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VIA CERTIFIED MAIL, RETURN RECEIPT REQUESTED
Docket Management System
U. S. Department of Transportation
West Building, Ground Floor, Room W12-140
Routing Symbol M-30
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: NPRM - PHMSA – DOCKET NO. 2018-0025 - or RIN (2137-AF40) – LNG "RAIL TANK CARS"

To whom it may concern:

Our office has been retained by the Alliance for Sale Trains, Inc. to provide the following comments regarding the proposed Rulemaking which seeks to make changes to the *Hazardous Materials Regulations* to allow for the bulk transport of Methane, refrigerated liquid, commonly known as Liquefied Natural Gas (LNG) in DOT-113C120W specification rail tank cars. Said comments are attached hereto as Exhibit "A".

We have a unique situation in the state of Florida where a high-speed passenger rail project, traveling at speeds from 110 mph to 125 mph, will be sharing tracks or riding on parallel tracks with 30,000-gallon rail tank cars travelling at 40 mph loaded with Liquefied Natural Gas (LNG). It is clear that if the proposed rulemaking is successful, the entire east coast of Florida will become *a virtual rolling natural gas pipeline on wheels*.

Our client is therefore respectfully requesting the ***NO ACTION ALTERNATIVE,*** *leaving current regulations in place, with no new enabling provisions added,* until such time as the required scientific research, study, and analysis to support the unprecedented transport of LNG by rail tank car in the United States has been satisfactorily completed. To eliminate any guesswork, the decision to allow the transport of LNG by rail tank car must be based on sound scientific knowledge and experimentation using actual LNG, as opposed to other chemicals that have differing physical and chemical properties.

We are forwarding this communication to you, in duplicate, via certified mail return receipt requested.

Sincerely yours,

GUY YUDIN & FOSTER, LLP.

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EXHIBIT "A"

Background:

New Fortress Energy's affiliate LNG Holdings a/k/a American LNG Marketing's LNG production, storage and distribution facility was sited, constructed and is operating in the Hialeah Rail Yard at 6800 NW 72nd Street, Miami, Florida. The facility began exporting LNG to Barbados on February 5, 2016. According to the U. S. Department of Energy ("DOE"), so far this year, American LNG exported 258,640 Mcf of containerized (ISO) natural gas through August 29th to destinations that included Barbados, Bahamas, and Haiti. According to the U. S. Department of Energy, American LNG is authorized to export LNG from Florida's deep water ports from Miami to Jacksonville.

A former "cousin company," Florida East Coast Railway, requested Federal Railroad Administration approval, under Title 49 CFR Section 174.63, to transport liquefied natural gas (methane, refrigerated liquid (UN 1972), or LNG) by rail, in intermodal (IM) portable tanks in container-on-flatcar or trailer-on-flatcar service, from origination and destination points on the FEC network. Energy Transport Solutions, also a subsidiary of New Fortress Energy, has now applied to PHSMA for a special Permit to allow LNG to be transported by Rail Tank Car. Each rail tank car will hold three times the volume of LNG, i.e. 30,000 gallons. ISO containers are 40-feet long and hold 10,000 gallons.

In a letter dated March 3, 2016, from Mr. Karl Alexy, Staff Director, Hazardous Materials Division, Federal Railroad Administration ("FRA"), to Mr. James R. Hertwig, President and CEO of Florida East Coast Railway ("FECR"), Mr. Alexy noted, "The proposed transportation of LNG by rail is a new opportunity for railroads, **and a new challenge for safety regulators. No railroad in the United States currently transports LNG.** We know any release of LNG in a non-controlled environment is dangerous, but the transportation of large quantities of LNG in a single train presents unique safety risks." "FEC's proposed LNG transportation routes traverse congested, highly populated areas, with frequent highway-rail grade crossings. Any LNG transported along the proposed routes would eventually share the routes with high-performance passenger trains operating at speeds of up to 110 mph."

In a March 13, 2017, letter from Mr. Robert C. Lauby, Associate Administrator of Railroad Safety, Chief Safety Officer, FRA to FECR, approval was granted under 49 CFR Section 174.63(a) to transport LNG portable cryogenic tanks secured within intermodal well cars between the Hialeah Rail Yard LNG export facility and the Port of Miami and Port Everglades. The approval that was valid beginning March 9, 2017, through June 20, 2019, has since been extended until April/May, 2020. According to the LNG containerized LNG export reports published by the U. S. Department of Energy, since FRA approval was granted, LNG exports have occurred from only Port Everglades.

Railroad charters establish rights-of-way ("ROW") corridors on each side of the centerline of a track. Siting and constructing LNG production, storage and distribution facilities in ROW corridors, where there is access to a natural gas pipeline, gives new life to these underperforming rail assets, e.g. the American LNG facility that is operating on an under 13-acre site in the Hialeah Rail Yard, within feet of a densely populated Miami Springs neighborhood in Florida.

The likelihood of a giant onshore LNG terminal, such as Cheniere Energy, transporting LNG by rail tank car to domestic deep water ports in the United States is probably nil. Therefore, LNG

rail tank car transport would most likely occur between non-FERC-jurisdictional small-scale, inland LNG facilities and deep water ports throughout the United States.

