

NOT YET SCHEDULED FOR ORAL ARGUMENT

No. 20-1317 (consolidated with Nos. 20-1318, 20-1431, & 21-1009)

**IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT**

SIERRA CLUB, et al.,
Petitioners,

v.

UNITED STATES DEPARTMENT OF TRANSPORTATION, et al.,
Respondents.

ON PETITION FOR REVIEW OF FINAL ACTION OF THE
UNITED STATES DEPARTMENT OF TRANSPORTATION

FINAL OPENING BRIEF OF ENVIRONMENTAL PETITIONERS

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Dated: April 10, 2024

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

A. Parties and Amici

Petitioners in case number 20-1317 are the Sierra Club, Center for Biological Diversity, Clean Air Council, Delaware Riverkeeper Network, Environmental Confederation of Southwest Florida, and Mountain Watershed Association (collectively, “Environmental Petitioners”). Petitioners in case number 20-1317 have no parent companies and have never issued stock.

Petitioners appearing in case number 20-1318 are the State of Maryland, State of New York, State of California, State of Delaware, District of Columbia, State of Illinois, Commonwealth of Massachusetts, People of the State of Michigan, State of Minnesota, State of New Jersey, State of Oregon, Commonwealth of Pennsylvania, State of Rhode Island, State of Vermont, and State of Washington (collectively, “State Petitioners”).

Petitioner appearing in case numbers 20-1431 and 21-1009 is The Puyallup Tribe of Indians, a sovereign Indian tribe whose government is recognized by the United States.

Respondents are the Pipeline and Hazardous Materials Safety Administration; Tristan Brown, in his official capacity as Administrator of Pipeline and Hazardous Materials Safety Administration; United States Department of

Transportation; Pete Buttigieg, in his official capacity as Secretary of Transportation; and the United States of America (collectively, “Respondents”).

B. Rulings Under Review

Petitioners seek review of a final rule issued by the Pipeline and Hazardous Materials Safety Administration entitled *Hazardous Materials: Liquefied Natural Gas by Rail*, published at 85 Fed. Reg. 44,994 (July 24, 2020).

C. Related Cases

Petitioners are aware of three additional petitions challenging the same final rule, all of which were filed in this Court. *See Maryland v. DOT*, D.C. Cir. No. 20-1318; *Puyallup Tribe of Indians v. DOT*, D.C. Cir. Nos. 20-1431 and 21-1009; and *Damascus v. DOT*, D.C. Cir. No. 20-1387. All the above cases were consolidated. Case No. 20-1387 has been dismissed.

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GLOSSARY

APA	Administrative Procedures Act
Dkt. #	Document number for document filed on the docket in this case
DOT	United States Department of Transportation
EA	Environmental Assessment
Environmental Petitioners	Sierra Club, Center for Biological Diversity, Clean Air Council, Delaware Riverkeeper Network, Environmental Confederation of Southwest Florida, and Mountain Watershed Association
Env. Comments	Comments by Environmental Petitioners, Document ID PHMSA-2018-0025-0440
FEA	Final Environmental Assessment, Document ID PHMSA-2018-0025-0478
FRA	Federal Railroad Administration
HMR	Hazardous Materials Regulations
HMTA	Hazardous Materials Transportation Act
JA	Joint Appendix
LNG	Liquefied natural gas
LNG Rule	<i>Hazardous Materials: Liquefied Natural Gas by Rail</i> , 85 Fed. Reg. 44,994 (July 24, 2020), Document ID PHMSA-2018-0025-0480
NEPA	National Environmental Policy Act

NTSB	National Transportation Safety Board
NTSB Comments	Comments from National Transportation Safety Board, Document ID PHMSA-2018-0025-0078
PRIA	Proposed Regulatory Impact Assessment, Document ID PHMSA-2018-0025-0001
Proposed LNG Rule	<i>Hazardous Materials: Liquefied Natural Gas by Rail</i> , 84 Fed. Reg. 56964 (proposed Oct. 24, 2019), Document ID PHMSA-2018-0025-0002
PHMSA	Pipeline and Hazardous Materials Safety Administration
Respondents	Pipeline and Hazardous Materials Safety Administration; Tristan Brown, in his official capacity as Administrator of Pipeline and Hazardous Materials Safety Administration; United States Department of Transportation; Pete Buttigieg, in his official capacity as Secretary of Transportation; and the United States of America
State Petitioners	State of Maryland, State of New York, State of California, State of Delaware, District of Columbia, State of Illinois, Commonwealth of Massachusetts, People of the State of Michigan, State of Minnesota, State of New Jersey, State of Oregon, Commonwealth of Pennsylvania, State of Rhode Island, State of Vermont, and State of Washington

JURISDICTIONAL STATEMENT

PHMSA signed the final rule on June 19, 2020 and published the final rule on review on July 24, 2020. *Hazardous Materials: Liquefied Natural Gas by Rail*, 85 Fed. Reg. 44,994 (July 24, 2020) (“LNG Rule”). Environmental Petitioners filed a petition for review in this Court on August 18, 2020. This Court has jurisdiction pursuant to 28 U.S.C. §§ 2342(7) and 2344 and 49 U.S.C. §§ 5127(a) and 20114(c) because Environmental Petitioners filed their petition for review not more than sixty days after the LNG Rule became final.

STATEMENT OF ISSUES

1. Did PHMSA, by authorizing the shipment of LNG by rail in untested tank cars, violate its duty to ensure the safe transportation of hazardous materials under the Hazardous Materials Transportation Act?
2. Does the LNG Rule’s requirement that LNG be shipped in a newly-designed tank car represent a logical outgrowth of a proposal to transport LNG by rail in a long-existing tank car under the Administrative Procedures Act?
3. Was PHMSA required to prepare an Environmental Impact Statement under the National Environmental Policy Act given PHMSA’s own admissions regarding the possible catastrophic consequences of the transport of LNG by rail?

STATUTES AND REGULATIONS

Pertinent statutes and regulations are included in the attached addendum.

STATEMENT OF THE CASE

A. Statutory Framework

The Pipeline and Hazardous Materials Safety Administration (“PHMSA”) is part of the United States Department of Transportation (“DOT”) and is vested with the regulatory powers of the DOT related to pipeline and hazardous materials transportation and safety under the Hazardous Materials Transportation Act (“HMTA”). 49 U.S.C. § 108(f). In carrying out its duties, PHMSA “shall consider the assignment and maintenance of safety as the highest priority, recognizing the clear intent, encouragement, and dedication of Congress to the furtherance of the highest degree of safety in . . . hazardous materials transportation.” 49 U.S.C. § 108(b).

The HMTA was passed to “protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous materials.” 49 U.S.C. § 5101. The HMTA establishes a regulatory framework whereby the Secretary of Transportation designates material as hazardous and then “prescribe[s] regulations for the safe transportation, including security,” of those materials. 49 U.S.C. § 5103(b).

Environmental Petitioners adopt the State Petitioners’ Statement of the Case regarding the National Environmental Policy Act and the accompanying draft Environmental Assessment (“EA”) and Final Environmental Assessment (“FEA”)

conducted by PHMSA in relation to the LNG Rule. Procedural history for the cases of The Puyallup Tribe of Indians is contained in their brief.

