LNG Technical Challenges - State Regulator Perspectives

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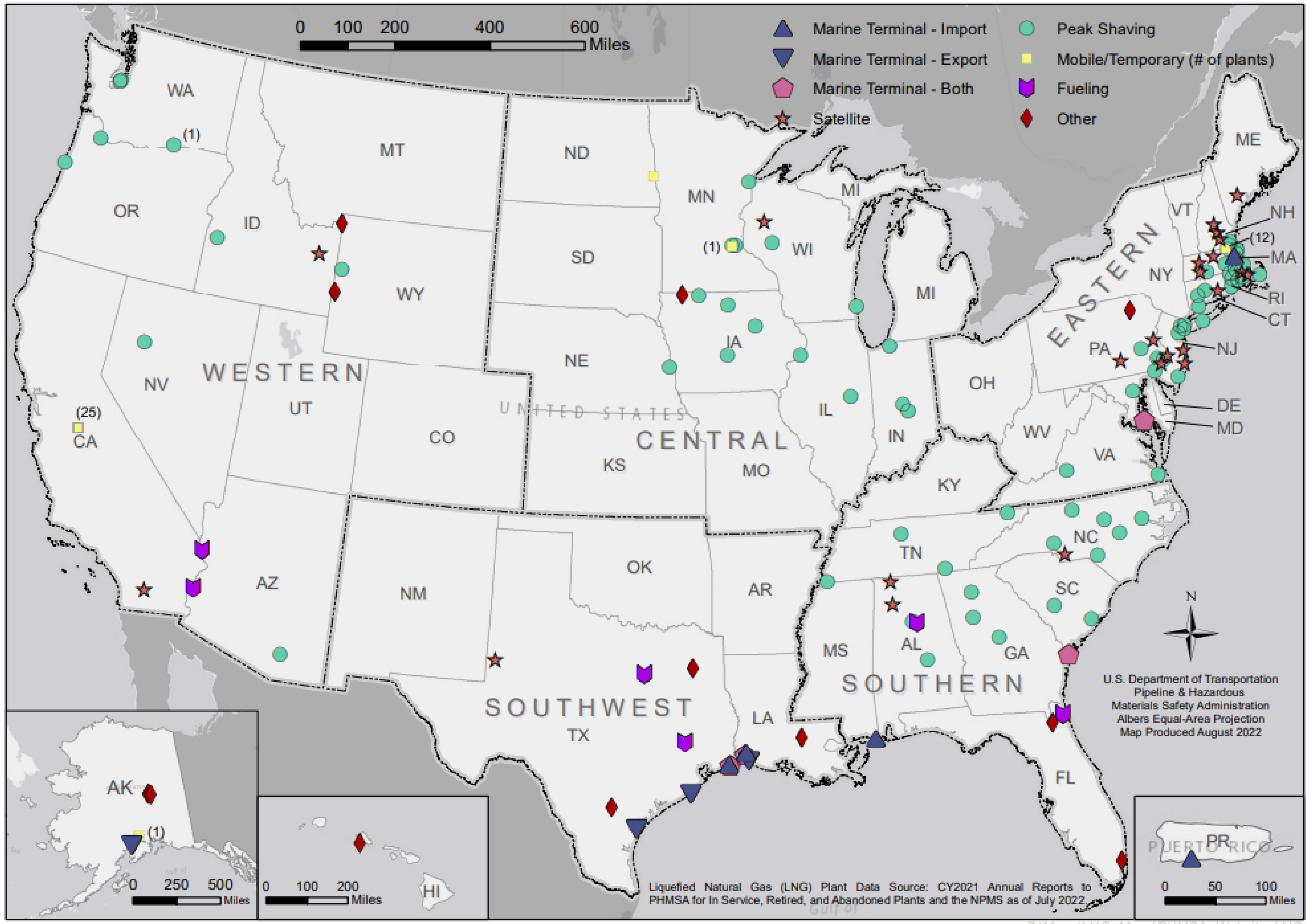
State-regulated LNG facilities