Evaluating the Risks of LNG Rail Transport:
We obtained a copy of the highly redacted *Quantitative Risk Analysis* ("QRA") that FECR filed with the FRA. The *Analysis* covers FECR's formerly "unprecedented" movement of LNG in ISO containers. The QRA was published by Exponent, Inc., Warrenville, Illinois, on December 8, 2016.

As noted on page 27 of the QRA, "The FRA Office of Safety Analysis maintains an online database that provides historical accident and failure rate data for the rail industry. Accidents in the database include broken equipment, highway grade crossing collisions, train collisions, and derailments. FECR operates a relatively small line with fewer trains, fewer train miles traveled, and fewer potential hazardous materials incidents than Class 1 railroads and many other short-line railroads."

However, as noted by the FRA, any LNG transported along the proposed routes would eventually share the routes with high-performance passenger trains operating at speeds of up to 110 mph. Sadly, dozens of people have already been killed by the Virgin Train (formerly known as All Aboard Florida or Brightline). In one fairly recent accident, the passenger train stopped in its tracks with part of the wreckage of a vehicle under its main engine. Firefighters hosed down the wreckage and train's engine. The train conductor was transported to a local hospital. According to news reports, the Virgin passenger train caught fire as a result of the crash, and a cargo train was stopped in close proximity. Fortunately, the incident did not involve LNG.

Virgin Train currently runs between Miami and West Palm Beach, Florida. According to a recent article by Frank Cerabino that was published in *The Palm Beach Post* on June 18, 2019, titled, "Virgin trains on track for success, company says, as rail construction to Orlando begins." "In the first three months of last year, the train service between Miami and West Palm Beach had a total ridership of about 75,000 riders, compared to the first three months of this year, when it had 244,000 riders." "The ridership estimate projected that the new line's service on its 400-passenger-capacity trains between Miami and West Palm Beach would get 1.94 million riders a year, with another 1.53 million added once the line is completed to Orlando."

"...Virgin is plowing ahead, planning the next phase for the rail line to link Orlando to Tampa, and talking about the trains reaching speeds of **125 mph**." "...public officials in Orlando are already focused on the next phase of the train, which would connect Orlando to Tampa."

EXCLUSION ZONES: LNG is "gas" in "liquid state." LNG has 600 times the energy of natural gas and occupies $1/600^{th}$ the volume, thus facilitating storage and transport. If a container holding LNG is breached, a Flammable Vapor Cloud will form. In the United States, the government requires that LNG facilities calculate appropriate "Exclusion Zones" surrounding the facilities to protect the public from Thermal Radiation (heat) from a fire or from a Flammable Vapor Cloud that could be blown around by the wind and be ignited some distance from an LNG spill or breach of a containment tank, and engulfing everything in its path.

If about half of a single 6.6-million-gallon LNG tank (comparable to approximately 3,000,000 gallons of LNG transported by rail in one train manifest) spilled from a 54-square-foot hole and the vapors ignited, the fire would "cause significant damage to structures, equipment, and machinery" within a 1,280-foot radius and leave second-degree burns on people more than three-

quarters of a mile away, according to "Sandia's study." Sandia's worst-case scenario measured the result of LNG spilling simultaneously from three tanks, which would set structures aflame out to 2,067 feet and burn people as far as 1.3 miles away. (Source: Safe Harbor? - Boston Magazine - https://www.bostonmagazine.com › 2010/06/28 › safe-harbor)

Accordingly, the rulemaking is question is setting the stage for a catastrophic calamity and loss of human life in eastern Florida. FECR, a small rail company with precious little experience in hauling hazardous materials will be hauling LNG at approximately 40 mph or less between Miami and Orlando on the same tracks as Virgin trains travelling up to 125 mph. Allowing two trains operating a vastly different speeds on the same tracks virtually guarantees a significant crash with the slightest mistake or misjudgment. In east Florida millions of people live within one mile of FECR tracks, thus any crash resulting from high speeds trains operating on the same tracks as rail cars carrying LNG will cause an unimaginable loss of life with a breach of any one of the LNG rail cars.

Designated *Potentially Affected Populations* and *Potentially Sensitive Establishments*:
According to the U. S. Department of Energy, New Fortress Energy's affiliate, American LNG, is the only inland facility currently producing and exporting containerized LNG from U. S. deep water ports to both Fair Trade Agreement and non-FTA Nations. FECR is the only rail line transporting containerized LNG from the Miami liquefaction plant to Port Everglades.

As noted in the proposed Rulemaking, PHMSA and FRA share responsibility for regulating the transportation of hazardous materials by rail and take a system-wide, comprehensive approach that focuses on prevention, mitigation, and response to manage and reduce the risk posed to people and the environment.