B. Background of the LNG Rule

Methane has long been listed by PHMSA as a hazardous material. *See Consolidation of Hazardous Materials Regulations*, 41 Fed. Reg. 15,972, 16,025 (Apr. 15, 1976) (codifying the hazardous materials table and including methane). Methane (sometimes called “natural gas”) has a boiling point of -260 degrees Fahrenheit, meaning that it must be refrigerated below that temperature to become liquefied natural gas (“LNG”). *Hazardous Materials: Liquefied Natural Gas by Rail*, 84 Fed. Reg. 56,964, 56,965 (Oct. 24, 2019) (“Proposed LNG Rule”). LNG is more economical to transport because it occupies about 1/600th of the volume of methane gas. *Id.* Before the LNG Rule, the Hazardous Material Regulations “d[id] not authorize the bulk transport of LNG in rail tank cars,” and LNG could “only be transported via rail in accordance with the conditions of a PHMSA special permit or in a portable tank pursuant to the conditions of an [Federal Railroad Administration (“FRA”)] approval.” *Id.* at 56966.

i. Industry Petitions to Authorize the Transport of LNG by Rail

On January 17, 2017, the Association of American Railroads petitioned PHMSA to authorize the shipment of LNG in DOT113C120W and DOT113C140W rail tank cars nationwide. *Id.* Without providing any data or

analysis specific to LNG or the tank cars requested for authorization, the petition rested on bald assertions that it is safer to ship LNG by rail than by truck and that other cryogenic commodities were already authorized for rail shipment. *Id.* The petition drew prompt opposition.¹

ii. President Trump Orders LNG by Rail Authorization

On April 10, 2019, President Trump issued Executive Order 13868: *Promoting Energy Infrastructure and Economic Growth*, which directed the Secretary of Transportation to propose a rule “that would treat LNG the same as other cryogenic liquids and permit LNG to be transported in approved rail tank cars.” 84 Fed. Reg. 15,495, 15,497 (Apr. 15, 2019). The Executive Order specified that a proposed rule was to be issued within 100 days and finalized in no more than 13 months. *Id.*

iii. PHMSA Proposes LNG by Rail Authorization

Just over 6 months later, on October 24, 2019, PHMSA published a notice of proposed rulemaking to authorize the shipment of LNG by rail in existing DOT-113C120W tank cars. 84 Fed. Reg. 56,964. Each DOT113C120W rail car could carry approximately 30,000 gallons, *id.* at 56,966 n.8, of LNG at a filling density of 32.5% by weight. *Id.* at 56,968. PHMSA did not propose any binding

¹ The Center for Biological Diversity sent a letter opposing the Association of American Railroad’s request on May 15, 2017. 84 Fed. Reg. at 56966.

operational controls for transporting LNG and instead proposed to rely on non-binding industry recommendations to reduce the risks of transporting LNG in rail tank cars. *Id.* The Proposed LNG Rule observed that the Hazardous Materials Regulations (“HMR”) already allowed for the shipment of “another flammable cryogenic liquid which shares similar chemical and operating characteristics with LNG (*i.e.*, ethylene),” in DOT-113C120Ws. *Id.* at 56,967. The Proposed LNG Rule specifically noted that it was “consistent” with President Trump’s executive order. *Id.* at 56,965 n.1.

The Proposed LNG Rule also included a preliminary EA and finding of no significant impact. *Id.* at 56,970-75.

PHMSA discussed how, in the event of an accident, an LNG spill could ignite and develop into a pool fire or flash vapor fire. *Id.* at 56,972. Additionally, “spilled LNG will vaporize rapidly forming a cold gas cloud that is heavier than air, which then mixes with ambient air, spreads and is carried downwind.” *Id.* The cloud remains flammable so long as the “vapor concentration is in the 5 to 15 percent” range. *Id.* at 56,973. Notably, “[t]he distance over which an LNG vapor cloud remains flammable is difficult to predict; local weather conditions (wind speed, atmospheric stability or turbulence), terrain, surface cover (*i.e.*, vegetation, trees, and buildings) will influence how a vapor cloud disperses, and how rapidly it

dilutes.” *Id.* If ignited, a flash fire forms that has a temperature of about 2,426 degrees Fahrenheit, traveling back to the source. *Id.*

Further, PHMSA noted that a one-mile evacuation radius may be necessary for any incident where “a tank car is involved in a fire.” *Id.* at 56974 n.28.

Although finding a boiling liquid expanding vapor explosion unlikely, PHMSA indicated it did not determine whether such a pressure explosion could occur in the event of a tank car derailment *Id.* at 56974.

The draft EA also discounted the threat of “[e]xposure to radiant heat from an LNG pool fire or being caught within the flash vapor fire” which “could result in fatalities, serious injuries, and property damage,” because “given the safety history of the DOT-113C120W tank cars, it is expected that the risk of tank car failure and ignition is low.” *Id.*

At the same time, PHMSA posted to the rulemaking docket a Proposed Regulatory Impact Assessment (“PRIA”), noting that PHMSA “has several ongoing studies related to LNG transportation” and that the already-completed research projects had little bearing on “the specific issue of transporting LNG by rail.” PRIA at 12, JA_0089. The PRIA specifically noted that the FRA was conducting a host of studies relevant to the safety of transporting LNG in DOT-113 tank cars including: “field experimental research to evaluate the pool fire survivability of a LNG filled portable tank subject to an engulfing pool fire,”; “a

full-scale tank car impact testing and analysis of two DOT 113 tanks . . . which . . . evaluates the performance and crashworthiness of DOT 113 specification tank cars [and] includes developing puncture models and verifying the models with actual testing data,”; “an LNG tender crashworthiness assessment” which includes “modeling to analyze the performance of an ISO tank (LNG tender) in different accident scenarios: head impact, shell impact, bottom impact and top impact,”; “a full-scale LNG tender rail highway crossing impact test” which “evaluates the survivability of valves and valve housing on an LNG tender,”; and, “evaluating risk assessment of unit trains versus regular merchandize trains transporting hazardous materials, including LNG.” *Id.* at 13, JA_0090.

On December 11, 2019, twelve days before the close of public comment period on the Proposed LNG Rule, PHMSA published a notice that it had issued Special Permit SP20534 and added the special permit and supporting materials to the Proposed LNG Rule docket for comment to “consider any additional comments on the operational controls included in the special permit.” *Hazardous Materials: Notice of Issuance of Special Permit Regarding Liquefied Natural Gas*, 84 Fed. Reg. 67,768, 67,768 (Dec. 11, 2019). SP20534 authorized the shipment of LNG in DOT113C120W tank cars in unit trains along a to-be-specified route from a planned liquefaction facility in Wyalusing, PA to a proposed export facility in Gibbstown, NJ. *Id.* at 67,769.

