Inland River Industry Outlook

July 18, 2017
Dry Cargo
Dry Cargo Barge Demand

- Demand trending down, particularly for dry commodities
- Ton miles showing some improvement vs 2015
- Six largest barge operators control 72% of the fleet

### Dry Commodity Demand

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons</th>
<th>Ton Miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>350</td>
<td>200</td>
</tr>
<tr>
<td>2014</td>
<td>330</td>
<td>198</td>
</tr>
<tr>
<td>2015</td>
<td>320</td>
<td>196</td>
</tr>
<tr>
<td>2016</td>
<td>310</td>
<td>194</td>
</tr>
</tbody>
</table>

**Source:** Informa Economics

### Company Performance

<table>
<thead>
<tr>
<th>Company</th>
<th>Opens</th>
<th>Covers</th>
<th>Total</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingram Barge</td>
<td>1,608</td>
<td>2,725</td>
<td>4,333</td>
<td>23%</td>
</tr>
<tr>
<td>American Commercial Barge Line</td>
<td>591</td>
<td>3,210</td>
<td>3,801</td>
<td>20%</td>
</tr>
<tr>
<td>Amer. River Transportation Co.</td>
<td>0</td>
<td>1,781</td>
<td>1,781</td>
<td>9%</td>
</tr>
<tr>
<td>SCF Marine</td>
<td>0</td>
<td>1,110</td>
<td>1,110</td>
<td>6%</td>
</tr>
<tr>
<td>Cargo Carriers</td>
<td>0</td>
<td>1,472</td>
<td>1,472</td>
<td>8%</td>
</tr>
<tr>
<td>Crounse Corporation</td>
<td>1,105</td>
<td>2</td>
<td>1,107</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Top Six</strong></td>
<td><strong>3,304</strong></td>
<td><strong>10,300</strong></td>
<td><strong>13,604</strong></td>
<td><strong>72%</strong></td>
</tr>
<tr>
<td>Others</td>
<td>2,824</td>
<td>2,469</td>
<td>5,293</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6,128</strong></td>
<td><strong>12,769</strong></td>
<td><strong>18,897</strong></td>
<td></td>
</tr>
</tbody>
</table>

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Notes:
- Tons and ton miles are measured in billions.
- Share percentages might not add up to 100% due to rounding.

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Figure: Comparison of dry cargo barge demand from 2006 to 2016, showing a downward trend in demand.
Industry Dry Cargo Fleet

- Fleet size up ~ 1,400 barges since low of 2013
- Fleet is 2 years younger than in 2006

Dry Cargo Barge Fleet

Dry Barge Fleet Size vs. Age

Source: Informa Economics
Industry Dry Cargo Fleet

- Fleet grew 8% post-recession - demand up just 2%
  - Domestic coal down
  - Coal exports down
  - Agriculture improved
  - Steel end markets up and down

Barge Demand by Key Commodities

Dry Barge Fleet vs. Demand in Tons

Dry Barge Fleet vs. Demand in Ton Miles

Source: Informa Economics
Domestic Utility Coal Demand

- The river lost nearly 50 million tons of coal 2010-2016
  - Regulatory pressures
  - Cheap natural gas
Demand rebounds slightly through 2020…but retirements continue

<table>
<thead>
<tr>
<th>Year</th>
<th>Plants</th>
<th>Estimated Tons Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>Baldwin Energy Complex 3, Johnsonville 1,2,3,4, Robert A Reid R1</td>
<td>3.8</td>
</tr>
<tr>
<td>2018</td>
<td>Allen Steam Plant 1,2,3, Clay Boswell 1,2, Crystal River 1,2, Killen Station, J M Stuart 1,2,3,4</td>
<td>16.8</td>
</tr>
<tr>
<td>2019</td>
<td>Dubuque 1,5,6, Elmer Smith 1</td>
<td>0.8</td>
</tr>
<tr>
<td>2020</td>
<td>FirstEnergy W H Sammis 1,2,3,4, Will County 4</td>
<td>4.4</td>
</tr>
</tbody>
</table>
Coal Exports

- **Boom years (2011-2013)**
  - Strong demand from emerging nations (Brazil, Russia, India, China)
  - Production problems in Australia, South Africa
  - “Perfect Storm” for U.S. Exports

- **But then…**
  - Production problems resolved
  - Increased international supply
  - U.S. reverted to role of swing supplier

- **Future**
  - More countries moving away from coal as a fuel source for electricity
Industrial Electricity Demand