The first rail tank car shipments of LNG will most likely come from the New Fortress Energy LNG facility in Miami, and we assume that the risk posed to "people" would include the "Potentially Affected Populations" that were designated in the QRA, as follows:

Population Densities of the consolidated census blocks in the **Hialeah Yard** area:

Census Block	Population Description	Population Density (People per Square Mile)
1	Commercial/Industrial	1,276
2	Residential	12,860
3	Residential	5,471
4	Commercial/Industrial	447

Population Densities of the consolidated census blocks in the **Port of Miami** area:

Census Block	Population Description	Population Density (People per Square Mile)
A	Cruise Ship	191,800
B	Industrial	488
C	Residential	10,252

Population Densities of the consolidated census blocks in the **Port Everglades** intermodal facility area:

Census Block	Population Description	Population Density (People per Square Mile)
1	Residential/Commercial	4,680
2	Commercial/Industrial	707
3	Residential/Commercial	6,965
4	Sparse	250*

**Population density data is zero; therefore, 250 chosen as a conservative assumption to include recreational users of parklands and waterways.*

Note: *A query of the census layer data was run to identify only the relevant census blocks that were within 1.6 miles of either side of the yard track.*

Population Densities of the consolidated census blocks for the **Bowden Yard**, Jacksonville, Florida:

Census Block	Population Description	Population Density (People per Square Mile)
A	Residential	2,847
B	Residential/Commercial	5,720
C	Residential	5,098
D	Commercial/Industrial	478
E	Residential/Commercial	687

Note: *Analysis of the longest section of mainline route from the Bowden Rail Yard to the Hialeah Yard was accomplished by filtering all sections of the FECR rail line to include only the rail sections from the approximately southern boundary of the Bowden Yard to the approximate northern boundary of the Hialeah Yard. A query of the census layer data was run to identify only the relevant census blocks that were within 1.6 miles of either side of the rail line.*

In addition, churches and schools were designated in the QRA as "Potentially Sensitive Establishments," along three defined transportation routes as follows *(see QRA pages xxiii and xxiv)*:

- Route 1 - Hialeah Rail Yard to Port of Miami: iMater Academy Charter School (Public Charter School); New Vision Emmanuel Baptist Church (Self-standing church); and ASPIRA of Florida (Charter School).

- Route 2 - Hialeah Rail Yard to Port Everglades iMater Academy Charter School (Public Charter School); New Vision Emanuel Baptist Church (Self-standing church); Aventura Waterways K-8 School (Public School); Victory Christian Center (Self-standing church); Hallandale Church of Christ (Self-standing church); and Ebenezer Baptist Church (Self-standing church).*

- Route 3 - Hialeah Rail Yard to the Bowden Yard in Jacksonville, Florida: Unknown

  *Notes: (1) Distance measurements taken from center of track to closest portion of building; (2) Identified only schools that were elementary and above.

- Since bulk LNG will not be transported along "dedicated rails," passengers traveling on shared or parallel tracks should also be treated as a "Potentially Affected Population."

The above data clearly indicates that any incident involving a breach of an LNG tank car anywhere in east Florida will result in catastrophic damage no matter where the incident were to occur.

Measuring the Risk:
According to the QRA, since there are no current regulatory quantitative risk criteria for Individual Risk or Societal Risk of LNG transportation by rail, the criteria used in the QRA were for those applicable to stationary plants, i.e. NFPA (2016) Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG). As noted in the *Analysis*, **"The representation of NFPA 59A risk criteria in this report has been done for the purposes of comparing the transportation risk to a set of existing stationary facility quantitative risk criteria available in the U. S. and may not necessarily be appropriate or applicable for directly assessing acceptability of transportation risk," which should render any conclusions worthless.**

According to the QRA, PHAST Risk v6.7, a software tool, was used to model consequences of potential releases resulting in pool fires, flash fires, pressurized jet fires, and explosions, and to calculate the resulting Individual Risk and Societal Risk for the mainline and yard/intermodal facilities, and "no broadly-accepted risk criteria are employed by domestic communities or industries."

In the *Analysis*, the calculated risk was benchmarked against a similar hazardous commodity—liquefied petroleum gas (i.e. propane or LPG). The quantitative risk criteria for evaluating the Individual Risk and Societal Risk in the report were developed from those presented for stationary LNG plants in the 2016 edition of NFPA 59A, Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG). However, once again, "**The stationary LNG plant risk criteria are not directly applicable to rail movement of LNG,**" but those criteria were used nonetheless as a reference point for evaluating risk in the report.

The Analysis also notes that the east side of the Hialeah Rail Yard is enclosed by an approximately 10-foot high wall and that the integral equation-based models in PHAST Risk are not suitable for modeling the barrier effects of walls on flammable vapor cloud dispersion; thus, the north-south track was used as the primary rail yard route, which suggests the possibility exists that a flammable vapor cloud could potentially become confined between the wall and any obstruction, including equipment, and result in an explosion.

In the QRA, the risks associated with handling and transporting LNG ISOs were benchmarked against the risks associated with transporting liquefied petroleum gas (a/k/a propane or LPG under the UN 1075 designation) rail cars. LPG was chosen as a comparison flammable hazardous material due to its shipping history in the general rail industry and at FECR and because it is similar to LNG. "LPG does not behave identically to LNG since LPG is a pressurized liquefied gas where LNG is a refrigerated liquefied gas, but it provides a useful HAZMAT commodity comparison."

