Energy and commodity price benchmarking and market insights


Illuminating the markets
North American Crude Transportation
San Antonio, TX
Mark Babineck
7 March 2013
Agenda

- Argus background.
- Tanker cars.
- Intermodal cost analysis.
- Case Study: Grays Harbor, Washington.
- Argus Petroleum Transportation.
- Questions.
Who is Argus?

- Report prices in all world markets for:
  - Crude.
  - Refined products.
  - NGL & LPG.
  - Coal and coke.
  - Gas & Power.
  - Petrochemicals.
  - Fertilizers.
  - Emissions.

- More than 500 staff globally with numerous offices
- Rapid growth in spot and term contract indexation, swaps market indexation.

Illuminating the markets
Why Argus?

• Argus is now a standard benchmark for:
  o US domestic and import crude.
  o US gasoline, diesel, and jet fuel.
• Argus reports markets the way they trade, throughout the entire trading day.
• Argus Sour Crude Index (ASCI).
  o Used to price long-haul and short-haul foreign crudes.
• Argus LLS.
  o Used to price Bakken and Eagle Ford.
Tanker cars
North American tank car backlog

- Industry estimates tank car backlog is more than 48,000.
- Petroleum is the driver: American Railcar Industries estimates 87pc of total industry backlog comes from petroleum tank cars and hopper cars that can carry fracturing sand to horizontal drilling sites.
- Railcar makers ramping up to meet demand.
- Rates have more than doubled compared with 2010.
- Ethanol cars continue switching to crude service; unclear when/if they will return.
Railcar manufacturer trends

- Argus assesses short-term leases on non-pressurized, full-serve cars at $3,250/month as of March.
General-service tank cars can be pressurized or non-pressurized, and can be leased on a full-serve or railcar-only basis. Argus assesses all types by contract term.
Tank car types

• Pressurized tank cars.
  o Carry LPG.
  o Can cost less because demand is lower.

• Non-pressurized tank cars.
  o Carry crude oil, ethanol.
  o Can move from one service to the other after cleaning.
  o Are in high demand.

• Full-serve includes maintenance, repair costs.
• Railcar-only leases leave shippers liable for maintenance and repairs.
• Argus assesses rail rates on a month-ahead basis.
The next big thing?
- Coiled, heated cars carry heavy crude.
- Growing demand as pipeline projects linger in regulation.
- Argus assesses volumes at 540 bl/car for heavy crude, compared with 660 bl/car for light.

Source: US Patent and Trademark Office
Rail access issues

- New corridors call for new investments
  - BNSF says much of its $4.1bn in capital investments this year will go toward lines that carry crude by rail.
  - Union Pacific spending $3.6bn, targeting southern US.
  - Canadian Pacific spending $1.1bn, largely on crude-by-rail.
  - Canadian National spending $1.9bn to address bottlenecks.

- Key pinch points
  - Chicago: Inter-train transfers can add a day to travel time.
  - North Dakota: Traffic growing in all directions.
  - Alberta: Opportunities emerging to the southwest.
  - East coast: Historically congested, little room to grow.
Intermodal cost analysis
February modality comparison

- Cost by mile varies widely, even in the same mode.
- Overseas freighters are cheapest every time.
- Seaway is enjoying a premium because it goes to the US Gulf coast.
Intermodal examples

• Eagle Ford/Gardendale, TX to St James, LA (Feb.)
  o Rail, manifest rate: $6.59/bl.
  o Uncommitted pipeline/barge: $3.99/bl.
    - Plains All American Eagle Ford pipeline to Corpus Christi barge terminal: $1.25/bl.
    - Barge to St James: $2.74/bl.

• Bakken/Minot, ND to Houston, TX (Feb.)
  o Rail, manifest rate: $9.70/bl; unit train rate: $8.26/bl.
  o Uncommitted total pipeline tariff: $8.58/bl.
    - Enbridge Minot to Clearbrook: $1.23/bl.
    - Enbridge Clearbrook to Flanagan: $1.38/bl.
    - Enbridge Spearhead Flanagan to Cushing: $2.15/bl.
    - Seaway to Houston: $3.82/bl.
Valero’s outlook

- Recently gave 12-24 month marginal light crude oil cost outlook
  - Rail to California gets $2-$3/bl discount to Brent
  - Rail to east coast break-even
  - Rail/pipeline to Houston $3-$6/bl discount
  - Rail to St James $2-$5/bl discount
  - “Expect Gulf coast will have cost advantage versus east coast, west coast and foreign markets.”
Case study: Grays Harbor, Washington
Flocking to western Washington
Why the sudden rush to western Washington?

