United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued September 13, 2024 Decided January 17, 2025

No. 20-1317

SIERRA CLUB, ET AL.,
PETITIONERS

v.

UNITED STATES DEPARTMENT OF TRANSPORTATION, ET AL.,
RESPONDENTS

Consolidated with 20-1318, 20-1431, 21-1009

On Petitions for Review of a Final Rule
of the Department of Transportation

Bradley Marshall argued the cause for Environmental Petitioners. With him on the briefs was *Jordan Luebkemann*. *Aaron J. Stemplewicz* entered an appearance.

Brian Lusignan, Assistant Solicitor General, Office of the Attorney General for the State of New York, argued the cause for State Petitioners. With him on the briefs were *Letitia James*, Attorney General, *Michael J. Myers*, Senior Counsel, *Max Shterngel,* Assistant Attorney General, *Anthony G. Brown*, Attorney General, Office of the Attorney General for the State of Maryland, *Joshua M. Segal*, Assistant Attorney General, *Steven J. Goldstein*, Special Assistant Attorney General, *Rob Bonta*, Attorney General, Office of the Attorney General for the State of California, *Kavita Lesser*, Deputy Attorney General, *Kathleen Jennings*, Attorney General, Office of the Attorney General for the State of Delaware, *Christian Douglas Wright*, Director of Impact Litigation, *Kwame Raoul*, Attorney General, Office of the Attorney General for the State of Illinois, *Elizabeth Dubats* and *Jason E. James*, Assistant Attorneys General, *Dana Nessel*, Attorney General, Office of the Attorney General for the State of Michigan, *Elizabeth Morrisseau*, Assistant Attorney General, *Andrea Joy Campbell*, Attorney General, Office of the Attorney General for the Commonwealth of Massachusetts, *Seth Schofield*, Senior Appellate Counsel, *Keith Ellison*, Attorney General, Office of the Attorney General for the State of Minnesota, *Peter N. Surdo*, Special Assistant Attorney General, *Matthew J. Platkin*, Attorney General, Office of the Attorney General for the State of New Jersey, *Lisa Morelli*, Deputy Attorney General, *Michelle A. Henry*, Attorney General, Office of the Attorney General for the Commonwealth of Pennsylvania, *Ann R. Johnston*, Assistant Chief Deputy Attorney General, *Ellen F. Rosenblum*, Attorney General, Office of the Attorney General for the State of Oregon, *Paul A. Garrahan*, Attorney-in-Charge, *Steve Novick*, Special Assistant Attorney General, *Peter F. Neronha*, Attorney General, Office of the Attorney General for the State of Rhode Island, *Nicholas M. Vaz*, Special Assistant Attorney General, *Charity R. Clark*, Attorney General, Office of the

Attorney General for the State of Vermont, *Laura B. Murphy*, Assistant Attorney General, *Brian L. Schwalb*, Attorney General, Office of the Attorney General for the District of Columbia*, Caroline S. Van Zile,* Solicitor General, *Robert W. Ferguson*, Attorney General, Office of the Attorney General for the State of Washington, and *Julian H. Beattie*, Assistant Attorney General.

Aaron P. Riensche argued the cause for petitioner Puyallup Tribe of Indians. With him on the briefs were *Richard A. Du Bey* and *Nicholas G. Thomas*.

Rebecca Jaffe, Attorney, U.S. Department of Justice, argued the cause for respondents. With her on the brief were *Todd Kim*, Assistant Attorney General, *Robert Lundman* and *Justin Heminger*, Attorneys, and *Charles E. Enloe*, Attorney, U.S. Department of Transportation.

Before: MILLETT and PAN, *Circuit Judges*, and RANDOLPH, *Senior Circuit Judge*.

Opinion for the Court filed by *Circuit Judge* PAN.