- 2016 demand down 50 million MWh vs. average 2011-2015
- Industrial manufacturing used 35% of all electricity in 1995; just 25% in 2016
- Will it return?
Other Inland Barge Demand

- Aluminum: Down 63% vs 2006; down 51% from 2014
- Iron & Steel: Down 15% vs 2006; down 9% vs 2014
- Cement: Down 13% vs 2006; up 3% vs 2014

Source: U.S. Geological Service
Steel/Aluminum Plant Closures

- Multi-year trend of closures
- Never returned to pre-recession levels
- Steel plant closures include
  - Wheeling Pitt – Mingo Junction, OH
  - Weirton Steel – Weirton, WV
  - U.S. Steel - Lorain, OH
  - U.S. Steel - Fairfield, AL
  - U.S. Steel - Granite City, IL
- Aluminum smelters closures include
  - Century - Ravenswood, WV
  - Century - Hawesville, KY
  - Ormet - Hannibal, OH
  - Noranda – New Madrid, MO
  - Alcoa - Warrick, IN*
Industrial Employment Trends Down

- Employment & establishments show the same trend
  - Well below 20 years ago
  - Little post-recession recovery

**All Manufacturing**

- Jobs and establishments show a downward trend.

**Primary Metals**

- Jobs and establishments also show a decline.

**Motor Vehicles**

- Similar trend observed in the motor vehicles industry.

**Industrial Machines**

- Employment and establishments in industrial machines are decreasing.

*Source: Bureau of Labor Statistics*
Three domestic coke plants closed between 2012 and 2016

- U.S. Steel – Granite City, IL
- U.S. Steel – Gary, IN
- DTE (Shenango), Pittsburgh, PA

Source: Doyle Trading Consultants

Source: U.S. Geological Service
- U.S. exports = 156 million tons
- Center Gulf (barge) exports = 72 million tons
- Main barge exports are corn and soybeans (60% U.S. total)
- Major competitor countries are Brazil and Argentina
Liquid Cargo
Liquid Cargo Barge Demand

- Demand in tons trending down - competition from pipelines
- Ton miles higher on longer hauls from Bakken & Canada
- Six largest barge operators control 63% of the fleet

**Company** | <20,000 BBL | >20,000 BBL | Total | Share
--- | --- | --- | --- | ---
Kirby Corporation | 362 | 514 | 876 | 24%
American Commercial Barge Line | 338 | 107 | 445 | 12%
Canal Barge | 217 | 88 | 305 | 8%
Florida Marine | 37 | 207 | 244 | 7%
Ingram Barge | 211 | 12 | 223 | 6%
Hardin Street Marine | 23 | 199 | 222 | 6%
Top Six | 1,188 | 1,127 | 2,315 | 63%
Others | 303 | 1,065 | 1,368 | 
Total | 1,491 | 2,192 | 3,683 | 

Source: Informa Economics
Industry Liquid Cargo Fleet

- Fleet size up ~ 875 barges since low of 2006; up 170 since 2014
- Fleet is 7 years younger than in 2006; .6 years younger than 2014
Industry Liquid Cargo Fleet

➢ Demand down 12 million tons from 2007 peak

Liquid Barge Demand by Commodity

Liquid Fleet vs. Demand in Tons

Liquid Fleet vs. Demand in Ton Miles

Source: Informa Economics
Factors Impacting Barge Demand for Crude Oil

- Crude production taking off again
- Pipeline construction catching up
- Increasing imports from Canada
Natural Gas and Oil; Prices and Rig Counts

**Henry Hub Natural Gas Spot Price**

Source: Energy Information Administration

**WTI Price**

Source: Energy Information Administration

**Active Gas Rigs**

Source: Baker Hughes

**Active Oil Rigs**

Source: Baker Hughes
Ethanol Exports

- U.S. ethanol production exceeds domestic demand
- Export opportunities expanding
  - Brazil: Imports up nearly 240% vs 2016
  - Mexico: Adopting E10; potential demand = 720 million gallons
  - Vietnam: E5 blending rate in 2018 to E10 by 2020
  - Japan: Considering adopting E10, demand uncertain

Source: Renewable Fuels Association

Source: U.S. Department of Agriculture
Looking Ahead
LNG Exports Starting to Take Off

- Increased LNG exports should support increased prices
- Seven projects are in various stages of construction
- Another 17 are in various stages of planning