Since there is presently no acceptable method to properly assess the risk involved with the breach of an LNG rail car, it would unconscionable to move forward with the pending rulemaking. The potential risks to human life are far to great to proceed until such time as there is absolute clarity in the risks associated with regulated activity.

RISK ASSESSMENT OF SURFACE TRANSPORT OF LIQUID NATURAL GAS, Prepared for U.S. DOT Pipeline and Hazardous Materials Safety Administration, Office of Hazardous Materials Safety, by **Cambridge Systematics**, Inc. 3 Bethesda Metro Center Bethesda, MD 20814 with MaineWay Services, LLC, Rutgers University, Transport Analytics, LLC., ScienceSmith LLC, March 20, 2019:

"In discussions with fire chiefs, we learned that unlike Liquefied Petroleum Gas (LPG or propane), LNG releases do not allow first responders to cap off a leak or interact with the container. LNG releases involving cryogenic gas would result in an immediate evacuation of the area and securing the adjacent facilities. Given the warming effect of water on cryogenic gases, putting water on a cryogenic release is not recommended. It is very difficult to clean up an LNG incident; the product would need to gas off naturally, and any nearby ignition sources would need to be eliminated to prevent a fire.

It is clear that first responders are inadequately prepared to deal with the breach of an LNG rail car, the resulting LNG leak and vapor cloud. Allowing surface transport of LNG without proper assurances the public can be adequately protected in the case of an LNG discharge would constitute criminal negligence.

LNG Transport: Truck vs. Rail:
According to the NPRM, "LNG has been transported safely by highway and vessel for over 50 years within the United States and is now a critical energy resource for the 21st century; however, the HMR do not authorize the bulk transport of LNG in rail tank cars."

Over-the-road LNG transport is regulated in the Commonwealth of Massachusetts. In 2018, Everett LNG imported 56.3 Bcf of LNG, while U. S. LNG imports totaled 71.7 Bcf. *(Source: U. S. Department of Energy, Office of Natural Gas Import and Export Activities.)* LNG is imported to Everett, Massachusetts, where it is off-loaded into storage tanks to power generation systems and later loaded into trucks for distribution to 41 facilities throughout New England. This is an example of how motor carrier LNG transportation has been provided safely and efficiently over the past 40 years with minimal incidents. The greatest contributor to the good safety record is most likely due to the fact that over-the-road transport of LNG in Massachusetts is strictly controlled.

- Only certain routes and highways allow LNG
- School bus and Haz-Mat exclusion restrictions limit time of day that LNG can be on the road
- Once a load has started moving, it is not supposed to come to a stop
- There are numerous restrictions for specific routes, such as tunnel travel and Massachusetts Turnpike
- If the speed limit is reduced to 45 mph, transporter must exit highway
- At no time are LNG transporters supposed to stop on Massachusetts Turnpike

Source: Massachusetts Department of Fire Services – Massachusetts Firefighting Academy

Contrary to the suggestion found in the NPRM, highway transportation does not present a greater risk of accident and release of LNG for each movement since state and local governments have the ability to approve/certify LNG transport routes, and trucks have the ability to avoid densely populated neighborhoods and high-risk situations, such as dangerous bridges and tunnels.

The existing model for surface transport of LNG is controlled by the State of Massachusetts in order to ensure the protection of its residents. The State of Florida should be afforded similar rights to control the surface transport of LNG, in order to ensure adequate protections are put in place for potentially affected Florida residents.

No LNG Container is Perfectly Safe:
In 2005, a tanker truck in Fernley, Nevada, filled with 10,000 gallons of LNG, had flammable gas coming from a leaking valve. The truck driver tried to fix the valve stem located at the rear of the tanker, but the assembly fell apart, causing the leak. North Lyon County Fire Protection District Chief Jim Lemke, who served as Incident Commander, reported that static electricity from the firefighters was most like the case of the fire. The burned for over 48 hours before it finally burned itself out. Fire Department personnel immediately evacuated the area. Fortunately, the inner tank did not breach, which would have caused an explosion.

In the event of an LNG Rail Tank Car accident, valves are weak points on the tank. On one Rail Tank Car DOT-113c120W model, the control piping and instruments are located on each side of the car with rupture discs located on one side and safety relief valves on the other. "Valves include: Pressure relief valve's (primary and secondary) - Primary is used for venting -

Secondary is used in case of emergency." *Economic Commission for Europe Inland Transport Committee Working Party on the Transport of Dangerous Goods Ninety-fifth session 8 November 2013 Geneva, 4–8 November 2013 LNG: A safe fuel for trucks*

Rail cars being proposed for the transport of LNG have not been specifically designed or tested for the transport of LNG. Given the vastly increased potential for a catastrophic incident with LNG, the rulemaking in question should be delayed until adequate assurances can be provided rail cars designed specifically for the transport of LNG are available.

LNG has a "Finite" Shelf Life:
AAR suggested that the authorized tank car specifications be DOT-113C120W and DOT-113C140W, noting that 120W cars should provide 40 days in transportation and 140W cars should provide 45 days before the tank car might begin to vent the commodity from the pressure relief device.