PAN, *Circuit Judge*: Liquified natural gas ("LNG") is methane gas that is liquified by cooling it to a temperature of -260° F. The liquification of gas facilitates its transportation and storage. But LNG is dangerous. If LNG is warmed, it reverts to a gaseous state, which causes it to expand. Such expansion can place tremendous pressure on the vessel that contains the LNG, creating the risk of an explosion. LNG is also highly flammable. Thus, if it leaks and encounters an ignition source, it can cause a conflagration that burns at a temperature of 2,426° F. Moreover, if LNG spills without igniting, it can form an ultra-cold gas cloud that can spread over a wide area, severely injuring people and damaging property in its path.

LNG typically is transported either by pipeline or by truck. Shipping LNG by rail has been authorized only on an *ad hoc* basis by special permit or approval. But in 2020, the Pipeline and Hazardous Materials Safety Administration ("PHMSA") promulgated a rule authorizing the transportation of LNG by rail in newly designed tank cars, with no permit required. The new final rule ("LNG Rule") imposed no limit on the number of LNG tank cars that could be included in a single train and set no mandatory speed limit for trains that carry LNG. PHMSA noted that one company contemplated a single train with 80 tank cars containing LNG. During the rulemaking process, commenters expressed alarm about the potentially catastrophic consequences of a train derailment in which LNG tank cars were breached or punctured. For example, a group of environmental organizations asserted that the amount of energy contained in 22 tank cars of LNG would be equal to that of the atomic bomb that was dropped on Hiroshima, Japan, during World War II. PHMSA nevertheless opined that transporting LNG by rail under its LNG Rule would have no significant effect on the environment. It therefore declined to prepare an environmental impact statement ("EIS").

A coalition of environmental nonprofits ("Environmental Petitioners"), a collection of states ("State Petitioners"), and the Puyallup Tribe of Indians ("the Tribe") now challenge the LNG Rule. The petitioners contend that PHMSA did not sufficiently consider the safety risks of transporting LNG by rail. They argue, in relevant part, that the National Environmental Policy Act ("NEPA") required PHMSA to prepare an EIS, and that its decision not to do so was arbitrary and capricious. We agree. We thus grant the petitions, vacate the LNG Rule, and remand for further proceedings before the agency.

I.

A.

The Hazardous Materials Transportation Act ("HMTA") provides that the Secretary of Transportation "shall prescribe regulations for the safe transportation . . . of hazardous material" in commerce. 49 U.S.C. § 5103(b)(1). PHMSA is the component agency "charged with carrying out the Secretary's duties and powers" under the HMTA. *Lilliputian Sys., Inc. v. Pipeline & Hazardous Materials Safety Admin.*, 741 F.3d 1309, 1311 (D.C. Cir. 2014) (citing 49 U.S.C. § 108(f)). PHMSA has promulgated Hazardous Materials Regulations to govern the transportation of natural gas and other hazardous materials. 49 C.F.R. § 171.1(c)(1).

Historically, the Hazardous Materials Regulations have authorized bulk transport of LNG by pipeline or truck, but not by rail, except upon the issuance of a special permit or approval on a case-by-case basis. *Hazardous Materials: Liquefied Natural Gas by Rail*, 84 Fed. Reg. 56,964, 56,966 (Oct. 24, 2019) ("Proposed Rule"). But in April 2019, then-President Trump directed the Secretary of Transportation to propose a rule to generally "permit LNG to be transported in approved rail tank cars." Exec. Order No. 13,868, 84 Fed. Reg. 15,495, 15,497 (Apr. 10, 2019). The Executive Order directed the Secretary to propose the rule within 100 days and to finalize the rulemaking within thirteen months. *Id.*

In October 2019, PHMSA published a notice of proposed rulemaking. 84 Fed. Reg. 56,964. The Proposed Rule contemplated the transport of LNG in "120W" tank cars (*i.e.*, cars bearing model number DOT-113C120W). Such tank cars fall within the "DOT-113" class of cars that are designed to carry "cryogenic liquids" (*i.e.*, refrigerated liquified gases). *Id.* at 56,965 (citing 49 C.F.R. § 173.115(g)), 56,967. But never

before had DOT-113 cars been used to transport the large volumes of LNG considered by the Proposed Rule.