<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sabine, LA</td>
<td>1.40 Bcf/d</td>
</tr>
<tr>
<td>Hackberry, LA</td>
<td>2.10 Bcf/d</td>
</tr>
<tr>
<td>Freeport, TX</td>
<td>2.14 Bcf/d</td>
</tr>
<tr>
<td>Cove Point, MD</td>
<td>0.82 Bcf/d</td>
</tr>
<tr>
<td>Corpus Christi, TX</td>
<td>2.14 Bcf/d</td>
</tr>
<tr>
<td>Sabine Pass, LA</td>
<td>1.40 Bcf/d</td>
</tr>
<tr>
<td>Elba Island, GA</td>
<td>0.35 Bcf/d</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Charles, LA</td>
<td>2.20 Bcf/d</td>
</tr>
<tr>
<td>Hackberry, LA</td>
<td>1.41 Bcf/d</td>
</tr>
<tr>
<td>Sabine Pass, LA</td>
<td>2.10 Bcf/d</td>
</tr>
</tbody>
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<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brownsville, TX</td>
<td>0.90 Bcf/d</td>
</tr>
<tr>
<td>Port Arthur, TX</td>
<td>1.86 Bcf/d</td>
</tr>
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</table>

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<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pascagoula, MS</td>
<td>1.50 Bcf/d</td>
</tr>
<tr>
<td>Cameron Parish, LA</td>
<td>1.41 Bcf/d</td>
</tr>
<tr>
<td>Brownsville, TX</td>
<td>0.55 Bcf/d</td>
</tr>
<tr>
<td>Brownsville, TX</td>
<td>3.60 Bcf/d</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Location</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jacksonville, FL</td>
<td>0.08 Bcf/d</td>
</tr>
<tr>
<td>Freeport, TX</td>
<td>0.72 Bcf/d</td>
</tr>
<tr>
<td>Corpus Christi, TX</td>
<td>1.40 Bcf/d</td>
</tr>
<tr>
<td>Plaquemines Parish, LA</td>
<td>2.80 Bcf/d</td>
</tr>
<tr>
<td>Nikiski, AK</td>
<td>2.55 Bcf/d</td>
</tr>
<tr>
<td>Cameron Parish, LA</td>
<td>1.84 Bcf/d</td>
</tr>
<tr>
<td>Calcasieu Parish, LA</td>
<td>4.00 Bcf/d</td>
</tr>
</tbody>
</table>
Chemical Plant Investment Growth

- 310 chemical projects in planning stages or underway
- Total investment value of $185 Billion
- Chemical construction was half of 2016 U.S. capital spending
- Chemical exports to grow by 500% by 2027
- Foreign companies drawn to the U.S. by low natural gas prices

![Shale Gas Production and Spot Prices](source: Energy Information Administration)
Crude Oil Exports

- In 1975 U.S. banned most crude exports
- More domestic production led to exports to free trade partners
- Export ban lifted completely in December 2015
- In Q1 2017, U.S. exported more oil than 5 OPEC nations

Source: Energy Information Administration

U.S. Crude Oil Exports
Industrial Optimism

- Operational
  - ACERO Junction steel mill
  - Big River Steel
- Under Construction
  - HarbisonWalker International monolithics refractory plant
- In Planning/Permitting
  - Nucor expansion in Kentucky
  - U.S. Silica frac sand expansions/greenfields
  - Braidy Industries aluminum rolling mill
  - Arg Industries aluminum smelter
  - And more
Electricity Prices

- Price trend driven by environmental regulations
- Cannot restore industrial production without cheap electricity
- Residential prices going up
  - Will not increase disposable income
  - Will not increase personal spending

Source: Energy Information Administration
Trump Bump

- **Infrastructure**
  - The Trump administration plans to invest $1 trillion in infrastructure
  - Includes highways, waterways, airways and electrical systems
    - $200 billion from the federal government
    - Public/private partnerships

- **Deregulation**
  - Created task force to identify regs to eliminate
  - Requires two prior regs to be scrapped for every new reg added

- **Eliminated Roadblocks**
  - Expediting priority projects

- **Promoting U.S. Manufacturing**
  - Maximize use of American-made goods & equipment in government projects
  - Section 232 investigation into steel imports
  - Section 232 investigation into aluminum imports
Aging Waterways Infrastructure

- 239 navigation locks at 193 sites
- Average age = 59.1 years
- Chambers older than 50 years = 139
- Locks past their design life expectancy = 58%

Potential Impact?
A complete loss of the waterways for shipping with no advance notice to users would cost the economy $124.2 billion during the first year alone and more than a trillion dollars over 10 years.