PHMSA received hundreds of comments, including from all the Petitioners here. Most of the comments opposed the authorization of LNG transport by rail, including those from States, Tribes, environmental groups, emergency responders, and some federal agencies, with many commenters pointing to the deficiencies (and absence) of PHMSA's analysis and the dangers that PHMSA had failed to address. *See, e.g.*, Comments of the National Association of State Fire Marshalls (Document ID PHMSA-2018-0025-0096), JA_0122; NTSB Comments, JA_0116; Env. Comments, JA_0207; Comments of the State Petitioners and North Carolina (Document ID PHMSA-2018-0025-0283), JA_0162.

iv. PHMSA Authorizes LNG by Rail in a Novel Tank Car

PHMSA issued the final LNG rule on June 19, 2020, and published it in the Federal Register on July 24, 2020 with an effective date of August 24, 2020. 85 Fed. Reg. 44,994. The LNG Rule included several significant changes from the Proposed LNG Rule. Most notably, PHMSA designed an entirely new tank car, the newly designated DOT113C120W9, which included a thicker outer tank, made of higher-grade steel, as compared to the DOT113C120W (9/16th inch instead of 7/16th inch) and authorized LNG transportation in that model only. *Id.* at 44,996.

The LNG Rule also raised the maximum permitted filling density from the proposed 32.5% to 37.3%, *id.* at 45,003, and adopted operational controls largely mirroring the terms imposed on SP20534. *Id.* at 45,007. Those operational

controls included requirements to: (1) use advanced breaking—end of train or distributed power—when trains carry 20 or more LNG cars in a single block or 35 or more cars throughout an entire train; (2) conduct routing analysis found at 49 C.F.R. § 172.820; and (3) remotely monitor the location and pressure of each tank car. *Id.* PHMSA continued to rely on the Association of American Railroad’s Circular OT-55 (industry guidelines, including a voluntary 50-mph speed limit for trains with 20 or more cars of hazardous material (including LNG)) without any binding restrictions on routing or speed. *Id.*

Instead of conducting an environmental impact statement as commenters had urged, PHMSA published an FEA and finding of no significant impact. *Id.* at 45,027. The FEA largely mirrored the findings of the draft EA with an additional discussion of tank car safety with 9/16” outer wall thickness as compared to 7/16” outer shells. FEA at 43, JA_0478. PHMSA reiterated that “the risk of puncture to a DOT-113 tank car increases with speed and the specific conditions in the derailment environment,” *Id.* at 20, JA_0455, and that, in “most cases, the impact itself or events immediately following derailment would cause the ignition of released vapors or vapors forming from warming LNG.” *Id.* at 22, JA_0457. This would cause a pool fire that “could cause injuries, deaths, and fires of structures and vegetation.” *Id.* at 22-23, JA_0457-58. In the event of a vapor cloud forming, ignition of the vapor cloud “poses a serious threat to people in the vicinity and can

result in serious burns and fatalities” with the degree of harm “greatly depending on the population density.” *Id.* at 23, JA_0458. There could potentially be a cascading failure, even “of otherwise undamaged tank cars and consequentially cause a release of LNG.” *Id.* at 24, JA_0459. While PHMSA thus acknowledged that authorizing the transport of LNG as proposed in the LNG Rule “could result in safety and environmental impacts,” it did not believe that “these potential impacts rise to the level of ‘significant,’” and therefore did not prepare an environmental impact statement. *Id.* at 57, JA_0492.

C. Events Following the LNG Rule

On August 18, 2020, Sierra Club, Center for Biological Diversity, Clean Air Council, Delaware Riverkeeper Network, Environmental Confederation of Southwest Florida, and Mountain Watershed Association (“Environmental Petitioners”) filed a Petition for Review of the LNG Rule with this Court. Dkt. #1857109. That same day, the States of Maryland, New York, California, Delaware, Illinois, Massachusetts, Michigan, Minnesota, New Jersey, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and the District of Columbia (“State Petitioners”) filed a petition to review the LNG Rule with this Court. Dkt. #1858050.

On January 20, 2021, Executive Order 13990 was enacted, revoking Executive Order 13868, 86 Fed. Reg. 7,037, 7,041 (Jan. 25, 2021), and directing

that specified federal actions be considered for suspension, revision, or rescission.

The LNG Rule was included on the list of agency actions for review. Dkt.

#1886940 at 1. Consequently, on PHMSA's motion, *id.*, this Court placed the case in abeyance on March 16, 2021. Dkt. #1890143.

On November 8, 2021, PHMSA issued a notice of proposed rulemaking to suspend the authorization to transport LNG by rail. *Hazardous Materials: Suspension of HMR Amendments Authorizing Transportation of Liquefied Natural Gas by Rail*, 86 Fed. Reg. 61,731 (Nov. 8, 2021). PHMSA noted that it had established a joint LNG task force with the FRA in January 2020 as part of its ongoing research efforts on LNG transportation. *Id.* at 61,733. It also noted that “[p]ursuant to the ‘Further Consolidated Appropriations Act, 2020’ (Pub. L. 116-94), PHMSA and FRA partnered with the National Academy of Sciences, Engineering, and Medicine . . . to conduct a study on the transportation of LNG in rail tank cars through a committee of the Transportation Research Board” that would consist of two phases and that this work commenced in mid-July, 2020. *Id.* at 61,733-34.

The committee issued its Phase I report on June 15, 2021. *Id.* at 61,734. As summarized by PHMSA, the committee “expressed particular concern regarding the incomplete status of tasks pertaining to full-scale impact testing, portable tank pool fire testing, worst-case scenario analysis, and quantitative risk assessment.”

Id. Per PHMSA, the report noted numerous research gaps and made recommendations for additional needed research, including impact testing “using a train speed of 50 miles-per-hour . . . and evaluat[ing] explosion hazards from a spill of LNG resulting in vapor dispersion in an environment with confined or congested spaces.” *Id.* As a result, PHMSA stated there was “increased uncertainty regarding the potential benefits and safety and environmental consequences of rail transportation of LNG;” accordingly, a temporary suspension was warranted until the earlier of June 30, 2024 or the completion of a separate rulemaking to potentially modify the LNG Rule. *Id.* at 61,731, 61,735.

On May 17, 2023, all Petitioners filed a Joint Motion to Lift Abeyance, Dkt. #1999694, which was granted on July 18, 2023. Dkt. #200838.

PHMSA finalized the suspension rule on September 1, 2023. The Suspension Rule temporarily suspended the authorization to transport LNG by rail from October 31, 2023 until the earlier of June 30, 2025 or the completion of the separate rulemaking to potentially modify the LNG Rule. *Hazardous Materials: Suspension of HMR Amendments Authorizing Transportation of Liquefied Natural Gas by Rail*, 88 Fed. Reg. 60,356 (Sept. 1, 2023). The suspension rule noted that the Transportation Research Board completed its Phase II report on September 9, 2022. *Id.* at 60,359. PHMSA summarized the recommendations from that report. First, the Board recommended “launching an LNG safety assurance initiative

before LNG tank cars are put in service,” including “actively monitor[ing] initial plans for and early patterns of LNG traffic activity, including the locations and routes of shipments, the number and configuration of tank cars in trains, and reports of incidents involving a tank car or train carrying LNG.” Second, the Board recommended reviewing the new DOT-113C120W9 tank car design to ensure that it adequately accounts for the unique properties of LNG that could contribute to an LNG release in the event of an accident and potential cascading impacts including taking a close look at the pressure relief devices to ensure they can vent in various derailment scenarios (including rollover), the insulation between the outer and inner tank to determine whether it can withstand the heat from an LNG fire, and the potential for the outer tank to experience cryogenic brittle failure when exposed to an LNG pool fire. *Id.* PHMSA also noted multiple outstanding research tasks of the LNG Task Force, including enhanced quantitative risk analysis, enhanced impact testing, and enhanced train dynamic simulations. *Id.* at 60,360.