DOT-113 rail cars have numerous safety features that reduce the risk of an explosion or the release of cargo. A boiling liquid expanding vapor explosion ("BLEVE") is not triggered by ignition, but instead occurs when a pressurized container is breached and its contents are exposed to heat, without any pressure relief. 84 Fed. Reg. at 56,974 n.29. That causes cryogenic liquid in the container to quickly boil and release vapor — exploding the container. *Id.* DOT-113 cars are designed to minimize the heating of the tank's contents: They have a tank-within-a-tank design, with an inner alloy stainless steel tank and an outer carbon steel tank, separated by a vacuum and insulation. *Id.* at 56,967. The thick outer tank is intended to withstand a collision without being compromised, which protects the insulating vacuum and thereby prevents the inner tank from releasing cargo. *Id.* at 56,975. Additional safety features include multiple pressure relief valves and vents. *Id*. at 56,967, 56,973–74.

The Proposed Rule noted that the DOT-113 car had an "excellent safety record throughout its 50 years of service," during which it had been used to transport ethylene, "another flammable cryogenic liquid which shares similar chemical and operating characteristics with LNG." 84 Fed. Reg. at 56,967. The Proposed Rule acknowledged, however, that between 1980 and 2017, "there were 14 instances of damage to DOT-113 tank cars during transportation." *Id.* at 56,972. In three of those instances, cargo escaped because of a breach of both the outer and inner tanks; while in three other incidents, cargo escaped because of a failure of the valves or fittings. *Id.*

To further ensure safety, the Proposed Rule relied on the existing Hazardous Materials Regulations and voluntary

industry standards. 84 Fed. Reg. at 56,968. The existing regulations cited by the Proposed Rule are designed to "reduc[e] the probability and consequences of a hazardous material release." *Id*. at 56,965. They primarily focus on ensuring the safe packaging and handling of hazardous materials during transportation and providing effective communications about the hazards of what is being shipped. *Id*. Meanwhile, the voluntary industry standards are compiled in a protocol developed by the Association of American Railroads. The protocol suggests a speed limit of 50 miles per hour for any train with at least 20 carloads of any hazardous material. *Id.* at 56,968–69. As noted, the Proposed Rule imposed no limit on the number of tank cars that could carry LNG in a single train.

The Proposed Rule included a preliminary environmental assessment, which asserted that the rule would not result in any significant environmental impact. 84 Fed. Reg. at 56,970–75. The preliminary assessment gave little weight to the potential hazards of an accident in which LNG might be released. *Id.* at 56,972–73. After acknowledging the 14 instances of damage to DOT-113 tank cars during transportation, *id.* at 56,972, it concluded that the probability of an accident was low, *id.* at 56,974.

The Environmental and State Petitioners submitted comments raising grave safety concerns. They argued that the Proposed Rule failed to adequately mitigate the dangers inherent in transporting LNG by rail. Those petitioners emphasized the risk of a tank car's failure in a derailment, which could cause a BLEVE; an inextinguishable pool fire; or the release of an odorless, extremely cold vapor cloud of LNG that would "embrittle steel and cause severe burns." State Pet'rs Comments 3–4; *see also* Env't Pet'rs Comments 7, 22. They criticized the Proposed Rule for not capping the number

of LNG cars per train and not imposing a mandatory speed limit. The Environmental and State Petitioners also argued that DOT-113 tank cars were not up to the task of transporting LNG. In particular, they questioned the safety record of the tank cars, emphasizing that the cars were breached during transport in 14 prior incidents. The petitioners also urged PHMSA to await the results of certain ongoing safety studies conducted by the Federal Railroad Administration, an agency that PHMSA, by regulation, must cooperate with. *See* 49 C.F.R. § 1.97(b)(3).

The National Transportation Safety Board ("NTSB"), an independent federal agency, raised similar concerns. The NTSB opined that "[b]ecause unit trains of DOT-113 tank cars carrying large volumes of flammable cryogenic gases have no operational or accident performance safety history, . . . a thorough safety assessment of the tank car specification is needed." NTSB Comments 3. It added that "given the small number of DOT-113 tank cars in use, the documented 14 incidents referenced in the [Proposed Rule] in which three shell breaches occurred between 1980 and 2017 is not a compelling 'demonstrated safety record.'" *Id.* at 4.

