>Eurochem</td>
<td>St. John</td>
<td>$1.5 billion</td>
<td>200</td>
<td>$58K</td>
</tr>
<tr>
<td>AM Agrigen Industries</td>
<td>St. Charles</td>
<td>$1.25 billion</td>
<td>150</td>
<td>$55K</td>
</tr>
<tr>
<td>Marathon Petroleum</td>
<td>St. John</td>
<td>$2.2 billion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nucor Steel</td>
<td>St. James</td>
<td>$3.4 billion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gavillon Trading</td>
<td>St. James</td>
<td>$250 million</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Petroplex International</td>
<td>St. James</td>
<td>$300 million</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

*Announced Future Projects: $12 billion capital investment and at least 973 direct jobs*
Yuhuang Chemical, Inc.

- 4,950 metric tons per day (MTPD) plant
- Port of South Louisiana (St. James Parish)
- First Chinese company to announce locating a major industrial project in Louisiana
- $1.85 billion investment
- 400 jobs
- $85K average salary
OVERVIEW – SHANDONG YUHUANG CHEMICAL CO., LTD.

- Fixed assets of 32 billion yuan ($5 billion dollars)
- More than 5,600 employees
- 13 subsidiaries
- Turnover 22.495 billion yuan ($3.6 billion dollars)
- Ranked as 456th of the top 500 Chinese companies and 24th of China’s top 25 chemical companies

*all based on 2013 data*
OVERVIEW – YUHUANG CHEMICAL, INC. (YCI)

- A subsidiary of Shandong Yuhuang Chemical Co., Ltd.
- Headquarters located at 10777 Westheimer Road | Houston, Texas
- Chief Executive Officer: Charles Yao
- Project Location: Port of South Louisiana, St. James Parish
Yuhuang Chemical, Inc.

PROJECT PROCESS – AIR LIQUIDE/LURGI MEGAMETHANOL® WITH NATURAL GAS FEEDSTOCK

Key process features:

- **Syngas Generation/Preparation**
  - Oxygen-based reforming

- **Methanol Synthesis**
  - Two-stage synthesis
  - Water-cooled reactor + gas-cooled reactor

- **Methanol Purification/Distillation**
  - Three-column design
Methanol Process

1. **Syngas Preparation** for methanol synthesis is done using steam reforming of the natural gas feedstock. Once sulfur is removed, the natural gas is steam reformed with combined reforming with a steam reformer furnace followed by an oxygen-blown autothermal reformer (ATR)

2. **Methanol Synthesis** – the syngas is sent to a gas-phase synthesis technology. This is a world scale capacity methanol synthesis loop process with copper-based catalysts

3. **Methanol Purification/Distillation** – the crude methanol produced in the methanol synthesis unit contains water, dissolved gases, and small quantities of unavoidable byproducts – partly higher and partly lower boiling than methanol. The purpose of distillation is to remove these impurities at a minimum loss of methanol so that pure, chemical-grade methanol is obtained
Methanol End Uses

- The three largest derivatives of methanol are formaldehyde, methyl tertiary butyl ether (MTBE) and acetic acid.
- Methanol is seeing growing demand, especially in Asia, in fuel applications such as dimethyl ether (DME), biodiesel, and the direct blending into gasoline.
- Other uses:
  - The largest solvent use for methanol is as a component of windscreen wash antifreeze
  - Used to extract, wash, dry, and crystallize pharmaceutical and agricultural chemicals
  - Methylamines are used as intermediates in a range of specialty chemicals with applications in water treatment chemicals, shampoos, liquid detergents and animal feeds
Methanol End Uses (cont’d)

- Other uses:
  - Methyl methacrylate (MMA) is employed in the production of acrylic polymers
  - Dimethyl terephthalate (DMT) is used to make polyesters although PTA is the preferred feedstock
  - Methanol and sodium chlorate are used to produce chlorine dioxide, a bleaching agent for the pulp and paper industry
  - Glycol ethers are solvents used in acrylic coatings and newer high-solids and waterborne coatings
  - Methyl mercaptan is used as an intermediate in the production of DL-methionine, an amino acid supplement in animal feeds
**Methanol End Uses**

- Largest derivatives: formaldehyde, methyl tertiary butyl ether (MTBE) and acetic acid.
- Growing demand in fuel applications: dimethyl ether (DME), biodiesel, and direct blending into gasoline.
- Other uses:
  - Component of windscreen wash antifreeze, its largest solvent use
  - Used to extract, wash, dry, and crystallize pharmaceutical and agricultural chemicals
  - Methylamines (*an intermediate*) used in water treatment chemicals, shampoos, liquid detergents and animal feeds
  - Methyl methacrylate (MMA) employed in the production of acrylic polymers
  - Dimethyl terephthalate (DMT) used to make polyesters (*although PTA is the preferred feedstock*)
  - Methanol and sodium chlorate used to produce bleaching agent for the pulp and paper industry (*chlorine dioxide*)
  - Glycol ethers are solvents in acrylic coatings and newer high-solids and waterborne coatings
  - Methyl mercaptan (*an intermediate*) used in production of an amino acid supplement in animal feeds (DL-methionine)
PROJECT OVERVIEW

4,950 MTPD METHANOL PROJECT
70% FOR EXPORT TO CHINA; 30% FOR U.S. CONSUMPTION

• Location: Port of South Louisiana along the Mississippi River in St. James Parish
• Area: 1,300 acres
• Methanol technology licensed by: Air Liquide/Lurgi
• Oxygen supplied by: Air Liquide
• FEED contractors: HQC and Technip
• Project management team (IPMT): YCI, Worley Parsons, and HQC
• Detailed engineering contractor: Pending
• Construction contractor: Pending
Why Port of South Louisiana (St. James Parish)?

A Good Place for Business

• Low cost of natural gas in the area
• Excellent from a global logistics perspective (project and products)
• Louisiana, Port of South Louisiana, and St. James Parish are interested in new business and are experienced with energy and petrochemicals
• Experienced project and chemical operations staff are available in the area
• Greenfield site with good infrastructure potential (highways, railroad, etc.)
• Mississippi River deep water access (docks)
• Port of South Louisiana can assist in financing for the project