PHMSA is not currently aware of LNG being transported via DOT-113C120W; however, should that change, PHMSA expects incident and commodity flow data within Canada to be shared with PHMSA and FRA. Unfortunately, actual experience transporting LNG via rail tank car may come from "lessons learned" following a catastrophic rail accident involving LNG in the U. S. DOT-113C140W modification of DOT-113C120W gives emergency responders more time to take action, assuming there would be time to respond. Since the "test case" for DOT-113C120W LNG rail tank cars will most likely occur in Florida, once again our citizens will be subjected to unknown risks from this dangerous chemical experiment. Where LNG does have a finite shelf life, a tank car must be able to maintain cryogenic conditions from LNG production facility to the destination.

As noted, *in Mexico, the Railway Transport Regulatory Agency's (Agencia Reguladora del Transporte Ferroviario), under the Ministry of Communications and Transportation (Secretaría de Comunicaciones y Transportes or SCT), mission is to promote, regulate, and monitor the railroad industry, and is responsible for regulating all types of cargo movement on trains. Currently, SCT does not provide explicit authorization for the bulk transportation of LNG in rail tank cars.*

Absent incontrovertible proof LNG rail cars can maintain cryogenic conditions for the entirety of the transport no further rulemaking should occur.

Pool Fire Testing:
"Pool Fire Testing" for the 113 tank car must be completed before authorizing LNG rail tank car transport.

AAR completed pool fire testing for the ISO container in May 2017, and hopes do similar pool fire testing for the 113 tank car, but the project presently lacks funds.

- PHMSA should not consider any Rulemaking that will allow transporting of LNG in "rail tank cars" until the aforementioned "pool fire testing for the 113 tank car" has been completed.

- PHMSA should not proceed in evaluating the petition request until the Agency has conducted a National Environmental Policy Act (NEPA) evaluation, prepared an Environmental Impact Statement (EIS) or Environmental Assessment (EA).

Clearly, the potential adverse environmental impacts of LNG rail transport are so serious and significant no further rulemaking should occur unless and until the NEPA process has been completed.

Cascading Failures of LNG Rail Tank Cars:

According to the NPRM, "the special design of the DOT-113 tank car reduces the probability of cascading failures of other undamaged DOT-113 specification tank cars being transported in a block or unit train configuration. In the scenario where multiple DOT-113 specification tank cars are transported in a block or unit train configuration, fire/radiant heat exposure or cryogenic temperature exposure could potentially lead to the release of material or failure of otherwise undamaged tank cars."

For example, a "pool fire" on an LNG tanker/ship would have the potential to cause cascading or even simultaneous failures of the remaining tanks on the vessel, resulting in total loss of the vessel and burning of its contents. (Source: Prepared Direct Testimony of Dr. Jerry Havens in the matter of *Sound Energy Solutions*, FERC Docket Nos. CP04-58-000, et al, *Motion of the Public Utilities Commission of the State of California to Supplement the Record and for a Hearing* (October 4, 2005)).

Dr. Havens provided detailed analysis supporting his conclusion that there should be a minimum distance of three (3) miles between an LNG terminal and a densely populated area. Anything closer than 3 miles could put the public in harm's way. Dr. Havens expressed concern that the exposure to the ship from such a pool fire would have the potential to cause cascading, or even simultaneous failures of the remaining tanks on the vessel, resulting in total loss of the vessel and burning of its contents. Dr. Havens said, "I believe that insufficient attention has been given to the vulnerability of land storage tanks to terrorist attack, or even to the vulnerability of land storage tanks to natural events such as earthquakes and tsunamis, and that ignition sources (such as broken electrical wires, sparks resulting from friction, or open flames) would cause the LNG vapor evolving from such a spill, which would mix with air, to catch fire. Such a fire would be so large as to be completely beyond the capability of any organization to extinguish or even contain it, and it could seriously burn people to considerable distances from the fire's edge."

According to Dr. Havens' testimony, "A vapor cloud fire could result if the LNG spill vapors were not immediately ignited, and a vapor cloud formed. The cloud thus formed would drift downwind until it reached an ignition source or became diluted below the flammable concentration level – after which time it would not constitute a hazard. If the vapor cloud were ignited as it drifted downwind, the portions of the cloud which were above the lower flammability limit (~ 5%) would burn, and those persons in that area or immediately adjacent (thermal exposure could occur at some distance beyond the edge of the fire) who could not gain protection could be killed or seriously injured."

Again, it is uncontested the rail cars being proposed for the transport of LNG have not been specifically designed or tested for the transport of LNG. Given that there is unanimous

agreement that a catastrophic loss of human life is possible with the breach and resulting leak of an LNG rail car, the rulemaking in question should be delayed until adequate assurances can be provided rail cars designed specifically for the transport of LNG are available.