B.

In July 2020, PHMSA promulgated the final LNG Rule. The final Rule authorizes transportation of LNG by rail, but it differs from the Proposed Rule in several respects. First, the final LNG Rule imposes new requirements for the outer tank of approved railcars: The outer tank must be both thicker and made of stronger steel than that used in existing 120W cars. Specifically, the tanks must be 9/16″ thick, rather than the current minimum of 7/16″. The outer tank also must be made of TC-128 Grade B normalized steel, which is less likely to crack or puncture than the steel typically used in DOT-113

cars. *Hazardous Materials: Liquefied Natural Gas by Rail*, 85 Fed. Reg. 44,994, 45,003–04 (July 24, 2020). PHMSA dubbed this new type of reinforced railcar a "120W9" car. *Id.* at 44,996. Second, PHMSA boosted the maximum filling density from 32.5% to 37.3%. *Id.* at 45,006–07.[1] That allows more LNG to be loaded into each car but reduces the number of cars needed to ship a given amount of LNG. *Id.* at 45,014. Finally, the LNG Rule includes additional operating controls to promote safety: (1) Tank cars carrying LNG must be equipped with remote monitoring devices for detecting and reporting each car's internal pressure and location; (2) Any train with at least 20 LNG tank cars in a continuous block or with 35 such cars throughout the train must be equipped with advanced braking capabilities; and (3) PHMSA adopted the routing requirements of 49 C.F.R. § 172.820, which require railroads to consider safety risk factors, such as population density, when analyzing potential routes for transporting LNG. *Id.* at 45,008–09.

Along with the LNG Rule, PHMSA published a final Environmental Assessment. The Environmental Assessment touted the "demonstrated safety record" of DOT-113 tank cars. J.A. 449. But it acknowledged that "[d]espite the low probability, rail incidents can be high-consequence events, given the quantity of hazardous materials in transportation." J.A. 450. Nevertheless, the Environmental Assessment determined that the potential environmental impacts of the LNG Rule did not "rise to the level of 'significant'" and that a more detailed EIS would not be necessary. J.A. 492–97.

---

[1] "Filling density" refers to the percent ratio of the weight of cargo in the tank to the weight of water that the tank will hold. 49 C.F.R. § 173.319(d)(1). As the government explained, "if a tank car filled with water would weigh 10,000 pounds, and the filling-density requirement for a specific material is 50%, then the tank car can hold 5,000 pounds of that particular material." Gov't Br. 55 n.9.

PHMSA also found that the LNG Rule would not have significant effects on public health and safety, greenhouse gas emissions, and environmental justice communities.

Environmental Petitioners,[2] State Petitioners,[3] and the Tribe all petitioned for review. *See Sierra Club v. DOT*, No. 20-1317; *Maryland v. DOT*, No. 20-1318; *Puyallup Tribe of Indians v. PHMSA*, No. 20-1431. The Tribe also filed a petition challenging PHMSA's denial of its administrative appeal of the LNG Rule. *Puyallup Tribe of Indians v. PHMSA*, No. 21-1009. We consolidated the appeals, and the Tribe and the State Petitioners adopted the Environmental Petitioners' argument that the LNG Rule violates NEPA. We have jurisdiction under 28 U.S.C. § 2342(7).

C.

During the pendency of these appeals, in January 2021, President Biden directed federal agencies to reconsider Trump Administration actions that were inconsistent with the Biden Administration's climate policies. Exec. Order No. 13,990, 86 Fed. Reg. 7,037 (Jan. 20, 2021). The LNG Rule was one of the agency actions subject to scrutiny. In November 2021, PHMSA issued a notice of proposed rulemaking to suspend authorization of LNG transport by rail. *Hazardous Materials:*

---

[2] Environmental Petitioners are the Sierra Club, Center for Biological Diversity, Clean Air Council, Delaware Riverkeeper Network, Environmental Confederation of Southwest Florida, and Mountain Watershed Association.

