COMMENTS SUBMITTED TO PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

U. S. DEPARTMENT OF TRANSPORTATION

REGARDING

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION

NOTICE OF AVAILABILITY OF THE DRAFT ENVIRONMENTAL ASSESSMENT FOR A SPECIAL PERMIT REQUEST FOR LIQUEFIED NATURAL GAS

PHMSA DOCKET NUMBER PHMSA–2019–0100

AND

ADVANCED COMMENTS FOR GENERAL POLICY AND RULEMAKING

REGARDING LNG TRANSPORT BY RAIL UNDER EXECUTIVE ORDER 13868

JULY 26, 2019 (DUE AUGUST 7, 2019)

SUBMITTED BY

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Purpose and Background

The comments submitted are offered to improve the safety of commercial transport of natural gas for both domestic and international purposes. The comments are not offered to slow down, curtail or hinder natural gas production, barge or pipeline transportation, sale or use. Commenter supports LNG export via LNG marine terminals which have proven to be safe. The comments are offered based upon 18 years in the electric utility industry (a user of natural gas) and 20 years' working for industrial users of natural gas for processing or fuel. The author has upstream and midstream (pipeline) oil and gas background experience. The comments do not reflect the opinions of current or former clients or employers but are informed based upon knowledge of natural gas use for the electric sector, industrial sector (for both fuel and for process use), and experience working for natural gas electric utilities that need natural gas for generation in Florida. Commenter is a member of North American Electric Reliability Corporation (NERC)'s advisory committees on electric-gas issues.

Executive Summary

PHMSA called for comments on the special permit for FTS, a company seeking to export natural gas via LNG transport by rail to a Florida export terminal. These comments are offered to PHMSA for LNG by rail for consideration of FTS's special application and in general for any rail or LNG companies seeking special permits for rail transport. The comments address DOT specification 113C120 W tank car as well as other operational and safety observations about transport by rail. The comments also address general operational and safety issues needed to be considered for the broader LNG rulemaking expected at PHMSA in response to directive under Executive Order 13868. A more complete Environmental Assessment on the FTS and any other applicants must be conducted before PHMSA should approve any applications or issue general rules approving LNG by rail. One obvious weakness in the PHMSA EA is that it asserted LNG by rail is safer than LNG by truck as though those were the only two regulatory alternatives. LNG by pipeline is far safer than by rail or by truck. Further, if a rail train carries 100 cars loaded with LNG it is far less safe than a truck carrying a single double hulled tank car.

Commenter believes that PHMSA must complete a thorough risk analysis focused on addresses public safety transport of up to 100 rail cars for export of gas to foreign countries. Based upon the completely inadequate risk analysis to date, PHMSA/DOT should disapprove the FTS proposal.

Commenter observes that PHMSA's stated "PHMSA proposes to find that the issuance of the proposed special permit would not result in significant impacts to the human environment." This commenter disagrees with PHMSA's statement that the special permit, if approved, would not result in significant impacts to "human environment".[1]

FTS should be allowed to resubmit an application following thorough and effective changes to improve their plan for transporting LNG by rail. However, until many of these safety concerns are addressed approval should not be granted under normal regulatory application or under the accelerated review

[1] PHMSA Draft SP 20534 Environmental Assessment, page 22, Item 8.

process as described in the President's Executive Order[2]. If under the President's recent Executive Order[3] or under the Fixing America's Surface Transportation (FAST) Act[4] all expedite review processes should still consider and expect rail safety improvements as offered in these recommendations. The commenter observes that President Trump's Executive Order directed U. S. Department of Labor's ERISA and Secretary of Energy to consult with other agencies regarding Appalachian region economic growth issues. Given that two other agencies appear to be tasked with related assignments that might affect the FTS project or other LNG by rail projects, taking time to conduct a more thorough risk analysis and address safety improvements for rail transporters does not seem like a significant delay.

The Exponent Quantitative Risk Analysis, in PHMSA's record, appears to conduct its risk analysis under National Fire Protection Association (NFPA) NFPA59A which is in comparison to a stationary facility.[5] That is a significant lapse in a Risk Analysis for a rail car—and a rail car moving with other non-stationary transport modes on rail line and stopped at crossings.

During this review, commenter strongly recommends PHMSA adopt a more expansive or thorough **cost benefit analysis** as discussed in **Recommendations 8 and 9** on pages 10-13. The recommendations for PHMSA to more expansively look at cost-benefit analysis applies to all of PHMSA's applications. Similarly, the FTS proposal should be subject to Unfunded Mandates Reform Act (UMRA) analysis on local governments. PHMSA's brief EA provided no information on new state and local government costs.

The commenter does **not** oppose LNG export or seek for FTS to be excluded from export market opportunities. Current natural gas prices and geopolitical will increase demands by Asian, Caribbean, or European countries needing North American natural gas. News stories and financial publications suggest that FTS (or its affiliated businesses) seek to export North American natural gas to Jamaica, Central America and perhaps to Ireland through the shipping lanes from Florida. The commenter has no opposition to exporting LNG to these countries. Nor does the commenter question economic benefits to those countries that need natural gas given reductions in natural gas supply from the North Sea.