- National Association of Pipeline Safety Representatives (NAPSR)
- 168 in-service LNG facilities jurisdictional to PHMSA
  - 100 permanent intrastate LNG facilities
  - 40 mobile/temporary LNG facilities
- 30 states inspect LNG facilities for compliance with 49 CFR 193 (including 4 interstate agents)

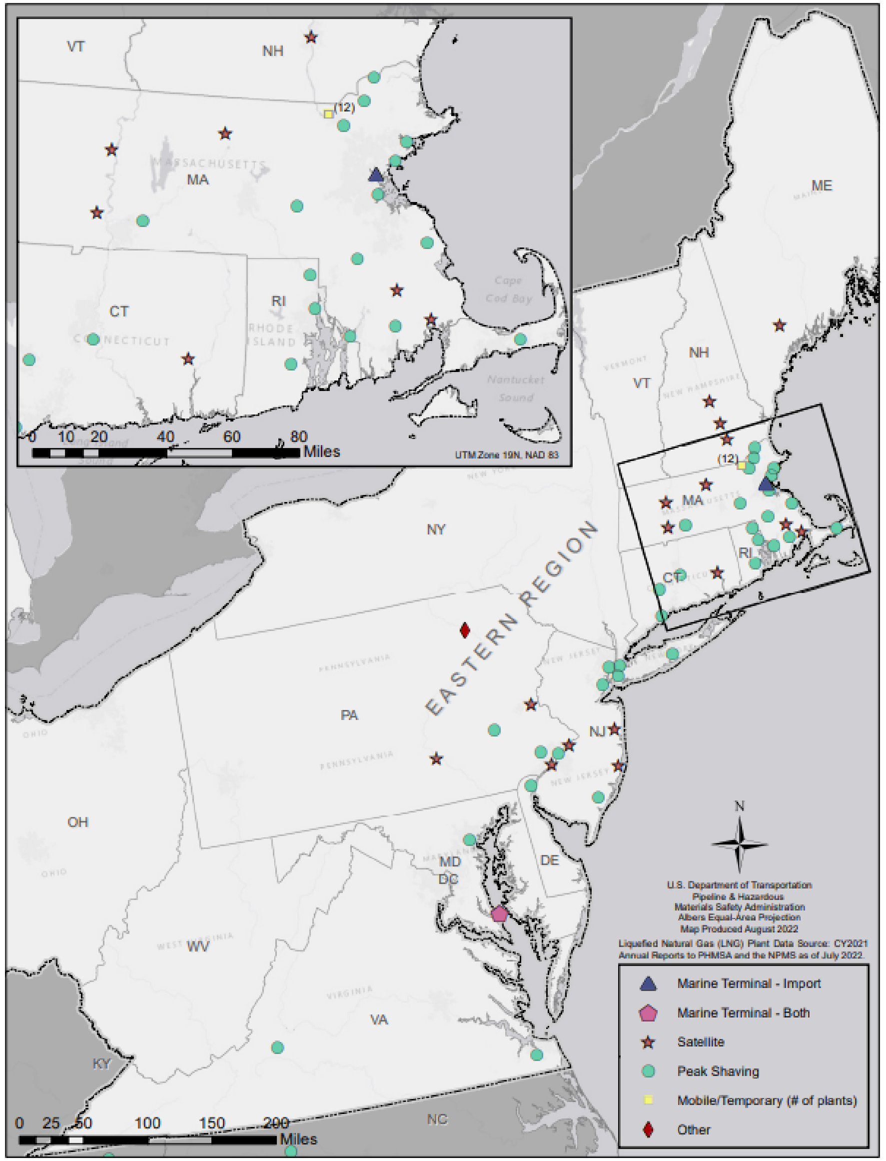
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