[3] State Petitioners are the State of Maryland, State of New York, State of California, State of Delaware, District of Columbia, State of Illinois, Commonwealth of Massachusetts, 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.

Suspension of HMR Amendments Authorizing Transportation of Liquefied Natural Gas by Rail, 86 Fed. Reg. 61,731 (Nov. 8, 2021). In September 2023, PHMSA published a final rule suspending the LNG Rule until the earlier of June 30, 2025, or when the agency completes a rulemaking considering modifications to that rule. *Hazardous Materials: Suspension of HMR Amendments Authorizing Transportation of Liquefied Natural Gas by Rail*, 88 Fed. Reg. 60,356 (Sept. 1, 2023) ("Suspension Rule"). PHMSA explained that it suspended the LNG Rule because "uncertainties acknowledged in the July 2020 Final Rule — *e.g.*, regarding the near-term commercial viability of rail tank car transportation of LNG, as well as potential safety and environmental benefits and risks of rail tank car transportation — had only increased since issuance, thereby 'cast[ing] doubt on the continued validity of the balance between potential benefits and public safety and environmental risks underpinning the [LNG Rule].'" *Id.* at 60,359 (quoting 86 Fed. Reg. at 61,735–36). Because the LNG Rule was suspended a few months after it went into effect, rail transport of LNG under the Rule has never occurred.

PMHSA is currently working on a rulemaking that considers modifying the LNG Rule. After oral argument, we ordered the government to provide an update "on the status and timing of any anticipated new rulemaking." *Sierra Club v. Dep't of Transp.*, No. 20-1317 (D.C. Cir. Sept. 23, 2024). The government filed a notice informing us that it had not yet published a proposed amendment of the LNG Rule. The government added that although PHMSA did not expect to issue a final rule before June 30, 2025 — the point at which the LNG Rule would go back into effect — PHMSA had not yet decided whether to initiate a rulemaking to consider extending the suspension of the LNG Rule.

II.

A.

Although no party has questioned the court's subject matter jurisdiction over these petitions, "we have an independent obligation to assure ourselves of our jurisdiction." *Waterkeeper All., Inc. v. Regan*, 41 F.4th 654, 659 (D.C. Cir. 2022). We therefore address three doctrines potentially implicated in this case: ripeness, mootness, and standing. We conclude that none bars our jurisdiction here.

1.

"Ripeness is a justiciability doctrine designed 'to prevent the courts, through avoidance of premature adjudication, from entangling themselves in abstract disagreements over administrative policies, and also to protect the agencies from judicial interference until an administrative decision has been formalized and its effects felt in a concrete way by the challenging parties.'" *Nat'l Park Hosp. Ass'n v. Dep't of Interior*, 538 U.S. 803, 807–08 (2003) (quoting *Abbott Lab'ys v. Gardner*, 387 U.S. 136, 148–49 (1967)). The "rationale underlying the ripeness doctrine" is that "[i]f we do not decide it now, we may never need to." *Nat'l Treasury Emps. Union v. United States*, 101 F.3d 1423, 1431 (D.C. Cir. 1996). Accordingly, courts have found cases unripe when the government represents to the court that it will *never* enforce the regulation in question. *See, e.g.*, *EPA v. Brown*, 431 U.S. 99, 103 (1977) (per curiam) (declining to pass on challenged regulations when "the federal parties have not merely renounced an intent to pursue certain specified regulations; they now appear to admit that those remaining in controversy are invalid unless modified in certain respects"); *Wheaton Coll. v. Sebelius*, 703 F.3d 551, 552–53 (D.C. Cir. 2012) (per curiam) (ordering cases to be held in abeyance based on

government's representation "that it would *never* enforce [the challenged regulation] in its current form against the appellants or those similarly situated" (emphasis in original)).