PHMSA noted that if the LNG Rule remained active it “could pose risks to public safety and the environment” because “LNG poses potential hazards as a cryogenic liquefied flammable gas, including cryogenic temperature exposure, fire, and asphyxiation hazards.” *Id.* at 60,371. PHMSA believes that each additional LNG tank car increases the overall risk of an incident occurring and the quantity

that could be released in the event of a derailment. *Id.* PHMSA thus seeks to better understand the risks of LNG transport in the DOT-113C120W9 tank car, especially given that the LNG Rule envisioned the transport of LNG in many tank cars at the same time. *Id.* PHMSA also recognizes the “unique safety risks presented by rail transportation of large volumes of LNG.” *Id.* at 60,357. PHMSA will also consider “whether transportation of LNG in rail tank cars could pose disproportionate harm or risk to communities of color or low-income communities.” *Id.* at 60,371. PHMSA has also learned that DOT113C120W9 tank cars are being ordered and constructed, albeit for transportation of cryogenic materials other than LNG, Dkt. #2002428 at 27, even though these new tank cars cost approximately \$18,000 to \$25,000 more than models previously approved by PHMSA for shipment of cryogenic materials other than LNG. Final Regulatory Impact Assessment (Document ID PHMSA-2018-0025-0479) at 19, JA_0516.

PHMSA also noted that the East Palestine, OH derailment included 11 tank cars carrying combustible liquid and flammable gas hazardous materials that derailed; PHMSA is working with the National Transportation Safety Board to “learn all it can from this incident and determine whether the lessons learned should inform rail transportation of other hazardous commodities such as LNG.” 88 Fed. Reg. at 60,371.

PHMSA therefore decided to suspend the authorization to transport LNG by rail,² “thereby: (1) avoiding potential risks to public health and safety or environmental consequences (to include direct and indirect greenhouse gas (GHG) emissions) that are being evaluated in the companion rulemaking . . .; (2) allowing for the completion of ongoing testing and evaluation efforts undertaken in collaboration with FRA, as well as further consideration of the recommendations from external technical experts of the National Academy of Sciences, Engineering, and Medicine,” among other reasons. *Id.* at 60,357.

SUMMARY OF ARGUMENT

PHMSA violated the HMTA, APA, and the National Environmental Policy Act (“NEPA”) by ignoring many of the safety risks presented by the transportation of LNG by rail, ignoring the foreseeably catastrophic impacts of an LNG derailment, rushing the LNG Rule to completion before pending safety research could be finished, and asserting without support that there would be no impacts on the environment and thus an environmental impact statement would not be needed. PHMSA has since admitted that additional research was needed and that the LNG Rule and its supporting documents ignored certain catastrophic scenarios, findings that are supported by additional research that has been conducted since

² PHMSA noted that a renewal request for special permit 20534 was denied. 88 Fed. Reg. at 60,363 n.39.

promulgation of the LNG Rule. But these scenarios were presented to PHMSA during the rulemaking process by Environmental Petitioners and others. Instead of addressing these concerns head-on and acknowledging the significant deficiencies in the record before it, PHMSA proceeded to finalize a deeply problematic LNG Rule. That is not the reasoned decision-making the APA requires.

Throughout the docket, PHMSA touted the DOT-113 tank car's safety record, with "only" 3 breaches of DOT-113C120 tank cars where the entire contents were released. PHMSA fails to mention, however, that there were only 67 DOT-113C120 tank cars in service over this period. An almost 5% complete breach rate is hardly a compelling safety record, as noted by the National Transportation Safety Board. Rather than grapple with these facts, PHMSA abruptly shifted course and approved a wholly new tank car design for the transportation of LNG by rail, even though there was no indication PHMSA was considering such an approval in the Proposed LNG Rule. Indeed, PHMSA had already rejected the idea of considering a new tank car design that had been proposed as part of the rulemaking process, claiming that considering a new tank car design should occur in a *different* rulemaking process and asserting that the existing DOT-113C120W tank car was safe for transporting LNG. Petitioners and the public had no opportunity to comment on the new tank car design, which is currently being put into service without a single public comment, even though it

with a higher weight approval by PHMSA that received none of the customary FRA analysis for approving higher weights.

PHMSA acted arbitrarily and capriciously and violated NEPA in its rush to fulfill an Executive Order. This Court should vacate the LNG Rule.

STANDING

Environmental Petitioners have both associational standing on behalf of their membership and organizational standing due to the significant resources they have had to expend on preparing their members and the public for addressing the dangers inherent in the rail-based LNG transport authorized by the LNG Rule.

A. Associational Standing

Associational standing occurs when an organization seeks standing to sue by association with or on behalf of its members. *WildEarth Guardians v. Jewell*, 738 F.3d 298, 305 (D.C. Cir. 2013). To establish associational standing, (1) at least one of an organization's members must prove standing to sue in her own right; (2) the organization must seek to protect interests germane to its purpose; and (3) neither the claim nor relief sought should require an individual member to sue. *Id.*; *Hunt v. Wash. State Apple Advert. Comm'n*, 432 U.S. 333, 342-43 (1977). The first *Hunt* element requires that the organization identify at least one specific member for purposes of proving injury-in-fact. *Pub. Citizen, Inc. v. Trump*, 297 F. Supp. 3d 6, 18 (D.D.C. 2018).

Delaware Riverkeeper Network, Clean Air Council, and Sierra Club are membership-based associations whose respective missions include advocating on behalf of their members for a clean and healthy environment and educating their members and the public about threats to the environment. Van Rossum Decl. ¶¶ 3-7; Walker Decl. ¶ 2; Blumberg Decl. ¶ 3. Each of these organizations has standing in this case as each has members whose recreational, aesthetic, and health interests are directly impaired by the LNG Rule.

Since PHMSA denied the renewal of the special permit for the transport of LNG by rail between Wyalusing, PA and Gibbstown, NJ, 88 Fed. Reg. at 60363 n.39, the only way for LNG to be transported by rail between those locations by Energy Transport Solutions is via the LNG Rule. Energy Transport Solutions still plans to move forward with the project and transport LNG between these two locations. Van Rossum Decl. ¶ 14 & n.1. Delaware Riverkeeper has mapped the only practical routes for shipping LNG by rail between these two locations. *Id.* ¶¶ 11-13. Delaware Riverkeeper, Clean Air Council, and Sierra Club each have members who live, work, and recreate along these rail routes, and who will be harmed by additional train traffic from LNG trains, including: increased air pollution from their diesel engines, increased disruption to peace and quiet members enjoy in their homes and in nearby scenic areas, increased delays at grade crossings and fear that they could be killed at any time by an accident triggering an

explosion. Solberg Decl. ¶¶ 2-11; Quinn Decl. ¶¶ 2-7, 9-13; Buck Decl. ¶¶ 3-10; Jordan Decl. ¶¶ 3, 6-11; Morales Decl. ¶¶ 1, 3-7; Blumberg Decl. ¶¶ 2-12; Alspaugh Decl. ¶¶ 2-8; Abendroth Decl. ¶¶ 2-7.