Some articles suggest that FTS might provide natural gas to Puerto Rico via the LNG rail to Florida LNG export terminal. The commenter is very supportive of providing natural gas to gas-fired power plants (or to factories) in Puerto Rico. Puerto Rico seeks to replace older and more polluting coal plants with natural gas but has had difficulties with imports. Further, having an orderly delivery of natural gas would benefit Puerto Rico where many natural gas customers pay very high prices for industrial processing and for natural gas-fired generation. The benefits to Puerto Rico as it rebuilds its island is not in doubt. Commenter also is aware of the extreme poverty in Jamaica and some Central American countries in need of North American natural gas. The economic benefits of affordable and safe natural gas for use in the receiving countries is not in dispute. **What is questioned in these comments is whether LNG should be transported by rail and whether the risks outweigh the benefits at this time**.

The comments submitted in this filing do not presume that the improved LNG by rail safety issues are impossible to meet or too expensive for the rail industry to one day meet. These recommendations are not back door gimmicks to stop natural gas production in new shale gas plays or as associated gas from

[2] Executive Order 13868 on Promoting Energy Infrastructure and Economic Growth, issued April 10, 2019 by President Donald J. Trump

[3] ID

[4] https://www.govinfo.gov/content/pkg/BILLS-114hr22enr/pdf/BILLS-114hr22enr.pdf

[5] See page 47

conventional/shale gas plays across the U. S. Some commenters who have already submitted comments to the docket assert that "fracked gas" is a bad business enterprise. The commenter disagrees with blanket opposition to natural gas—whether conventional gas or shale gas- where hydraulic fracking is used for production. The U. S. needs a variety of critical infrastructure to move and store natural gas-preferably by natural gas pipelines and special double hulled marine vessels. The faster PHMSA can improve its safety requirements and monitoring of safety for transportation and storage of natural gas the better this will be for gas customers both within the 48 states and for export to foreign countries needing our natural gas. Commenter hopes that these comments will be accepted for general application for Part 193 regulations[6]. Further the comments are offered to address "risk-based standards to the maximum extent possible"[7] as expressed in the Executive Order should any other company seek to transport LNG by rail.

If Florida utilities or industrial users of natural gas assert that they need the natural gas and that they cannot transport it due to no approvals of additional pipeline approvals then the Administration should consider the alternative option to temporally allow delivery of natural gas through non-Jones Act vessels. PHMSA should call for comments on the Jones Act and seek comments by the wide variety of vessel owners regarding appropriateness of temporary waivers to move natural gas from safer U. S. LNG ports than by approving LNG transport by rail. Executive Order 13868[8] directs Department of Transportation (PHMSA and FHA) to address LNG transported by rail by final rule within 13 months or by May, 2020. Presumably that rule would address all LNG by rail applicants. Thus, these comments are offered for those future policy and regulatory considerations as well as the FTS application for Florida (or any other states FTS seeks to add).

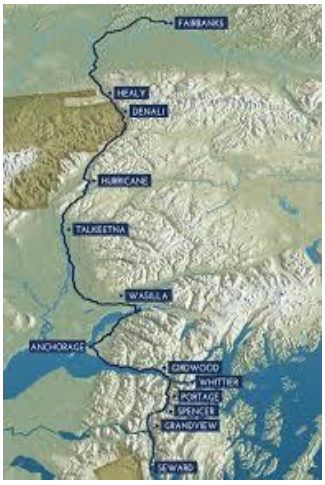
Transporting natural gas through underground pipelines and special marine ships is far safer than rail or by surface transportation (trucking). PHMSA and FTS have failed to demonstrate any need in Florida for approval based upon natural gas shortages for Florida electric utilities. Thus, the special permit is not justified.

Much About FTS Proposal Is Unclear or Not Provided for Public Review and Demonstrates No Thorough Risk Analysis

PHMSA's docket did not have any details provided by FTS regarding rail maps, population density or details about risk analysis, safety measures, and which Florida rail lines would be used and frequency of 100 car train unit passing through towns, villages, and unincorporated areas. The lack of these details make commenter wonder why they are not provided. While these comments do not address Section 404 (Clean Water Act) concerns or other environmental issues, it does seem difficult for advocates either in favor of FTS' application or opposing the FTS application to submit meaningful comments since these details are not provided. For example, there appeared to be no clear explanation as to why 50 mph speed was selected. Is this speed selected based upon set back, buffer zones, ability to stop for unauthorized passage of railroad crossings, adjacent High Consequence Areas (HCA) or any pool fires from the LNG rail car? None of this was explained in the few materials available in docket.

[6] Part 193 LNG safety regulations cover siting, design, installation and construction of LNG facilities. In large measures, these regulatory details appear to be based upon National Fire Protection Association Standard 59A9NFPA 59A) which is a consensus industry standard incorporated into PHMSA's Part 193 by reference.
[7] ID
[8] Issued April 10, 2019.