LPG vs. LNG:
As noted in the NPRM, "The hazards of transporting LNG are no different than that of flammable cryogenic liquids already authorized for bulk rail transport in accordance with the HMR." However, the Risks of shipments (of Flammable & cryogenic liquids) of multiple containers in unit trains vs. manifest trains are not known. Source: *Office of Technical Oversight- HAZMAT Division, Federal Railroad Administration, April 8, 2019.*

Liquefied Petroleum Gas (LPG) is REGULATED in the state of Florida. Licenses are granted to applicants who are determined by the Florida Department of Agriculture to be competent, qualified, and trustworthy, and who file with the Department a surety bond, insurance affidavit, or other proof of insurance, and who pay for such a license. Liquefied Natural Gas (LNG) is NOT REGULATED by Statute in the state of Florida.

Given that the hazards associated with transporting LNG is exponentially greater than transporting LPG, the State of Florida should be provided with the opportunity to regulate LNG surface transport of LNG in the same manner as the State regulates LPG.

LNG Rail Transport Increases Greenhouse Gas:
Natural gas leaks into the atmosphere from oil and natural gas wells, storage tanks, pipelines, and processing plants. These leaks were the source of about 32% of total U. S. methane emissions and about 4% of total U. S. greenhouse gas emissions in 2015. Emissions from liquefaction, the process for cooling gas to the liquid form, are on pace to increase by 43% through 2025 (Wood Mac: *Emissions increase faster than production*).

Court Rules FERC Failed to Adequately Review Environmental Impacts of Sabal Trail Pipeline (Source: **Decision Requires FERC to Fulfill its Duties** - Tuesday, August 22, 2017 - Doug Jackson, doug.jackson@sierraclub.org): "The U. S. District Court of Appeals ruled 2-to-1 that the Federal Energy Regulatory Commission (FERC) failed to adequately review the environmental impacts of the greenhouse gas (GHG) emissions of the fracked gas Sabal Trail pipeline, which runs more than 500 miles through Alabama, Georgia and Florida."

PHMSA and the FRA must consider the environmental impact from transporting millions of gallons of LNG by rail accordingly. "Even with highly insulated tanks, there will always be a continuous buildup of internal pressure and a need to eventually use the fuel vapor or safely vent it to the atmosphere. When transferring LNG, considerable care has to be taken to cool down the transfer lines in order to avoid excessive amounts of vapor from being formed" (source: Clean Air Program from the Federal Transit Administration Summary Assessment of the Safety, Health, Environmental and System Risks of Alternative Fuel - https://www.chebeague.org/fairwinds/risks.html).

Again, there is no dispute rail transport of LNG requires different safety procedures than currently exist today. Until such as rail cars can be developed to ensure no venting will ever be necessary, venting of rails will be required and will cause negative environmental impacts by

discharging greenhouse gas from a point source. Accordingly, rulemaking should be halted pending a complete NEPA review.

Exporting LNG/Cost Benefit Analysis:
"Increased LNG exports will lead to increased natural gas prices." (Source: *EIA, "Effect of Increased Levels of Liquid Natural Gas Exports on U.S. Energy Market," October 2014.)*

While LNG export cost/benefit analysis is complex and subject to debate, EIA recently evaluated the effects of increased levels of LNG exports on U.S. energy markets and reached the following general conclusions:

► Increased LNG exports will lead to increased natural gas prices.
► Natural gas markets in the U.S. balance in response to increased LNG exports mainly through increased natural gas production.
► Supply from higher domestic production is augmented by reductions in natural gas use by domestic end users, who respond to higher domestic natural gas prices.
► Increased LNG exports result in higher total primary energy use and energy-related CO2 emissions. Consumer expenditures for natural gas and electricity increase modestly with added LNG exports.
► Added U.S. LNG exports result in higher levels of economic output, as measured by real gross domestic product.
► Added U.S. LNG exports result in higher levels of domestic consumption expenditures for goods and services.

Exporting LNG raises energy costs and depresses real wages and return on capital. In a June 28, 2017, letter from Paul N. Cicio, President of IECA (Industrial Energy Consumers of America), to Rick Perry, Secretary, U. S. Department of Energy, and Wilbur Ross, Secretary, U. S. Department of Commerce, Mr. Cicio wrote, in part:

1. The DOE's mandate under the Natural Gas Act (NGA) is to determine whether an LNG export application for shipment to NFTA countries are in the public interest.

2. Utilizing natural gas in manufacturing, as compared to exporting it, creates eight times more jobs, twice the direct value added per year and 4.5 times the direct construction jobs.
3. None of the three DOE public interest studies made this comparison.

4. One study stated: "It raises energy costs and, in the process, depresses both real wages and the return on capital in all other industries.

5. Another study states exporting LNG increases domestic prices and reduces natural gas prices for foreign buyers of LNG.

6. U. S. manufacturers lose relative global competitiveness.

Based on the foregoing, it is clear that not only is allowing rail transport of LNG not in the public interest environmentally, but it is not in the public interest economically either. Accordingly, the proposed rulemaking should be delayed until such time as adequate public safeguards can be put in place.

Most Common Rail Accidents:
Are the Virgin Train High-speed Passenger Rail project and LNG transport by rail tank car on a collision course in Florida's Treasure Coast?