In *Sierra Club v. FERC*, for example, which challenged approval for an LNG export facility, this Court found that Sierra Club had associational standing because defendant's action: (1) represents a harm to the declarant member's "aesthetic and recreational interests" by increasing LNG tanker traffic; (2) results in increased production of LNG for export, which directly produces such tanker traffic; and (3) could be remedied by a favorable decision, even if defendant would just have "the chance to reconsider the increase in production capacity it approved" through its action. *Sierra Club v. FERC*, 827 F.3d 59, 66 (D.C. Cir. 2016). Similarly, here, Delaware Riverkeeper Network, Clean Air Council, and Sierra Club have associational standing as their members will experience substantial harm to their aesthetic and recreational interests from the disruptive and polluting LNG rail traffic that the LNG Rule authorizes.

B. Organizational Standing

A plaintiff asserting organizational standing does so on its own behalf, not on behalf of or by association with its members. *People for the Ethical Treatment of Animals v. U.S. Dep't of Agric.*, 797 F.3d 1087, 1093 (D.C. Cir. 2015). The test for this type of standing turns on whether an organization's alleged injury is

“concrete and demonstrable” or merely a “setback” to its “abstract social interests.” *Id.* at 1093-94 (quoting *Havens Realty Corp. v. Coleman*, 455 U.S. 363, 379 (1982)). To make this determination, the two-prong *Havens* test asks (1) whether the defendant’s action or omission injured the plaintiff organization’s interest, and, if so (2) whether the plaintiff organization “used its resources to counteract that harm.” *Id.* at 1094 (quoting *Equal Rights Ctr. v. Post Properties, Inc.*, 633 F.3d 1136, 1140 (D.C. Cir. 2011)). In turn, a “concrete and demonstrable” injury is one that impairs the plaintiff organization’s activities or drains its resources. *Id.* at 1093. Although “‘self-inflicted’ budgetary choice[s]” to divert resources to litigation or preparation for litigation fail the *Havens* test, where an agency’s allegedly unlawful act or omission denies access to information or creates a “lack of information” that impairs an organization’s related educational activities, courts recognize an “injury sufficient to support standing.” *Id.* at 1093-95 (internal citations omitted). Standing is also found where the organization expends resources on investigations to find such missing information by other means. *Id.* at 1095-97.

For example, in *People for the Ethical Treatment of Animals*, plaintiff proved injury to its concrete and demonstrable interests because defendant agency’s allegedly unlawful “failure to apply ... animal welfare regulations to birds” denied access to bird-related information that affected plaintiff’s ability to

bring violations to the agency's attention and to educate the public. *Id.* at 1095. Here, PHMSA's failure to ensure safe transportation of hazardous materials and provide the analysis required by an environmental impact statement has (1) impaired Delaware Riverkeeper Network's and Clean Air Council's abilities to educate the public and protect the health of their members, and (2) required each organization to expend considerable sums of money and staff time investigating *where* LNG may be transported by rail, *how* such transport would impact its members, and in educating their members and the public about the potential dangers and evacuations that would be potentially necessary in the event of an accident. Van Rossum Decl. ¶¶ 3-6, 8-16; Walker Decl. ¶¶ 2-8.

ARGUMENT

I. The Serious Risks Posed by the Final Rule Violate the HMTA's Mandate to Ensure Safe Transportation and the APA's Reasoned Decision-Making Requirements

A. Standard of Review

PHMSA violated the HMTA by promulgating the LNG Rule without putting adequate safety measures in place. Congress enacted the HMTA “to protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce.” 49 U.S.C. § 5101. The HMTA requires the Secretary of Transportation to “prescribe regulations for the safe transportation, including

security, of hazardous material in intrastate, interstate, and foreign commerce.” 49 U.S.C. § 5103(b). Such regulations must “govern safety aspects, including security, of the transportation of hazardous material the Secretary considers appropriate.” 49 U.S.C. § 5103(b)(1)(B). Regulations under the HMTA must be “rationally related to the policy—the development of acceptable levels of public safety for each mode of transportation—underlying HMTA and [be] promulgated in accordance with the Administrative Procedure Act.” *City of New York v. DOT*, 715 F.2d 732, 741 (2d Cir. 1983); *see also* 49 U.S.C. § 5103(b)(2).

The APA requires this Court to set aside PHMSA’s rulemaking under the HMTA if it has acted arbitrarily and capriciously. *See Lilliputian Sys., Inc. v. Pipeline & Hazardous Materials Safety Admin.*, 741 F.3d 1309, 1312-14 (D.C. Cir. 2014) (holding that agency must provide “reasoned explanation and substantial evidence” to support its decisions under the HMTA). Parsing an analogous section of DOT’s organic statute,³ this Court has ruled that when promulgating a rule, DOT must “reasonably address the safety concerns implicated by its decision” and must act “consistently with consideration of safety as the highest priority.” *Transp.*

³ Compare 49 U.S.C. § 108(b) (PHMSA “shall consider the assignment and maintenance of safety as the highest priority . . . to the furtherance of the highest degree of safety in . . . hazardous materials transportation”) with *id.* § 103(c) (FRA “shall consider the assignment and maintenance of safety as the highest priority . . . to the furtherance of the highest degree of safety in railroad transportation”).

Div. of Int'l Assoc. of Sheet Metal, Air, Rail and Transp. Workers v. FRA, 40 F.4th 646, 662 (D.C. Cir. 2022) (internal quotations and brackets omitted).

B. PHMSA Did Not Demonstrate Adequate Safety of the New Tank Car and Operational Controls

PHMSA failed to provide reasoned explanation and substantial evidence that its new tank car design, the DOT-113C120W9, which was described for the first time in the LNG Rule, will ensure the “safe transportation” of LNG by rail. The primary change to the new specification over its legacy counterpart is an increase to the outer tank thickness from 7/16” to 9/16”. 85 Fed. Reg. at 45,004.

To support its claim that the thicker outer shell would provide a “substantial safety benefit,” PHMSA compared two derailments involving cars with outer tanks of 7/16” to a derailment involving cars with 9/16” outer tanks. *Id.* at 45,005. Nearly every derailed car with a 7/16” outer tank breached: 19 of 20 and 30 of 32, respectively. *Id.* For the train with 9/16” thick outer tanks, 8 of 32 cars were breached. *Id.* In concluding, based on that comparison, that the thicker shell was far safer, *id.*, PHMSA ignores that a significant percentage (25%) of cars with 9/16” outer tanks were breached—a figure that cannot be reconciled with PHMSA’s statement in the FEA that “the breach of *one or more* DOT-113 tank cars

poses serious risks to the public and the environment.”⁴ FEA at 41, JA_0476 (emphasis added).

Another key flaw of the LNG Rule is the fact that it lacks a mandatory speed limit. In its FEA, PHMSA admitted that “the risk of puncture to a DOT-113 tank car increases with speed” *Id.* at 20, JA_0455. PHMSA nevertheless declined to set a speed limit, explaining that under OT-55, trains carrying twenty carloads or more of a hazardous material (including LNG), are considered “key trains” and subject to an industry voluntary speed limit of 50 mph. 85 Fed. Reg. at 45,007-08. Thus, a train may carry up to nineteen carloads of LNG and not be subject to any speed limit. Notably, the accident that breached 25% of all derailed tanker cars despite their 9/16” outer walls occurred at 42 mph—8mph *slower* than the *voluntary* speed limit applicable to trains carrying twenty or more carloads of LNG. *Id.* at 45,006.