Why the FTS Application is Different from Alaska's Approval for LNG By Rail and Florida's East Coast Highway (FEC) Transport



One could easily misconstrue the prior PHMSA approval for LNG to travel by rail in Alaska as a large-scale performance test or proof that the FTS application should be approved. Commenter traveled to Anchorage in 2008 regarding the Alaska natural gas shortage for electric utilities and has real-world knowledge. Alaska's current population has an acute need for natural gas for use within the state despite the pipeline that transports natural gas to the lower 48 states. Alaska's "railbelt" is very limited. (See illustration). Most of Alaska's power generation facilities are natural gas or hydro—and many utilities anticipated a natural gas shortage within Alaska after 2010 due to population growth. In a sense each of those utilities have to maintain their own 'grid". While there is some electric transmission connecting some utilities, most of the Alaska utilities have very difficult circumstances for providing reliability given distance and extreme weather. Alaska as a state represents approximately 16% of the U. S.'s total land mass but less than .3% of the U. S. population. Alaska's railbelt covers a small geographic region of Alaska. Thus, LNG transport by rail had nowhere near the population exposure issues as it would in Florida. Further, Alaska residents' risk of death due to extreme winter weather if they lose electricity.

Alaska's extreme weather conditions place limitations on all rail, barge and road delivery for natural gas, biomass, and coal. Alaska needed additional natural gas to serve its own power sector and the Alaska natural gas pipelines were not designed for serving today's larger population. Perhaps most significantly, most of the Alaska population do not live immediately adjacent to the railbelt. While there may still be some modest safety concerns by commenter about Alaska's LNG transported by rail, Alaska has a unique and serious fuel problem that justify steps that might not be justifiable in other states. Many thousands were at risk to loss of power and heat if their utility providers lost access to natural gas. Local hospitals could not have run on limited supplies of No. 2 fuel oil or propane if gas-fired power was curtailed due to a natural gas shortage.

The FTS application is not designed to deliver natural gas to Florida population in serious need of natural gas. Primarily the FTS business model is to sell natural gas to foreign entities. In this case, the safety risks are within the U. S. and most of the benefits are for those citizens and business enterprises in Caribbean, Central America or other nations and the FTS investors. While the U. S. trade benefits from export of natural gas (or any other commodity) are legitimate, in this instance the safety disbenefits or risks to U. S. citizens should be weighed carefully and thoroughly.

Commenter believes Obama Administration (March 2016) Florida East Coast Railway approval is a limited transportation of LNG from the liquification plants to the nearby export terminal or ports. This is a far shorter distance than the request by FTS to transport LNG by rail between Jacksonville and Miami[9] which is approximately 350 miles.

[9] https://www.crainscleveland.com/energy-and-environment/trump-plan-ship-natural-gas-rail-stokes-bomb-train-fears

Recommendations for FTS Permit Application and All Policies Related to Future LNG by Rail Regulations under 49 CFR Part 193

1). PHMSA should only approve the use of rail cars to transport liquified natural gas (LNG) regardless of size (large scale or for small scale LNG or "ssLNG") if transported by rail carriers that have state of the art safety equipment, car, and under car protections to prevent pool fires that can happen several miles from the rail line.

These safety considerations should include emergency brake equipment on each rail car; pressure monitors; sensors (on train and along rail line) for spark both on the ground's rail line, electric lines near rail lines, and any spark sources on the train; double hull rail cars (and marking, signage or non-public signage if appropriate for PHMSA/FHA and state railroad agencies to identify LNG transport cars); installation and frequent checks of spark arrestors, and at least two full-time employees as crew working on the LNG train at all times (including during rest, emergency stops, unscheduled congestion stops, or refueling stops). Safety considerations should also be specific to the FTS schedule by rail location, local traffic intersections with passenger cars and trucks or with other commodity chemical delivery (especially if those rail cars are traveling at a different speed than FTS). Further FTS or FTS' rail carrier should provide PHMSA relevant safety (including self-inspection) on their Florida rail service or contractor safety inspections for the last two years. Any rail line safety assessments conducted by FTS or its parent company should be provided to PHMSA.

PHMSA should conduct a full safety analysis to determine if LNG fuel may be safely used by railcars without creating a new method for sparks or small fuel leaks. If PHMSA and FHA determine that approval may only be given for smaller transport by say, ten, fourteen or sixty rail cars rather than the standard 100 rail car unit, then that is an appropriate safety measure. Private sector economics for rail car transport typically necessitates the use of 100 cars on a unit train to make a profit. No one questions the need to make a profit. However, in this instance, public safety should place a lower rail car limitation if 100 cars transporting LNG is too large from a fire management or rail car derailment perspective. Commenter does not presume that all 100 cars would derail or their contents catch on fire. But one might assume that at least 5-8 rail cars might derail in a train accident. And even if only one rail car has a vapor cloud leak or fire, that is a large volume of natural gas.

PHMSA staff and contractors who have been assigned to Alaska or related LNG by Florida's East Coast Railway should review those safety issues before approval of the FCS is allowed. Where relevant, cargo rail cars carrying turpentine, chlorine, cyanide and ethanol should be studied for safety enhancements that would be useful for LNG. This should include learning from Canadians, Japanese and Europeans.

