Status of LNG Regulations: Challenges, Risks and Opportunities

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AGENDA

- Demand is Real and Growing
- Challenges/Impediments to expansion
- Regulatory issues/concerns
- Way forward to meet regulatory issues and concerns
Marine Driving LNG Development

- Container ship: ~20-30 mm gals. LNG/yr.
  - Over 2,000 CV calls per year in U.S. ports

- Tugs: ~1-3 mm gals LNG/yr.
  - 38,000+ tugs in U.S.

By comparison...
- Locomotive: 150,000 gals. LNG/yr.
- Truck: 20,000 gals. LNG/yr.

*LNG expected to meet 24% of global bunker fuel supply by 2025: ports survey. (Platts)*
<table>
<thead>
<tr>
<th>Operator</th>
<th>No. Vessels</th>
<th>First Deliveries</th>
<th>Port(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tote, Inc.</td>
<td>2 CV 2 RoRo</td>
<td>2015 – 2016</td>
<td>JAX TAC</td>
</tr>
<tr>
<td>Matson</td>
<td>2 CV</td>
<td>2018</td>
<td>OAK? SEA?</td>
</tr>
<tr>
<td>Crowley</td>
<td>4 PT 2 Con Ro</td>
<td>2015 - 2017</td>
<td>GOM</td>
</tr>
<tr>
<td>HGM</td>
<td>6 OSV</td>
<td>2014</td>
<td>Port Fourchon</td>
</tr>
<tr>
<td>Interlake</td>
<td>6 Bulk</td>
<td>2015</td>
<td>?</td>
</tr>
<tr>
<td>Seabulk</td>
<td>3 PT</td>
<td>2017</td>
<td>GOM</td>
</tr>
<tr>
<td>APT</td>
<td>5 PT</td>
<td>2015</td>
<td>GOM</td>
</tr>
<tr>
<td>Staten Island</td>
<td>1 Pax Ferry</td>
<td>2015?</td>
<td>NYC</td>
</tr>
<tr>
<td>Philly Tankers</td>
<td>2 PT</td>
<td>2018</td>
<td>?</td>
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**Ships are coming: will LNG be available?**

*Total Investment in LNG Capability ~ $1.5 Billion just in U.S. Fleet!*
Challenges to Meeting Demand

- Cautious infrastructure development.

- Lack of familiarity, understanding, and relationships between marine/transportation industries and gas distribution industry; incompatible fuel pricing and purchasing models.

- Regulatory approvals must be completed before facility construction can begin.
  - Different timelines; requirements; laws
Overlapping Permit Processes

Federal  State  Local
Three Areas of Regulation

- Vessel Operational and bunkering requirements
  - USCG

- Marine LNG terminals: siting; construction; operations
  - USCG/USDOT
  - NFPA 59A
  - Multiple federal statutes potentially involved
  - Other federal agencies: FERC, Army Corps; EPA, others
    - All with separate requirements

- State and Local Permitting Processes
  - Facilities: siting, operations; costs; schedule

No “One Stop Shopping.”
Specific Issues

- Existing federal regulations aimed at large import/export facilities **NOT** small scale marine terminals.
- Potential default to existing regulations to process first applications.
- Risk of becoming “standard” for industry.
- Potential increased costs, lack of uniformity, regulatory burdens to point of infeasibility.
- Diminished opportunity to achieve full potential of LNG.

*But: USCG working hard to mitigate these risks within its authorities!*
USCG Draft Bunker Guidelines

- Public comments received March 2014
- Explicitly not binding/permanent regulations
- Unresolved questions
- Largely leaves resolution to individual COTPs
  - With HQ oversight and involvement
- “Equivalence” standard; burden on operators to prove

*Still: risk of disparate standards among ports; greater uncertainty impact on final regulations!*
Existing regulations predicated on large scale import/export terminals: gaps and conflicts

Under terms of **1986** USCG/USDOT MOU:

**USCG** responsible for any activities affecting navigable waterways and facilities/structures between the vessel and the last manifold (or valve) immediately before the receiving tank.

**PHMSA** responsible for **site selection**; All other matters pertaining to the facility beyond and (including) the last manifold (or valve) immediately before the receiving tank(s).

**JOINT RESPONSIBILITIES**: The agencies “will cooperate and assist each other” and in an effort to avoid inconsistent regulation of waterfront and non-waterfront LNG facilities, “will consult with each other.”
A Bridge Too Far?

- **USCG:** “LNG loading flanges must be located at least **300 meters** from “each bridge crossing on a navigable waterway.”

- **PHMSA,** “a pier or dock … shall be located so that any marine vessel being loaded or unloaded is at least **30 meters** from any bridge crossing a navigable waterway. The loading or unloading manifold shall be at least **61 meters** from such a bridge.

- **PHMSA,** “General cargo, other than ships’ stores for the LNG tank vessel, shall not be handled over a pier or dock within **30 meters** of the point of transfer connection while LNG or flammable fluids are being transferred through piping systems.”
State and Local

- Intrastate pipelines
- Wetlands and protected areas
- Local zoning requirements
- Default to existing processes

Potential for intervention, delays, cost growth!
What can be done?

LNG as fuel is new to everyone: transportation industries, suppliers, government and the country.

Unique opportunity to create public policies which:
- Provide uniform regulatory certainty
- Streamlined approval processes at all levels
- Encourage development of LNG as a transportation fuel

Potential of LNG to transform industry and country calls for policies which encourage, promote and accelerate use!
Pieces of the Puzzle

- Marine Operators
- Federal, State, Local Regulatory
- PORTS
- Shipyards
- Interstate and local trucking, Transit Rail
- Gas Supply

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Approach

- Need genuine public/private partnership among all stakeholders.
  - Coalition of non-traditional partners focused on national policy

- Commitment by all stakeholders to highest standards of safety, security and environmental responsibility.

- Promotion of public policy agenda which seeks to maximize potential benefits of LNG for the country.
Europe Moving Out

2008: Norway increases NOx regs. but offsets up to 80% of cost to repower or build LNG vessels.
  ◦ More than 50 vessels either in operation or under construction!

2013: Multiple EU policies support LNG expansion:
  ◦ Formal policy by 2020 every deep seaport LNG bunkering
  ◦ By 2025, all inland ports to have LNG bunkering.
  ◦ Ten-T program and Rhine-Main Initiatives
    • $139 mm committed to LNG vessels and infrastructure
    • Additional funds committed
      • Support up to 50% cost of infrastructure and vessels
      • First DF inland barge delivered 2014.
Thank You!

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