The risk of puncture also increases with weight and with reduced “outage” space (i.e., empty space at the top of the tank car). Env. Comments at 11, JA_0217. Together, the thicker outer tank and higher filling density specified in the LNG Rule substantially increased the expected weight of the tank car, causing PHMSA to deviate from the FRA-approved tank car gross weight limit, raising it

⁴ See Section I.D., *infra*, for a more detailed discussion of the risks posed by a breach of a rail tank car carrying LNG.

from 263,000 to 286,000 pounds. 85 Fed. Reg. at 45,007. PHMSA acknowledged that this higher limit has historically been limited to only “certain tank cars in hazardous materials service,” loosely citing a 2010 rulemaking and 2011 FRA notice.⁵ *Id.* PHMSA gave no indication that it evaluated the impacts of allowing such heavier cars in potential unit trains.

The cited 2010 final rule addressed numerous provisions from special permits that PHMSA wished to codify generally. *Hazardous Materials: Incorporation of Special Permits Into Regulations*, 75 Fed. Reg. 27,205, 27,206 (May 14, 2010). The final rule did not analyze the weight issue, but delegated approval for heavier rail cars to the FRA, which “plan[ned] to develop risk-based guidance for persons applying for an approval to authorize a gross weight” of up to 286,000 pounds. *Id.* at 27,209. The resulting cited 2011 FRA notice authorized additional weight for specific tank cars and cargoes, subject to requirements incorporated from prior special permits. *Notice regarding FRA approval for operating certain railroad tank cars in excess of 263,000 pounds gross rail load*, 76 Fed. Reg. 4250, 4252 (Jan. 25, 2011). As background for its authorization, the FRA relied on a white paper entitled “Maximizing Safety and Weight, A White

⁵ Environmental Petitioners did not address the higher weight limit in their comments as no new higher weight limit had been proposed, and as discussed in Section II.B., *infra*, such new tank car design (and higher weight limit) was not a logical outgrowth of the Proposed LNG Rule.

Paper on 263K+ Tank Cars” (hereinafter “White Paper”). *Id.* at 4251. This detailed some of the risks involved with increasing tank car weight, particularly the “greater kinetic energy” of a moving car which “increases the puncture vulnerability of the tank structure upon impact with another object (broken rail, couplers, and other tank cars and car components).” White Paper at 2.⁶ The White Paper also noted that heavier loads increase stress on train cars and on trains themselves. *Id.* at 3. Consequently, applicants seeking to utilize the 286,000-pound limit must address several tank car design technical issues and “*must* provide analytical, and as necessary test evidence, demonstrating that the vehicle characteristics of the tank car body and the suspension” comply with Association of American Railroads guidelines and other technical requirements outlined in the paper, and yield an equal level of safety as a lower weight limit. *Id.* at 4 (emphasis added), 7.

Even though PHMSA pointed to the FRA notice, which pointed to the FRA White Paper, to justify giving a blanket authorization for the higher weight of a DOT113C120W9, none of the procedures and testing outlined by the FRA to authorize the higher weight were followed, and none of the considerations highlighted by the FRA as necessary before authorizing a higher weight were even

⁶ The White Paper is included in the Addendum and is also available at <https://railroads.dot.gov/elibrary/maximizing-safety-and-weight-white-paper-tank-cars-greater-263k>.

considered in the LNG Rule. FRA considered the White Paper's requirements necessary in the notice on which PHMSA relies, and yet PHMSA failed to include those requirements in this administrative record, proving that PHMSA did not adequately consider whether the LNG Rule's higher weight limit was safe, especially with respect to the White Paper factors incorporated by the FRA as prerequisite to authorizing higher weight limits. The APA's requirements for reasoned decision-making and the HMTA's mandate to ensure safe transportation both require more.

C. PHMSA's Comparison with Ethylene Provides No Basis for Finding the Transport of LNG by Rail to be Safe

Throughout the rulemaking, Commenters raised many safety concerns, and PHMSA failed to give these concerns adequate consideration. Petitioners were particularly concerned with an accidental release where LNG escapes into a confined urban environment (such as an underground stormwater system). Rather than engage with these issues, PHMSA repeatedly dismissed them based on inapposite comparisons to ethylene, another flammable cryogenic liquid. *See* 85 Fed. Reg. at 45,003. Ethylene and methane are not the same: the two gases have significantly different ignition temperatures, flammable limits, storage temperatures (minus 155 degrees Fahrenheit for liquid ethylene versus minus 260 for LNG), and reactivity. *Env. Comments at 12, JA_0218.*

Some of those differences are particularly important. The heat of combustion for LNG is higher than it is for liquid ethylene, and extensive testing by different national laboratories has demonstrated that LNG fire physics are “unique,” even compared to other liquid hydrocarbons like ethylene. *Id.* Additionally, when LNG revaporizes to gas, it expands by 600 times its liquid volume—greater than the expansion factor of ethylene given ethylene’s much warmer boiling point. And because ethylene remains liquid at temperatures over 100 degrees warmer than LNG, maintaining its liquid form is easier than for LNG. *Id.* Moreover, in contrast to stated industry “plans to operate unit trains of at least 80 cars” of LNG, PHMSA acknowledges ethylene is typically transported in just *one to three* cars per train. *Id.* at 45,005. Just as PHMSA offers no basis for concluding that ethylene and LNG shipments have similar risks despite their distinct physical properties, PHMSA does not account for the unique risks of manifest and unit train configurations, shipping vastly greater quantities of LNG, compared to ethylene-carrying trains. *Id.* at 45,003.

Indeed, despite conceding the risk of a cascading failure of tank cars, 84 Fed. Reg. at 56974, the LNG Rule contains no safety precautions or operational restrictions to prevent 110-car unit trains of LNG from barreling through major population centers—other than deferring to industry’s *voluntary* 50 mph speed-limit—even though PHMSA does not (and could not) suggest that LNG tank cars

have any meaningful chance of surviving a major accident at those speeds. That is particularly troubling because LNG contains an enormous amount of energy, with only 22 tank cars holding the equivalent energy of the Hiroshima bomb. Env. Comments at 15, JA_0221.