2). Speed on all rail cars should be required to use Positive Train Control (PTC), automatic signaling, monitoring, and speed adjustments by railway company to adjust for slowing down due to emergency repairs or other impediments that necessitate speed. The frequent speeding violations of U. S. freight rail was discussed at the spring 2018 PHMSA Gas Pipeline Advisory Committee (GPAC) meeting during a two-hour presentation. That session was not about FTS' LNG by rail application but discussion did suggest that before LNG should be allowed to travel by rail that ALL trains must improve rail company compliance with speed. The presentation described how train conductors often forget to adjust the train speed to the temporary or emergency speed limitation when train resumes movement after stopping. While Wi-Tronix and other similar technologies may be used by some rail companies to self-

police for speed, it is not clear if the railway companies transporting LNG would be required to use Wi-Tronix[10] (or similar products from competitors). Commenter's recommendation is that any rail car on the same rail line (or intersecting line) carrying LNG should be required to have real time speed and better turning radius detection technology. These speed, pressure change sensors and other technologies should be able to bypass any limitations in rural areas where there is no GPS or internet service since it appears many of these technologies are Cloud-based. All of these detection and monitoring devices should be resilient to crashes, explosions, heat, hurricane force wind etc. and where information is preserved for any post incident investigation.

Integrity testing, corrosion testing and other structural testing for railcar or undercarriage dents and even minor storm-related damage to undercarriage that leads to corrosion should recognize that Florida's hurricane and tropical storm wind might make dents more possible from debris external to the rail operations. This testing should include ability for rail safety crossing signage and arms to withstand hurricane force wind. PHMSA should consider metal fatigue as well as the rail car and rail line vibration, hurricane force winds, and external heat for any rail cars and for the metal on rail lines that could puncture a single LNG car from below or above. In this instance, FTS application would include rail fatigue or buckling during summer heat in Florida as well as extreme weather conditions during tropical storms on both rail car and rail lines. *Should FTS seek any expansion into colder climate, such as to their New Jersey commercial enterprises, the colder weather and aging infrastructure (including bridges and tunnels) should be considered*. Appropriate use of insulation foam or other materials as appropriate for new LNG railcars and on trains traveling through unincorporated areas with no fire or police departments

3). Before any approval of liquified natural gas by rail PHMSA must demonstrate that Florida's rural towns, small towns with no fulltime city employees and unincorporated areas (sometimes merely trailer parks sharing water utility services) located between Jacksonville and Miami may not have adequate fire and EMT departments[11] for any LNG derailments. For many smaller towns, the fire and EMT departments have limited staff training for derailments, pool fires, or explosions and often are heavily reliant upon volunteers.

4). PHMSA must determine if all larger cities/townships along Florida rail corridor can handle fire or train derailments. PHMSA should communicate directly with directors of fire/police/EMT that all communities where the proposed FTS rail line have fulltime fire department with hazardous materials training. PHMSA should also confirm the communities along the rail line have hospitals with adequate 24-7 emergency room, staff, burn units, and 1 or 2 bed rooms. This medical response adequacy assessment by PHMSA should reflect new rules under Health and Human Services since many rural hospitals are in a state of serious decline and closures[12].

[10] The comments with references to specific products are not intended to benefit one product over another—the names are offered merely as examples described in trade press

[11] Letter submitted in 2017 by group of fire officials in Florida expressing concerns for general LNG transport by railcar can be found at

[12] Washington Post series on rural hospital closures includes "Who's Going to Take Care of These People?"., May 11, 2019. https://www.washingtonpost.com/news/national/wp/2019/05/11/feature/whos-going-to-take-care-of-these-people/?utm_term=.1738275e3190

Some cities like Jacksonville may have outstanding EMT/fire/police and local hospital training and response systems to handle rail derailments. Jacksonville clearly has experience with large barge traffic, rail traffic, and rail carrying commodity chemicals. Perhaps, for Jacksonville, there are no additional risks for LNG by rail. But PHMSA needs to conduct analysis of the neighboring towns, villages, unincorporated or unannexed areas and larger cities along the rail corridor. Those communities may benefit from a webinar with PHMSA staff before making a final decision on the FTS application. Small towns with part-time mayors do not read the Federal Register. PHMSA needs to reach out to them. Other regulatory agencies such as U. S. Environmental Protection Agencies (EPA) have similar outreach to local communities through data bases that break down by SIC/NAICS codes, zip codes, manufacturing companies, electric and water utilities, and population sizes. Presumably PHMSA can do the same.

PHMSA needs to specifically ask if those townships and cities have mutual aid arrangements with their personnel for incidents in neighboring communities.

Commenter hopes that any approval process for LNG by rail will ensure that state/local emergency response capability is ensured before granting FTS approval. While explosions are extremely rare, risks of pool fires are not so rare. Derailments with no fires are even more common. And since natural gas in LNG form has no mercaptan odorant, it is also possible that some non-explosion leaks might not be detected as rail cars pass through a community. Without an odorant as detection tool, it is possible for the natural gas to enter into a local community's waterways.

Those leaks might not cause catastrophic event but might cause an event following the passage of the railcars through the town. These fire/police/hospital concerns should apply to all other applicants for LNG by rail. Based upon the 2017 three-page detailed letter[13] from the Treasure Coast Fire Chiefs' Association to Governor Rick Scott regarding LNG by rail, it does not appear that many local governments' first responders were confident in their ability to handle any emergencies due to LNG by rail. Commenter recommends obtaining the views of the Treasure Coast Fire Chiefs along with all other relevant EMT/first responders before granting any permit approval.