- Access to open water.
- Prospects for local support — high unemployment, port already in place.
- Rail access via BNSF and Union Pacific
- Vicinity to Bakken (one-third the distance to east coast).
- Can handle barges for California-bound Bakken or tankers carrying Canadian crude overseas.
- Attractive compared with the uncertainty over Canadian pipeline projects.
Three crude-by-rail unloading terminals proposed

<table>
<thead>
<tr>
<th>Company</th>
<th>Site</th>
<th>Earliest startup</th>
<th>Details</th>
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<tbody>
<tr>
<td>Imperium Renewables</td>
<td>Terminal 1</td>
<td>2014</td>
<td>New rail and storage capacity on 10.7 acres adjacent to existing biodiesel plant.</td>
</tr>
<tr>
<td>US Development Group</td>
<td>Terminal 3</td>
<td>2014</td>
<td>Rail capacity for one or two unit trains per day, 500,000-1mn bl of storage, potential overseas exports of Canadian crude.</td>
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<tr>
<td>Westway Terminals</td>
<td>Terminal 1</td>
<td>2015</td>
<td>Rail capacity on four spurs for 76 loading and unloading spots, 400,000 bl in new storage.</td>
</tr>
</tbody>
</table>
Argus Petroleum Transportation
Insight into changing transportation issues.

Railing, barging, pipeline and waterborne.

Route rates for crude/NGL/refined products/biofuels.

Infrastructure news

Maps/Analysis.

Arbitrages.

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Petroleum Transportation
North America

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KEY MARKET INDICATORS

Transportation prices

Commodity          Modality          Route          Unit          Price       Change

Bakken crude      Rail           Houston-Gulf to St. James    $/bl         -5.00

Eagle Ford crude  Rail           South Texas to St. James     $/bl         -4.02

Eagle Ford crude  Barge          Corpus Christi to St. James   $/bl         -2.33

Cushing crude     Waterborne      Cushing to US Gulf coast    $/bl         -1.03

Light products    Waterborne      Europe to US Gulf coast     $/bl         -1.02

LPG products      Waterborne      US Gulf coast to Rotterdam  $/bl         -1.84

Ethanol           Rail           California-Exxon Mobil       $/bl         -0.02

Fuel oil          Rail           L TRAIN- Los Angeles        $/bl         -0.02

See full transportation price tables at the back of the report.

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Analysis of growing onshore rail market

**BAKKEN RAIL RATES**

<table>
<thead>
<tr>
<th>City</th>
<th>$/BL</th>
<th>$/bl per 100 miles</th>
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<tbody>
<tr>
<td>North Dakota origination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denver</td>
<td>8.87</td>
<td>1.42</td>
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<tr>
<td>Tulsa</td>
<td>8.11</td>
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<tr>
<td>Chicago</td>
<td>8.35</td>
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<tr>
<td>Bakersfield, CA</td>
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<tr>
<td>Seattle</td>
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<td>Houston</td>
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<td>St James, LA</td>
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<td>Port Arthur</td>
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<tr>
<td>New York</td>
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**RAIL TANK CAR LEASE RATES**

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<tr>
<th>Rail tank car</th>
<th>Nov</th>
<th>$/car/month</th>
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</thead>
<tbody>
<tr>
<td>Non-pressurized</td>
<td>1,575</td>
<td>1,100</td>
</tr>
<tr>
<td>Pressurized</td>
<td>1,400</td>
<td>900</td>
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</tbody>
</table>

*Full-serve* | *Railcar only*
Argus assessing Jones Act dirty tanker market

• East coast refiners appear serious about branching into Eagle Ford crude.
• Jones Act tankers most affordable, direct way to get it there from Texas.
• Producers beginning to discuss exports as output grows and potential destinations shrink.
Basic methodologies

- Publish prices that reflect prevailing levels for transportation of petroleum commodities in specified rail lanes.
  - Assess rates separately for manifest and unit trains.
  - Include diesel surcharges levied on shippers by railroads based on a monthly average of EIA on-highway diesel prices
  - Do not include switching and terminal fees.
- Assess barge rates on US inland waterways through a survey of operators, shippers and other participants.
- Assess waterborne freight on prevailing $/t rate for generic clean and dirty tanker routes.
Argus North American Crude Transportation Summit: New Pathways to Market

June 5-7, 2013
Houston, Texas

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