D. PHMSA Failed to Address the Dangers of Transporting LNG in Large Quantities

Regardless of the number of LNG cars, a derailment involving LNG will be subject to PHMSA's recommendations in the DOT Emergency Response Guidebook. 85 Fed. Reg. at 45,000. These guidelines require evacuation of a one-mile radius around any incident involving LNG. *Id.* at 45,021. As discussed below, and as PHMSA acknowledges, the adequacy of this distance is in doubt. *Id.* Indeed, the International Association of Fire Fighters stated that evacuating a one-mile radius in most jurisdictions is impossible and that "any fire involving multiple LNG cars would place large numbers of the public at risk while depleting many communities of their emergency response resources." *Id.*

PHMSA also ignored comments regarding the risks of transporting LNG in urban areas. If released, LNG boils into a gas that remains denser than air until it warms by hundreds of degrees to ambient temperatures. 84 Fed. Reg. at 56,972. Until then, the heavier-than-air vapor cloud will flow downward, readily infiltrating underground conduits (such as sewers, stormwater systems, or subways) if available. Env. Comments at 14, JA_0220. If introduced to an

underground system, the dispersing gas may remain explosive over significant distances. *Id.* Indeed, the Governmental Accountability Office cautions that just “40 cubic meters of LNG from one truck, vaporized and mixed with air in flammable proportions, are enough to fill 110 miles of 6-foot diameter sewer line, or 15 miles of a 16-foot diameter subway system.” *Id.* Each rail tank car carries as much LNG as three trucks. *Id.* If spilled in the wrong location, the gas from a single tank car could traverse hundreds of miles of underground pipes or tunnels before encountering an ignition source; the resulting explosion could destroy a city. *Id.* Despite acknowledging how LNG will act if released, PHMSA fails to grapple with these catastrophic risks and potential ways to ameliorate them raised by commenters. FEA at 22-24, JA_0457-59. Nowhere does PHMSA address whether the 1-mile evacuation radius is adequate given these release scenarios. That is exceptionally problematic for urban environments where tracks are flanked by nearby entrances (manholes, stormwater drains, etc.) to extensive underground networks.

Another LNG-related risk PHMSA fails to adequately address is a boiling liquid expanding vapor explosion. 85 Fed. Reg. at 45,011. In short, this kind of explosion occurs when LNG expands in a confined space—like a tank car—and the pressure from heating LNG builds up until the tank car explodes, as could happen in any derailment that impairs the pressure release devices. DOT’s

Emergency Response Guidebook outlines the main hazards associated with this kind of explosion, including 1) immediate fireball; 2) thermal radiation; 3) blast (concussive force); and 4) projectiles (metal tank fragments hurled great distances). Emergency Response Guidebook at 365, JA_0995.

Environmental Petitioners identified two incidents in Spain in which such an explosion occurred during LNG transportation. 85 Fed. Reg. at 45,011. PHMSA responded that those incidents involved different packaging and that the DOT-113 railcar's properties will make such an explosion less likely. *Id.* at 45,012.

PHMSA's only empirical support for that assertion, however, was to claim that such an explosion did not occur in a test involving liquid nitrogen. *Id.* As Environmental Petitioners pointed out in their comments criticizing this test, liquid nitrogen is *not flammable*, and during the test, wind blew the fire to only one side of the tank, further distinguishing the test from the engulfing flame that could occur in a pool fire scenario during a derailment. Env. Comments at 23, JA_0229. Furthermore, the test lasted around 200-minutes, 84 Fed. Reg. at 56,974, whereas fires from real-world derailments often last multiple days. *See* Env. Comments Attach. 17 Appx. B at 2-9, JA_0422-29 (describing derailments where it took many hours, and sometimes multiple days, to extinguish fires). PHMSA fails to explain how this test could be relevant to estimating the risk of this kind of pressure explosion from a real LNG-involved derailment.

PHMSA further ignores the damage that can occur to a pressure release device in a derailment or accident scenario, such as when a tank car overturns during a derailment, rendering a pressure release device ineffective. *See* Env. Comments at 22, JA_0228. PHMSA's primary rationale for discounting pressure explosion risks is that pressure release devices *should* vent lading well below the pressure at which the tanker would experience structural failure, thus preventing such an explosion. 85 Fed. Reg. at 44,999. PHMSA's logic works only if derailling cars never overturn (pressure relief devices are located on the top of the tanker) and damage the devices. *But see, e.g.*, Env. Comments Attach. 16 at 6, 28-30 (describing derailment from 36 mph with overturned tank cars and how ethanol was lost through damaged valves and fittings), JA_0323, 0345-47; Env. Comments Attach. 17 Appx. B at 7 (describing "Catastrophic failure" of pressurized tank car that was in pool fire and upside down, preventing pressure relief valve from operating), JA_0427. Considering PHMSA's failure to grapple with real-world accident scenarios, its hollow assurances that a boiling liquid expanding vapor explosion is highly unlikely does not reflect a reasoned decision-making process.

PHMSA admits that, in the one derailment it cites involving rail cars with 9/16" outer tanks, eight of thirty-two derailed cars in a flat field were breached. 85 Fed. Reg. at 45,006. This occurred at 42mph, and the *voluntary* speed limit for trains with *twenty or more* carloads of LNG is 50mph. *Id.* at 45,007. And PHMSA

further admits that increased speed increases the risk of puncture and that the puncture of even one car carrying LNG “poses serious risks to the public and the environment.” FEA at 20, 41, JA_0455, 0476. Further, although PHMSA claims that the DOT-113 car diminishes the risk of a boiling liquid expanding vapor explosion, it cannot identify any testing of this hypothesis performed with a flammable liquid. 85 Fed. Reg. at 45012.

As the National Transportation Safety Board (“NTSB”) commented, “[b]ecause unit trains of DOT-113 tank cars carrying large volumes of flammable cryogenic gases have no operational or accident performance safety history, we believe a thorough safety assessment of the tank car specification is needed. . . . We believe that relying on data for the accident history of similar hazardous materials transported in the small fleet of DOT-113 tank cars . . . or making engineering assumptions based on the performance of pressure tank cars with completely different features and operating parameters . . . , does not provide a statistically significant or valid safety assessment and calls into question how PHMSA determined the specification DOT-113C120W tank car is an acceptable package to transport LNG.” NTSB Comments at 3, JA_0118. The NTSB’s comments pertained to the DOT-113C120W, arguing that there was insufficient information on that tank car design to ensure safe transportation—but those comments likewise apply to the brand-new tank car design (with greater weight

and additional safety concerns) that PHMSA approved in the LNG Rule. Per the NTSB, there were only 67 DOT-113C120Ws in existence, and of those 67, accident data indicated multiple incidents, with three shell breaches, which, the NTSB noted, “is not a compelling ‘demonstrated safety record.’” *Id.* at 4, JA_0119; *see also* AAR RSI Project RA-19-03 Cryogenic Car Accident Data Final (Document ID PHMSA-2018-0025-0527) at 3-4 (listing additional incidents), JA_0627-28.

The NTSB also called for “a detailed evaluation of the proposed tank car’s puncture resistance and resistance to thermal exposure in accident scenarios,” adding that “[s]uch knowledge is critical for assessing the risks associated with operating concentrated numbers of tank cars or unit trains of DOT-113 tank cars and could reveal the need for further protective measures and operational restrictions.” *Id.* The NTSB “believes the risks of catastrophic LNG releases in accidents is too great not to have” more safety precautions in place before LNG unit trains and block units proliferate. *Id.* The NTSB concluded by saying it “believes that it would be detrimental to public safety if PHMSA were to authorize the transportation of LNG by rail with unvalidated tank cars and lacking operational controls.” *Id.* These concerns were largely ignored by PHMSA to the detriment of public safety and in contravention of PHMSA’s duties under the HMTA and the APA.