Commenter also observes that the Federal Railroad Administration Accident/Incident Overview for Florida (FECR) from 2011-2017 includes the following statistics simply as a reason to scrutinize the proposal's specific (but not disclosed on PHMSA website) rail line map. Since the FTS application information on PHMSA website does not indicate any location details these injuries and fatalities might be relevant. Some advocacy groups, perhaps well-informed and perhaps some not well informed, assert that the LNG by rail would share train tracks with other high-speed rail lines (50-100 mph) along the FECR rail corridor. This commenter is not able to express an opinion because the FTS application does not appear to share a map or description of corridor. PHMSA and FHA should evaluate whether the existing pattern of fatalities and whether high speed trains will travel with and lower speed FTS LNG rail cars is an adequate requirement.

While many rail fatalities are tragically due to individuals at grade crossings (on foot or by car) or intentional suicides, these issues should be considered when looking at FTS's routing.

2011: 18 fatalities 14 injuries

[13] Treasury Coast Fire Chiefs' Association letter from 2017 The comments with references to specific products are not intended to benefit one product over another—the names are offered merely as examples learned from trade press.

2012:	12 fatalities	25 injuries
2013:	12 fatalities	25 injuries
2014:	13 fatalities	31 injuries
2015:	16 fatalities	30 injuries
2016:	20 fatalities	33 injuries
2017:	12 fatalities	27 injuries (2017 data through October 31, 2017)
Total:	103 fatalities	185 injuries

Source: Martin County, Florida v U. S. Department of Transportation, Case 1:18-cv-00333 Document 1, Feb. 13, 2018[14]

5). Before PHMSA can approve any LNG by rail it should conduct a complete and rigorous **cost benefit analysis** with an assessment of U. S. state and territory benefits by obtaining natural gas by rail (as well as whether they can purchase the natural gas via by pipeline/LNG tanker ships) and all of the societal costs/risks related to risk as outlined in these comments.

When OMB looks at costs it should include possible rail car explosions (even if unlikely) or fires (or derailments that fortunately do not result in death or injury) but that might result in impacts to neighboring residential homes, local governments, lost agriculture, and industries. OMB and PHMSA should consider whether local businesses or public transport are reliant upon the Right of Way near rail lines or unrelated natural gas transmission pipelines and if there are intermodal transportation problems if an accident occurs. These impacts might include loss of electricity to local factories or farms, impact to individual residential natural gas users, or overwhelming EMT or hospital if there is a derailment. These risks to local natural gas or electric power users should be considered in the cost-benefit analysis of regulations on rail lines transporting liquified natural gas since the consequences may be far greater than for other chemical commodities transported by rail. (Benefits should also be considered if LNG by rail augments natural gas transport into Florida that can be used by electric utilities and industrial users. However, nothing in the PHMSA docket indicated the rail lines would also be able to serve customers in Florida).

As stated earlier, the commenter does not doubt many benefits for natural gas being provided to U. S. territories such as Puerto Rico and U. S. Virgin Islands. However, the economic costs must be looked at by PHMSA including additional "unfunded mandates" that might result from the passage of a 100 car LNG cargo train unit through a community that does not have a fulltime fire department or large hospital. This cost assessment (as unfunded mandate) should include local traffic congestion avoidance if 100 train cars (one-unit train) pass through the communities daily.

6). PHMSA (and Federal Railroad Administration) must require railroad companies to use comparable materials in railway cars able to withstand the same level of protection as marine shipping and subsurface natural gas pipelines. In the case of marine shipping, there are many safety requirements

[14] https://www.courthousenews.com/wp-content/uploads/2018/02/florida-rail-lawsuit.pdf page 9

including double hulled vessels, specialty metals withstanding puncture holes and terrorism attacks, etc. It was not clear from the PHMSA documents is the puncture risks were analyzed by PHMSA staff for all the metal parts on the rail lines and rail anchors that could be uprooted during Florida hurricanes, tropical storms or flooding events. The commenter assumes that the double hull tanker technology is effective. The commenter is aware that LNG by rail is underway in Japan, Canada and in Europe. However, the FTS materials did not explain if the rail line would be altered to decrease risks from punctures during storms even if the secondary hull on railcar withstands a storm.

7). PHMSA should only approve a rail line transport project where the rail company has adequate history of excellent safety. Some chemical tanker rail cars have had unfortunate histories of opening of tankers with open valves, flanges and other events causing accidents. While one presumes that PHMSA would have more exacting LNG rail transport requirements than on chemicals transported by rail, it should pointed out that other commodity chemicals transported by rail have had derailments. The commenter reviewed the April 18-19, 2018 Tank Car Committee meeting of the Association of American Railroads. The 105-page document of Tank Car Committee identified as meeting notes, docket and agenda[15] indicated significant improvements needed for tank cars carrying chemicals due to routine safety issues. While these more routine matters are a concern, they do not cause commenter to make an arbitrary or permanent decision that railcars should never be used to transport LNG. ***However, they do give the commenter pause and thus justification for declining the application***. The 2018[16] and 2019 AAR Tank Car Committee Docket notes may be found on the internet presumptively as public documents.