LNG Plants Connected to Natural Gas Pipeline Systems



LNG Plants Connected to Natural Gas Pipeline Systems

Eastern Region

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Peak Shaving
Satellite
Under Construction
WISCONSIN
POPULATED PLACES
500,000 – 999,999 Milwaukee
100,000 – 499,999 Green Bay
25,000 – 99,999 La Crosse
24,999 and less Kewaunee
State capital Madison
TRANSPORTATION
Interstate; limited access highway
Other principal highway
Railroad
Ferry
PHYSICAL FEATURES
Streams
Lakes
Highest elevation in state (feet) +1951
The lowest elevation in Wisconsin is 579 feet above sea level (Lake Michigan).
0 20 40 60 80 100 120 140 km
0 20 40 60 80 mi
Albers equal area projection
Lake Superior
Apostle Islands
Superior
Bayfield
Brule
Ashland
Hurley
MICHIGAN
Gogebic Range
St Croix River
Hayward
Lake Chippewa
Park Falls
Eagle River
Spooner
Ojibwa
Rhinelander
Pembine
Menominee R.
Rice Lake
Timms Hill 1951
Crandon
Wolf R.
MINNESOTA
St Croix Falls
Tomahawk
Merrill
Antigo
Marinette
Wausau
Chippewa R.
Menomonie
Chippewa Falls
Eau Claire
Oconto
Shawano
Green Bay
Door Pen
Sturgeon Bay
Mississippi River
Marshfield
Stevens Point
Osseo
Black R.
Black River Falls
Wisconsin Rapids
De Pere
Appleton
Kewaunee
Kaukauna
Pentenwell Lake
Two Rivers
Tomah
Sparta
Lake Winnebago
Manitowoc
Oshkosh
The Dells
La Crosse
Fond du Lac
Sheboygan
Plymouth
Lake Michigan
MI
Wisconsin Dells
Waupun
Viroqua
Portage
Beaver Dam
West Bend
Richland Center
Wisconsin R.
Watertown
Menomonee Falls
IOWA
Prairie du Chien
Madison
Wauwatosa
Waukesha
Milwaukee
Dodgeville
Fort Atkinson
West Allis
Janesville
Racine
Platteville
Monroe
Beloit
Kenosha
ILLINOIS
N

State permitting/siting

- Permitting requirements vary by state for LNG construction
- In Wisconsin, utility projects exceeding ~$5 million require approval from Public Service Commission
  - Almost any LNG project will easily be above this threshold
- May be subject to intervenors opposing the project

Aging facilities

- Many peak shaving facilities were built in the 1960s or 70s
  - 63 out of 100 permanent intrastate facilities
  - Wisconsin – 1965, 1969, 1974
- Updates may require compliance with siting regulations
  - Challenges with encroachment since facility construction
- Common for many industrial plants to go through "turnaround"
  - Often not possible for LNG peak shaving facilities
- How old is too old?

New facilities

- Natural gas demand increasing in many places
- Gaining approval for new pipelines is a challenge in today's environment
  - Some operators must turn to LNG for supply
- Even if demand decreases – still need gas supply for peak day
- Wisconsin – two facilities under construction in Ixonia and La Grange in southeast Wisconsin
  - Supply gas to greater Milwaukee areas on peak days

Siting

- Safe distances from tank & other site equipment
- Cascading events that could occur
- Potential of release larger than “SALS”
- Public perception
- Are there ways to bring existing “grandfathered” facilities into compliance with modern siting requirements

Design/Construction

- Advances in technology specific to LNG construction to ensure no construction defects
  - Weld NDT preferences
- Designed with redundancy (days peak shavers are needed, they usually NEED to work safely)

Control Room/Remote Control

- Plants are required to have an emergency shutdown (ESD) system
  - May be prudent to be able to isolate smaller sections of the plant
  - Relying on manual valve in some places in an emergency create problems
- Areas of the plants that should require more automation?

Inactive facilities

- Facilities not in operation and without product may more easily fall into disrepair
- How should an empty tank/facility be properly maintained to be used again in the future

Mobile/temporary LNG facilities

- Some facilities are used on more semi-permanent basis
- How long is too long for “temporary” use
- Potential for use in response to Section 114 requirements?

Impacts on the public

- Lighting requirements for LNG facilities are prescriptive
  - Are there ways to minimize effect on neighbors?
- Public awareness in the area surrounding facilities
- Training for local emergency responders

Questions?

PSC of WISCONSIN