

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)

Operator	No. Vessels	First Deliveries	Port(s)
Tote, Inc.	2 CV 2 RoRo	2015 – 2016	JAX TAC
Matson	2 CV	2018	OAK? SEA?
Crowley	4 PT 2 Con Ro	2015 - 2017	GOM
HGM	6 OSV	2014	Port Fourchon
Interlake	6 Bulk	2015	?
Seabulk	3 PT	2017	GOM
APT	5 PT	2015	GOM
Staten Island	1 Pax Ferry	2015?	NYC
Philly Tankers	2 PT	2018	?

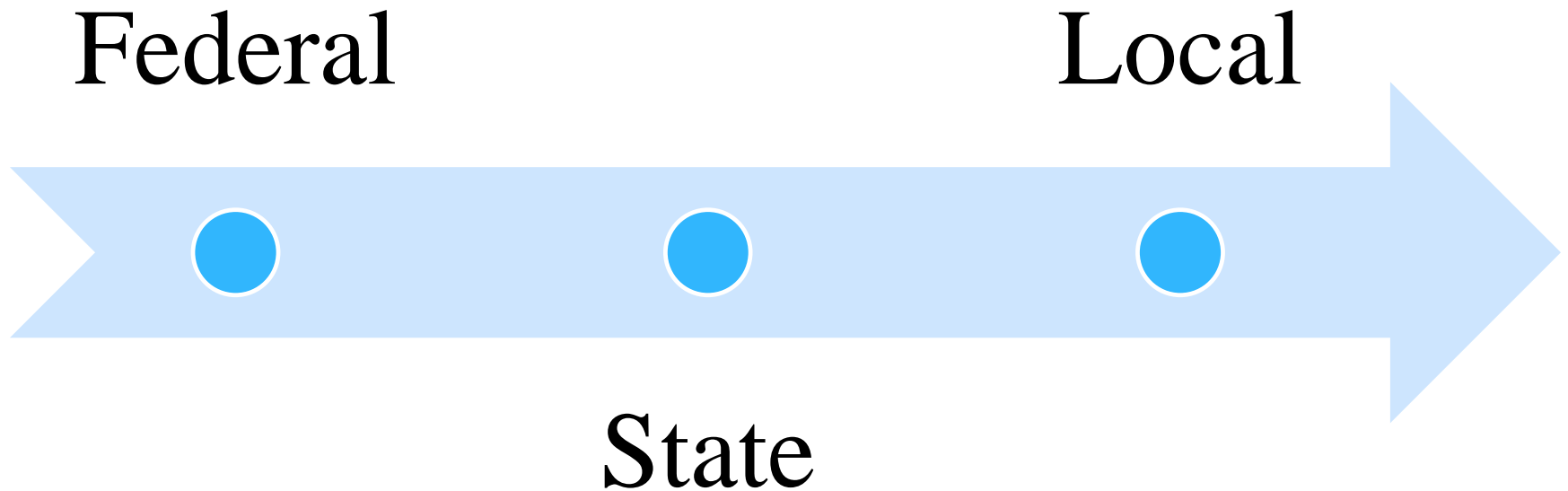
Ships are coming: will LNG be available?

***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



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!

Regulation of Waterfront Facilities

- ▶ 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

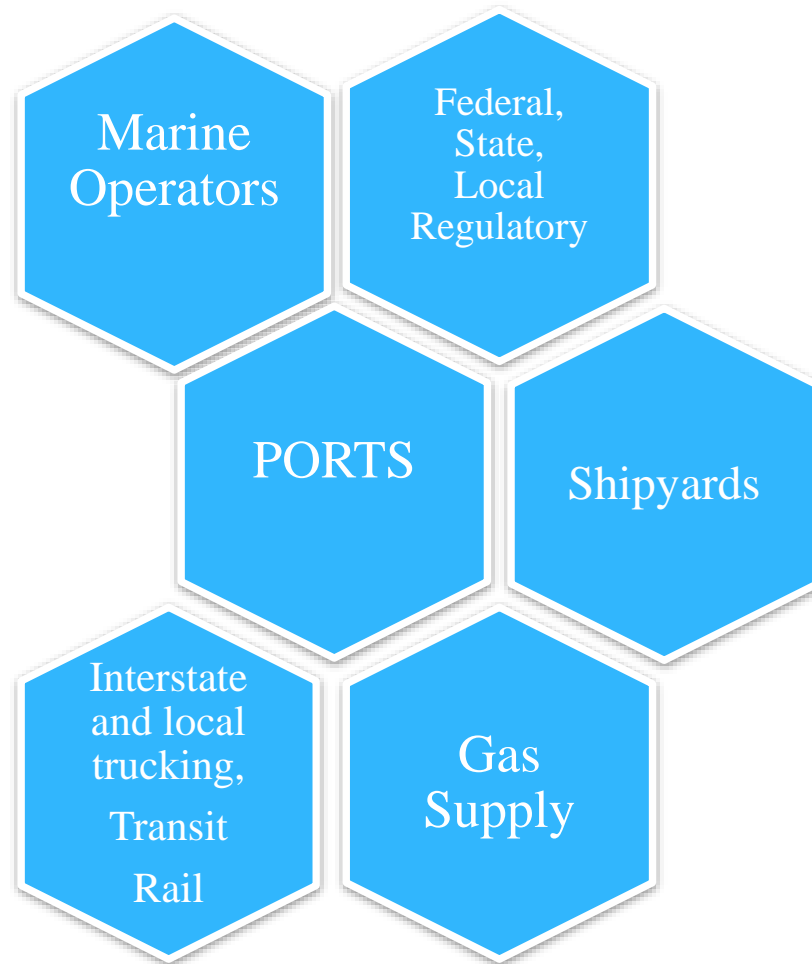
Potential for intervention, delays, cost growth!

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



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 NO_x 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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