PHMSA and FHA should also be clear in cost-benefit analysis if non-LNG rail carriers will have to meet new regulatory requirements or slow their speed in order for LNG to be moved by FTS's railcars.

8). While PHMSA has a requirement to meet **Cost-Benefit Analysis** under authorizing statute as well as under normal practice with Office of Management and Budget (OMB) review, this commenter strongly encourages PHMSA to evaluate costs due to safety violations or accidents more inclusively than they have in other rulemakings. Examples of what should be considered include whether local farms or factories should lose power due to any emergency shut off on overhead electric transmission lines, temporary or longer-term rail repairs that might curtail rail transport of agricultural commodities. Further PHMSA should consider electricity outages in Right of Way areas adjacent to rail lines or for fire suppression following an incident. PHMSA should consider rail line proximity to factories or factory distribution centers adjacent to the rail line blast zone in case they lose their ability to operate for one day or a week. Those costs in loss of operations can be significant-especially for "just in time" manufacturing companies where large volumes of inventory are not kept on site to keep up with production and assembly. Those economic losses to neighboring industries if a rail line has an accident should be considered in cost benefit analysis.

Further, and far more importantly, PHMSA and OMB need to evaluate whether the communities where the rail line will pass has adequately trained and 24-7 available local Emergency Management Technicians (EMTs) and local hospitals that meet all the requirements for 24-7 emergency rooms with

[15] https://www.aar.org/wp-content/uploads/2019/04/TCC-MAIN-Agenda-2-KBD-January-2019-002.pdf
[16] https://www.aar.org/wp-content/uploads/2019/04/TCC-MAIN-Agenda-2-KBD-January-2019-002.pdf

burn/blast response personnel. LNG transport by train in Japan and Europe[17] have not seen train incidents or accidents according to review of Eurostat Statistics (2017). However, it is not certain by this commenter if the European and U. S. trains have the same set back and buffer zones. Commenter presumes DOT would know about LNG transport in Japan and Europe. This commenter is not an expert on Sandia National Laboratories' 2014 and 2010 studies[18] on vapor clouds, dispersion modeling, fireballs, expanding liquid vapor explosions, and fatalities but recommends these reports to be evaluated by PHMSA for consideration. Clearly natural gas at -280 degrees F has less risk than many chemicals transported on rail lines for explosions or fire. Some of the Sandia findings on LNG may not be relevant as the reports also looked at marine tankers—but PHMSA may be able to determine which of Sandia's reports are more relevant for on-land rail transport. Further, DOE and Sandia conducted a similar terrorism analysis in December, 2004 which may need to be reviewed for safety prevention measures. Commenter does not mean to imply that there should be arbitrary "no ship" or "no rail transport" location assumptions made based upon these comments. Sandia identified the highest risks of locations within 550-yards of the LNG. The EA did not offer any description of what type of facilities are within 550 yards of the rail line. Schools? Electric utilities? Hospitals?

- **Benefits:** There are potential benefits to U. S. economy and local governmental agencies from LNG transported by rail. Rail transport can provide jobs, a healthy tax base, and provide geopolitical benefits to those countries in need of natural gas. For our fellow citizens in Puerto Rico, distribution of LNG by rail/special barges to their ports can only be a good thing. LNG by rail, one day, may be an outstanding way to mitigate against natural gas shortages in New England where the power sector and their manufacturing customers already have a shortage of natural gas. However, these benefits need to be weighed against the societal safety costs if we have not yet determined the preferable way to transport natural gas. It would be a bad judgment to rely solely upon natural gas transported by truck or rail car where we do not have adequate natural gas pipelines. And it would be equally a bad idea to oppose all transport of natural gas via rail if those new enterprises are able to demonstrate public safety. However, it is hard to imagine, at this time, rail line or highway transport will ever be as safe as pipelines. Additionally, PHMSA should recognize in the benefits analysis that FTS is not the only method for Puerto Rico, U. S. Virgin Islands or others to obtain natural gas. There are at least four U. S. LNG export terminals permitted (perhaps not all operational) for export.

If the rail industry is ever able to provide natural gas delivery via rail lines in a similar way that coal and other commodities were shipped, it would be an incredible asset for electric utility reliability. This was alluded to in PHMSA's Draft SP 20534[19] Currently, there are gas islands (sometimes called "gas deserts") or isolated locations where there is either no natural gas storage or limited natural gas storage where those electric utilities will shudder and dismantle coal-fired power plants. Multiple means of natural gas transmission would be excellent for both manufacturing customers or electric and gas utilities.