E. PHMSA Ignored its Own Acknowledgments that Further Safety Testing was Needed

Much of the testing demanded by the NTSB was underway at the time of rulemaking. At the time, PHMSA noted that it “has several ongoing studies related to LNG transportation,” and that the research projects already “completed” were “either not directly applicable to the economic analysis or of limited relevance to the specific issue of transporting LNG by rail.” PRIA at 12, JA_0089. PHMSA also noted that the FRA had several studies ongoing, including tank car impact testing and analysis of DOT113’s, pool fire survivability experiments, testing of intermodal-shipping container performance in different impact scenarios, a “full-scale LNG tender rail highway crossing impact test,” and a comparative risk assessment of hazardous materials transportation in unit and merchandise trains. PRIA at 13, JA_0090. Rather than wait to see if any of these studies actually supported PHMSA’s decision to authorize the transport of LNG by rail, PHMSA adhered to the dictates of Executive Order 13868 by authorizing LNG shipments anyway. PHMSA’s turning a blind eye to safety does not render its LNG Rule safe.

“[L]imited data do[es] not justify unlimited inferences. Agency reliance on imperfect information makes sense only where that information supports the agency action.” *Am. Petrol. Inst. v. Env’tl. Prot. Ag.*, 862 F.3d 50, 70 (D.C. Cir.

2017). Here, the information available at the time of the decision did not support PHMSA's authorization of LNG by rail.⁷

In short, the incantation that the DOT-113 car is safer than other packaging does not adequately address the safety issues identified by commenters, nor does it fill the research gaps that PHMSA itself identified. By allowing transportation of LNG in unlimited quantities, at unlimited speeds, in untested packaging, PHMSA failed to comply with its obligation to “protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material....” 49 U.S.C. § 5101. The LNG Rule is therefore arbitrary and capricious and must be set aside. 5 U.S.C. § 706(2)(A).

II. The Final Rule Violates the Procedural Notice and Comment and Public Participation Requirements of the APA by Including an Entirely New Tank Car Design

A. APA Requirements

“To comport with the APA’s notice-and-comment requirements, an agency’s final rule must be a logical outgrowth of the version set forth in its notice of proposed rulemaking.” *Brennan v. Dickson*, 45 F.4th 48, 68-69 (D.C. Cir. 2022).

“The public right to have a say in such development is honored so long as affected

⁷ PHMSA has subsequently acknowledged that those studies actually raised more questions about the safety of transporting LNG by rail, thus warranting the temporary suspension of the authorization to transport LNG by rail. 88 Fed. Reg. at 60,357.

parties ‘should have anticipated’ the final rule in light of the notice.” *Id.* at 69.

Similarly, “[n]otice suffices when it has ‘expressly asked for comments on a particular issue or otherwise made clear that the agency was contemplating a particular change.’” *Id.*

B. Proposed LNG Rule Gave No Notice PHMSA was Considering a New Tank Car Design and Higher Filling Density

Nothing in the Proposed LNG Rule indicated the agency was contemplating a wholly new tank car design. Rather, PHMSA focused entirely on the safety of transporting LNG in DOT-113C120W tank cars. *See, e.g.*, 84 Fed. Reg. at 56,967. And when PHMSA did mention an alternative packaging, the DOT-113C140W—which the Association of American Railroads included in its petition alongside the DOT-113C120W—it refused to entertain even the possibility of approving such a design because adding a new tank car specification is the “type of regulatory change [which] would require considerably more time and resources” than PHMSA wanted to undertake in the rulemaking and “warrants an extensive engineering review and evaluation, including consideration of the risk of release in a derailment,” *id.* at 56,968, concerns that apply just as well to the DOT-113C120W9 which was invented solely in the course of finalizing this rule. It therefore appeared to Petitioners that a new tank car design was off the table.

Moreover, in inviting comment on possible changes to the Proposed LNG Rule, PHMSA limited the invitation to its “reliance on existing regulations and the

operational controls in Circular OT-55 (not incorporated into the HMR) and whether additional operational controls may be warranted based on an assessment of risk. We also encourage commenters to provide data on the safety or economic impacts associated with any proposed operational controls, including analysis of the safety justification or cost impact of implementing operational controls.” *Id.* at 56,969. A newly-designed tank car is not an operational control nor is it a logical outgrowth of possible operational controls—it is a whole new packaging system.

Additionally, nothing in the Proposed LNG Rule indicated that PHMSA was considering increasing the maximum filling density from 32.5% to 37.3%. 85 Fed. Reg. at 44,996.

This Court found inadequate notice when the Surface Transportation Board stated, in a proposed rule, that it would release one-year data for comparison groups for rail rates, but instead used four years of data. In that case, “[a]lthough the [proposed rule] proposed several revisions to the existing system, it nowhere even hinted that the Board might consider expanding the number of years from which comparison groups could be derived. . . . [W]e see no way that commenters here could have anticipated which particular aspects of the Board’s proposal were open for consideration.” *CSX Transp. v. Surface Transp. Bd.*, 584 F.3d 1076, 1082 (D.C. Cir. 2009). Similarly, Petitioners could not have anticipated, especially when PHMSA *rejected* the possibility of considering a new tank car design in the

Proposed LNG Rule, that PHMSA would propose and approve a wholly new tank car design.

C. Environmental Petitioners Would Have Offered Extensive Comments for PHMSA's Consideration on New Potential Tank Car Designs

If PHMSA had provided notice that it was considering such a change, Environmental Petitioners would have offered extensive comments on the novel design, including: whether it provided for adequate safety, the impact of additional weight on transportation of loadings and the safety of the tank car itself, the merits of redesigning the inter-jacket insulation to ensure that the car can withstand the high temperatures of a pool fire, redesigning the material used for inner and outer jackets to ensure it would not embrittle if subjected to an LNG release or deform if subjected to a pool fire, adding secondary pressure relief valves in alternative locations to ensure that in a derailment the pressure relief device could still function, and requiring additional monitoring equipment to ensure continued temperature and pressure readouts from the tank car during LNG service. Instead, PHMSA never gave Environmental Petitioners the opportunity to comment on what a new, safer, tank car to transport LNG should incorporate.

III. PHMSA Violated NEPA by Not Preparing an Environmental Impact Statement and not Allowing Public Comment on New Tank Car Design

Environmental Petitioners adopt and incorporate the arguments of the State Petitioners.

CONCLUSION

For the foregoing reasons, the Court should vacate the LNG Rule on review.

Respectfully submitted this 10th day of April 2024.

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CERTIFICATE OF COMPLIANCE

In accordance with Fed. R. App. P. 32(g), Circuit Rule 32(e), and this Court's September 18, 2023 Order establishing briefing format and schedule, I certify that this Brief complies with the type-volume limitation because this Final Brief contains 8,985 words, the Petitioner Puyallup Tribe's Brief includes 10,320 words, and the State Petitioners' Brief contains 6,540 words, excluding the parts of the briefs exempted by Rule 32(f). Thus, Petitioners' briefs comprise a total of 25,845 words. I further certify that this Brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this Brief has been prepared in Times New Roman 14-point font using Microsoft Word.

Dated: April 10th, 2024

/s / Bradley Marshall
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Attorney

CERTIFICATE OF SERVICE

I hereby certify that on this 10th day of April 2024, I served the foregoing Petitioner Brief on all registered counsel through the Court's electronic filing system.

Dated: April 10th, 2024

/s/ Bradley Marshall
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