Grade crossing incidents are most common rail accident…

- **Florida East Coast Railway has 609 open, public, at-grade crossings on 351 miles of track, operating between Miami and Jacksonville, Florida.**
- **In Martin County, Florida alone 8,000 students cross the tracks 350 times per day,** according to Ms. Laurie Gaylord, Superintendent of Schools in Martin County, Florida.
- In a news conference held on May 14, 2015, Ms. Gaylord joined elected officials in demanding the Virgin Train high-speed passenger train be stopped. In a contest between "high speed rail and a [school] bus, (the) train's going to win," Gaylord said.
- Martin County Sheriff William Snyder said the thought of a high-speed train colliding with a school bus "keeps him up at night." "The ultimate nightmare for me would be one of these buses stalled on a track and a train coming," Snyder said.

He (Snyder) added that, "32 trains per day will make it more difficult for deputies to respond to calls and that AAF's (now Virgin Trains) just isn't feasible in small Martin County towns. We are not set up for this kind of extra rail traffic. We don't have the bridges that go over the crossings," the Sheriff said.

Given the collateral issues and concerns relating to public safety that have arisen in east Florida with Virgin's high speed trains, it would be disastrous for the State of Florida and in local governments and municipalities not to invited to participate in regulation of the surface transport of LNG in Florida. Unfortunately, Sheriff Snyder was horribly mistaken. While it would admittedly be horrific for a Virgin Train to hit a school bus, it would be an unimaginable catastrophy for a Virgin Train travelling at 125 mph to crash in to an LNG rail car travelling at 40 mph causing a breach of the tank. The resulting explosion and LNG fire would cause death and destruction far beyond any gate crossing accident, given that first responders do not have the tools or knowledge to fight an LNG fire. To quote Sheriff Snyder, the State of Florida and its towns or municipalities "are not set up" to deal with an LNG emergency. Accordingly, this rulemaking should not proceed unless and until proper safeguards are put in place to ensure public safety.

Boiling Liquid Expanding Vapor Explosion ("BLEVE"):
The Williams LNG Plant, Plymouth, Washington, fire and explosion on March 31, 2014, was caused by Operator Error, i.e. Vessel and piping failure from detonation caused by internal auto-ignition due to a purge that failed to remove a gas-air mixture from the system.
Quoting Fred Millar, PhD, "Contrary to what was previously believed by gas scientists, two LNG truck accidents in Spain have shown that LNG containers exposed to a sustained fire

underneath can also explode in a "BLEVE" (Boiling Liquid Expanding Vapor Explosion). Consequence outcomes for the classes of flammable effects include:

- BLEVE (Boiling Liquid Expanding Vapor Explosion), pool fire, jet fire (All persons, indoor and outdoor, exposed to radiation levels exceeding 11,000 BTU/hr/ft^2 are considered fatalities.)
- Flash fires (All persons, indoor and outdoor, within the flame envelope are considered fatalities.)
- Explosion (All indoors persons exposed to pressures exceeding 1.45 psig are considered to have a probability of fatality 2.5% of the time.)
- No real experiments have been done in the U. S., filling a 10,000-gallon ISO container with LNG and exposing the container to sustained heat.

Again, there has been in adequate research and testing conducted with regard to the surface transport of LNG by rail car. All rulemaking should be delayed unless and until proper safeguards can be put in place for public safety.

Promoting Public Safety:
While we note that PHMSA recognizes that there may be other operational controls or combinations of controls to consider and encourages comments on such controls, we should like to suggest the following to promote public safety:

- Speed Restrictions and Braking Requirements. The HHFT regulations include a speed restriction of 50 miles per hour (mph) for all HHFTs with an additional speed restriction of 40 mph for those HHFTs traveling within a high-threat urban area (§ 174.310(a)(2)).
- **LNG traveling at top speed of 40 to 50 mph should not be sharing tracks or transported on parallel tracks with high-performance passenger rail travelling at speeds from 110 mph to 125 mph.**
- Routing Requirements. 49 CFR Section 172.820 prescribes additional planning requirements for transportation by rail, including route analysis, requiring railroads to **address safety and security risks for the transportation along routes** where commodity data is collected.

Public safety needs to be the primary objective of this rulemaking. Rules, policies and procedures to ensure public safety must be completed before any consideration is given to the Rulemaking at hand.

Threat of Terrorism:
A glaring omission from the Proposed Rulemaking for LNG rail transport is any reference to the issue of **Terrorism**.

On September 11, 2001, former White house counter-terrorism advisor, Richard Clarke, ordered Boston's LNG Everett facility closed over fears of a terrorist attack. Mr. Clarke later said that, if one of the giant LNG tankers were blown up in the harbor, it would have wiped out downtown Boston."