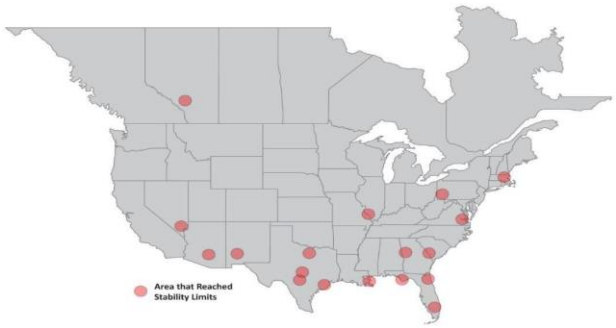
[17] According to the European Union Agency for Railways (ERA) most of the European accidents have been in Hungary, Germany and Poland and due to unauthorized individuals walking across train tracks at crossings or due to rolling stock in motion. These statistics do not include statistics on deaths due to suicides which tragically happens in all advanced countries with trains. www.//ec.europa.eu

[18] Sandia Report SAND2004-6258, Unlimited Release, Printed December 2004 and T.K.Blanchat, Sandia National Laboratories, 2014

[19] PHMSA Draft SP 20534 Environmental Assessment, page 21

Historically, coal-fired power plants sought to locate in proximity to rail and barge distribution centers so that the electric utility could have some flexibility in purchasing natural gas. Historically the cost of rail transport cost more than the price of coal (as a commodity).

Utilities (as well as manufacturers) sought to have coal transportation opportunities where there was more than one rail line (or perhaps a barge) to deliver coal. Commenter recommends that PHMSA become familiar with North American Electric Reliability Corporation (NERC)'s various reliability studies on natural gas. Florida is one of the states that NERC expressed concern regarding adequacy of natural gas infrastructure in its 2017 Single Point of Disruption study[20]. As illustrated in the NERC map below, Florida has two points for concerns of concern.



SOURCE: NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

- **Markets:** According to a recent Crain's[21] publication, some in the natural gas industry believe that rail shipments could outcompete other LNG sources in Mid Atlantic region. While this commenter remains skeptical of drawing these conclusions for a variety of reasons, the commenter is trying to be fair in providing a range of possible societal benefits. Perhaps those seeing LNG transport by rail to displace other natural gas transport view market forces such as electric utility Regional Transmission Organizations (RTO)- especially PJM[22]- offering Capacity Market, Day Ahead or other market pricing and incentives for transporting liquified natural gas by rail to many electric utilities that may not otherwise be served by new underground natural gas pipelines. Perhaps those market analysts are wiser than this commenter. But this commenter believes it is far too soon to make those market assumptions about LNG by rail being more economical than LNG by special marine vessels and export terminals**. For domestic U. S. use, natural gas pipelines are certainly the most economical and safest transportation.**

[20] https://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/NERC_SPOD_11142017_Final.pdf Commenter is a member of the NERC advisory committee for gas-electric issues.

[21] https://www.crainscleveland.com/energy-and-environment/trump-plan-ship-natural-gas-rail-stokes-bomb-train-fears

[22] PJM is the regional transmission organization or RTO coordinating the movement of electricity in Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and Washington, D. C. PJM generally speaking is the RTO covering approximately 65 million people or almost half of the population of the U. S. east of the Mississippi. Increasingly other states are joining the PJM RTO system.

Excerpt from Crain's story on LNG:

"Rail shipments could outcompete other sources of LNG in the region, analysts said, even factoring in added costs to liquefy natural gas and transport it in tank cars. New England imported six cargoes of LNG at an average price of $8.88 per million British Thermal Units in January, even though the same quantity of Appalachian natural gas traded at $3.25."

- **Anti-trust**: When PHMSA and OMB assess costs and benefits, staff should be reminded that railroads are exempt from anti-trust[23]. There were a variety of reasons that Congress did not include railroad industry in anti-trust regulations and monitoring. So, while all other industries are covered by anti-trust regulations to avoid market power or monopolistic actions, the railroad industry is not. These comments to not attempt to cover all of those related issue but, if natural gas is to travel by rail, regulators should consider the domestic impacts to users from shipping a commodity on rail. It is clear that electric power and manufacturers have fewer choices on fuel (i.e. coal is largely eliminated as a function of market and/or environmental regulations). So, as PHMSA and OMB regulators/analysts do cost-benefit analysis, they should consider the consequences of a limited fuel option (basically natural gas) coupled with a rail transportation system that has no anti-trust limitations. This antitrust issue alone may add merits to possible limited waivers of Jones Act allowing marine vessels to transport LNG within the 48 states.

9). PHMSA's docket did not indicate that PHMSA has done an assessment of non-rail causes for spark that might cause rail line risks. Commenter does not believe that it realistic to assume that the rail company and FTS can eliminate all risks from spark. Lightening caused wildfires in Florida in 2019 illustrates approximately 18,000 acres of the Everglades affected[24]. These wildfires were caused by embers that traveled by gusts of wind. According to a presentation by Eric Nelson, Travelers Insurance[25], most of the 2018 Myrtle Beach (SC) fires were caused by embers traveling by wind—not by raging ground fires. The commenter does not believe that PHMSA has adequately studied whether any rail company can adequately protect LNG by rail from spark, wildfires, external to the rail line.

10). PHMSA and OMB should evaluate safety requirements for rail transport of LNG based upon reasonable expectations of risk. While all risks should not be weighted based upon past experience, it is also true that many safe LNG shipments (via ships) began in the 1950s. While there have been a few tragic events (Skikda, Algeria, Bontang, Indonesia, Cove Point, MD, Cleveland, OH, and Arzew, Algeria) over 30 years, LNG accidents and fatalities are rare. **It is clear to the commenter that ships and underground pipelines are safer than transporting natural gas by rail or truck based upon industry safety statistics**. But perhaps PHMSA may be persuaded that rail transport safety can be met after it weighs costs (including loss of life and loss of operation to adjacent industries within fire or explosion zone), and benefits to U.S. companies selling product abroad. Geopolitical benefits to non-US natural gas users as purchasers of natural gas should not be considered when weighing costs and benefits in setting safety regulations. There is no doubt of the geopolitical benefits resulting from the sale and

[23] Along with the baseball industry

[24] https://www.smithsonianmag.com/smart-news/large-fire-raging-through-everglades-180972488/

[25] During panel presentation with U. S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) staff on July 23, 2019, BuildStrong Coalition at U. S. Chamber of Commerce.

export of natural gas to Europe and Asia. However, those geopolitical benefits, mostly to others, should not marginalize the consideration of costs and disbenefits to U. S. citizens living and working in proximity to rail lines.

11). While all trade press articles indicate that it would be standard to transport 100 LNG railcars at one time, it seems far riskier than transporting LNG by pipeline or barge. The commenter does not believe that transport by truck is as safe as pipeline. It may be necessary for short haul surface road transport between marine ports and the ultimate customer but these are typically very small volumes of single or double truck orders to travel that last "leg" from marine terminal.

12). While rail transport might reduce volatile organic compounds (VOCs) and CO_2 compared to trucks, the safety issues are still inadequately assessed for purposes of a special permit. The secondary human health impacts from VOCs and greenhouse gases are not as important, in this context, as the unknown safety concerns. It appears that PHMSA has contemplated NEPA issues related to the use of natural gas.

13). PHMSA should study various studies by Congress, governors, and think tanks regarding antiquated bridge and tunnels on any existing rail line[26]. There is only one tunnel in Florida near the FTS service area. The antiquated bridge and tunnel issues in NE may merit consideration if trade press is correct that FTS plans to expand LNG route north to New Jersey. There did not seem to be any related surface or railway references to height, width/ turning radius or speed issues for bridges and tunnels referenced in the application. Recent popular news publications have addressed how many bridges and tunnels are in disrepair and have caused 2-3-hour delays for surface trucking in the New York area. While the FTS application appears to be restricted within Florida, other news and business journals have suggested FTS may later seek to expand its rail transport of LNG between New Jersey and Florida in the future. This should be clarified by PHMSA.

14) These comments should be considered should FTS or any other LNG by rail company seek approval for Private Activity Bonds (PABs) to finance the LNG export project at the U. S. Department of Transportation or IRS. Commenter does not oppose PABs simply believes these comments merit consideration in any taxpayer funded program.

Conclusion

Transporting natural gas by pipeline and marine LNG vessels are far safer. Commenter does not believe it is appropriate to approve the FTS application for LNG transport by rail given risk analysis and remaining safety questions even with a double hull tanker. Perhaps, over time, some of the safety concerns expressed in the comments might be addressed and explained more clearly by the applicant, rail industry, and by PHMSA.

Commenter does not believe that PHMSA has adequately looked at costs to local governments (not just economic benefits in tax revenue) for LNG natural gas transported by rail cars. Thus, the cost benefit analysis is clearly not adequate. It does not appear that PHMSA conducted a thorough analysis of **new**

[26] https://www.governing.com/topics/transportation-infrastructure/gov-tunnels-amtrak-infrastructure-newyork.html and https://www.baltimoresun.com/maryland/bs-md-rail-tunnel-study-20151218-story.html

unfunded mandate[27] cost for emergency response and losses to other industries during LNG transport. It would seem peculiar for OMB and PHMSA to assert that there is no unfunded mandate implication under state and local safety regulations for any community with LNG transport by rail. Those local community costs (and the tax revenue needed to pay for the safety programs, equipment and staff) must be assessed.

Perhaps the safety concerns are not insurmountable. PHMSA might be able to address these safety issues with rail industry. Rail industry may be able to still provide affordable delivery system even if that system is not as safe as underground pipelines and marine transport of LNG. However, there are enough concerns that merit a cautious approach by PHMSA at this time. Perhaps the Administration should consider short term variances on a case by case basis for non-Jones Act vessel transport of natural gas within coastal 50 states and U. S. territories as long as those vessels meet U. S. safety requirements for LNG transport if a natural gas shortage is demonstrated. However, risks undertaken in local communities for rail transport may outweigh the economic benefits to exporting natural gas through a less safe method.

Commenter supports the production, use and LNG export of natural gas under safe operations. In this instance, it does not yet appear that the railroad industry or FTS has demonstrated safe means to transport LNG. Until these safety issues are addressed, this LNG by rail application should be tabled or rejected. These same concerns should be addressed by PHMSA and FHA under a future rulemaking as directed by President Trump's Executive Order. **Natural gas transported by underground pipeline and LNG double hulled marine transport are far preferable to LNG by rail (or truck) for many reasons.**

Thank you for reviewing. Commenter is available for discussions with PHMSA or OMB staff to help provide technical background information.

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[27] Unfunded Mandates for state, city, and county governments are covered by Unfunded Mandates Reform Act of 1995 as well as Executive Order 13132 issued by President Bill Clinton.