Terrorism risks LNG: House Homeland Security Committee should spotlight new concerns 8/22/19:

- Seek "remote siting": Congress has expressed the vital safety principle of protective distance needed to eliminate the disaster potential of massive vapor cloud flammable gas releases, whether by accident or terrorism, from LNG facilities.
- Americans citizens, public officials and gas science experts have expressed safety and security concerns about LNG facilities on land and LNG "marine" transportation routes that are sited too close to populated areas.
- Transportation routes must be expanded to include regulations for rail.
- LNG transported by rail to deep water ports impacts the Cruise Industry in Florida (see "Potentially Affected Populations" noted in referenced *Quantitative Risk Analysis*.
- **Vital safety principle of protective distances needed to eliminate the disaster potential of massive vapor cloud flammable gas releases, whether by accident or terrorism, from LNG Rail Tank Cars must also be defined and enforced.**

Due to the high potential for causalities beyond any ever seen in the United States resulting from a terrorist event involving LNG, the pending rulemaking should not proceed without a full formal consultation with the Department of Homeland Security.

***Memorandums of Understanding* between Federal Agencies**:
The USCG and Department of Homeland Security should enter into a ***Memorandum of Understanding*** with the Federal Railroad Administration to ensure the protection of LNG rail tank cars that are delivering large quantities of LNG to deep water ports; and rail line owners or operators should be required to develop and submit a ***Security Plan*** to the USCG, including delineating *Exclusion Zones* between the loaded rail tank cars and port facilities.

Exclusion Zones for LNG tankers in Massachusetts waters as were determined by the Captain of the Port of Boston:

- Vessels underway. All navigable waters of the United States within the Captain of the Port (COTP) Boston zone, as defined in 33 CFR 3.05-10, two miles ahead and one mile astern, and 500 yards on each side of any liquefied natural gas carrier (LNGC) vessel while underway.
- Vessels anchored in the Broad Sound. All waters within a 500-yard radius of any anchored LNGC vessel located in the waters of Broad Sound bounded by a line starting at position 42 deg. 25′ N, 070 deg. 58′ W; then running southeast to position 42 deg. 22′ N, 070 deg. 56′ W; then running east to position 42 deg. 22′ N, 070 deg. 50′ W; then running north to position 42 deg. 25′ N, 070 deg. 50′ W; then running west back to the starting point (NAD 83).
- Vessels moored at the Distrigas LNG facility. All waters within a 400-yard radius of any LNGC vessel moored at the Distrigas LNG facility in Everett, MA
- Vessels calling on a deep-water port. All waters within a 500-meter radius of any LNGC engaged in regasification or transfer, or otherwise moored, anchored, or affixed to a deep-water port listed in 33 CFR 150.490 and falling within the waters of the Boston COTP Zone, as defined in 33 CFR 3.05-10.
- In accordance with the general regulations in Sec. 165.23 and Sec. 165.33 of this part, entry into or movement within these zones is prohibited unless authorized by the Captain of the Port Boston, or his/her authorized representative.

- **Similar Exclusion Zones must be established for LNG transport by Rail Tank Car through densely populated communities.**

Given the destructive capacity and potential for an LNG rail car event, USCG and DHA input and participation is not only prudent, but highly warranted. Additionally, the State of Florida who owns and operates the ports in Florida, must be a participant in regulating the rail transport of LNG especially to port facilities in Florida.

The Federal Energy Regulatory Commission Created a Regulatory Gap:
In disclaiming jurisdiction over inland LNG export facilities without a formal Rulemaking, the Federal Energy Regulatory Commission created a regulatory gap.

There is no evidence to suggest that Congress sought to limit export facilities to "coastal LNG terminals that are accessible to oceangoing, bulk-carrier LNG tankers and that are connected to pipelines that deliver gas to or take gas away from the terminal. Nothing in Section 3 of the Natural Gas Act conditions the Commission's jurisdiction upon the existence of a pipeline running to the point of export. The majority's view that a pipeline is a condition to jurisdiction stems from an inappropriate attempt to graft concepts developed under section 7 of the Act, which addresses the Commission's jurisdiction over interstate "transportation facilities," to Section 3, which governs the exportation of natural gas. "While it is difficult to know what the unintended consequences of today's order will be," Commissioner Norman Bay opined in his scathing Dissenting Opinion in Pivotal LNG, Inc., Docket No. RP15-259-000 Issued April 2, 2015, "one consequence is not: **the Commission creates a significant and unnecessary gap in FERC's jurisdiction.**" PHMSA and the FRA's consideration of the Proposed Rulemaking at hand should qualify as an "unintended consequence."

There are no *Memorandums of Understanding* between Federal agencies such as those between FERC and PHMSA, Department of Defense and U. S. Coast Guard, to ensure the safe siting, construction, operation, and maintenance, of inland LNG export facilities; and there are no *Memorandums of Understanding* between Federal agencies, e.g. PHMSA and the FRA, to ensure the safe transport of LNG, via land and/or sea, from non-FERC-jurisdictional LNG export plants that are being sited and constructed in densely populated areas on parcels of land as small as 528,000 square feet. The public is in harm's way.

CONCLUSION:
In view of the above, our client, the **Alliance for Safe Trains, Inc.** therefore requests the **NO ACTION ALTERNATIVE**, leaving current regulations in place, with no new enabling provisions added, until such time as the required scientific research, study, and analysis, including both *Individual and Societal Risk analysis*, to support the unprecedented transport of LNG by RAIL TANK CAR has been satisfactorily completed.