This case is ripe. Rather than disclaiming any intent to implement the LNG Rule or conceding its invalidity, PHMSA continues to defend the Rule. Although it has suspended the Rule pending the outcome of a new rulemaking process to modify it, the Rule will go into effect on June 30, 2025, if it is not modified by that date. PHMSA's mere suspension of the Rule does not make this case unripe. We have rejected the notion that "an agency can stave off judicial review of a challenged rule simply by initiating a new proposed rulemaking that would amend the rule in a significant way," because "[i]f that were true, a savvy agency could perpetually dodge review." *Am. Petrol. Inst. v. EPA*, 683 F.3d 382, 388 (D.C. Cir. 2012); *cf. Am. Petrol. Inst. v. EPA*, 906 F.2d 729, 739–40 (D.C. Cir. 1990) ("If the possibility of unforeseen amendments were sufficient to render an otherwise fit challenge unripe, review could be deferred indefinitely.").

2.

Nor does PHMSA's suspension of the LNG Rule moot this case. In *West Virginia v. Environmental Protection Agency*, the Supreme Court held that a challenge to a final rule was not moot even though the government maintained that it planned to promulgate a new rule rather than enforce the rule. 142 S. Ct. 2587, 2607 (2022). "Voluntary cessation does not moot a case unless it is absolutely clear that the allegedly wrongful behavior could not reasonably be expected to recur." *Id.* (cleaned up). Here, the agency does not promise that it will never enforce the Rule, even though it may, at some point, amend the Rule. Moreover, the Rule will go into effect on June

30, 2025, if it is not amended before then. Accordingly, this case is not moot.

3.

We next turn to standing. "To establish standing," a party "must demonstrate (i) that [it] has suffered or likely will suffer an injury in fact, (ii) that the injury likely was caused or will be caused by the defendant, and (iii) that the injury likely would be redressed by the requested judicial relief." *FDA v. All. for Hippocratic Med.*, 602 U.S. 367, 380 (2024).

Environmental Petitioners have representational standing because they are organizations with members who "live, work, and recreate along the[] rail routes, and who will be harmed by additional train traffic from LNG trains." Env't Pet'rs Br. 18. Such trains will cause "increased disruption to [the] peace and quiet members enjoy in their homes and in nearby scenic areas." *Id.*; *see also Advocs. for Highway & Auto Safety v. Fed. Motor Carrier Safety Admin.*, 41 F.4th 586, 592 (D.C. Cir. 2022) ("An association has standing to bring suit on behalf of its members if (1) at least one of its members would have standing to sue in the member's own right; (2) the interest the association seeks to protect is germane to its purpose; and (3) neither the claim asserted nor the relief requested requires the member to participate in the lawsuit." (cleaned up)).

The State Petitioners also have Article III standing. "[L]ike other associations and private parties," states can suffer injuries to their proprietary interests that are sufficient to confer standing. *Alfred L. Snapp & Son, Inc. v. Puerto Rico, ex rel., Barez*, 458 U.S. 592, 601–02 (1982). And just like any other party, a state cannot "manufacture standing by incurring costs in anticipation of non-imminent harm." *Clapper v. Amnesty Int'l USA*, 568 U.S. 398, 422 (2013). Nor do states have standing to sue when the effects of a government regulation on

their proprietary interests are "indirect" and "attenuated." *United States v. Texas*, 599 U.S. 670, 680 n.3 (2023).

However, when, as here, a regulation causes a state to undertake "expenditures to mitigate and recover from harms that could have been prevented" if that regulation had not been enacted, the state suffers an injury to its proprietary interest sufficient to confer standing. *Air All. Hous. v. EPA*, 906 F.3d 1049, 1059–60 (D.C. Cir. 2018). We have applied this principle to state expenditures to reduce risks related to "chemical releases in their territory[.]" *Id.* at 1060.

The LNG Rule causes direct and imminent harm to New York's public fisc. New York has already spent $29,000 to send its firefighters to train at the Massachusetts Firefighting Academy to take classes focused specifically on how to combat LNG pool fires. These expenditures will increase significantly because of the LNG Rule. New York's Fire Administrator attests that, if the LNG Rule goes into effect, LNG tank cars will begin traveling on New York's roughly 4,500 miles of rail lines as soon as the second half of 2025, and New York will begin spending hundreds of thousands of additional dollars on safety measures to mitigate the risks posed by those rail cars. The planned safety measures include training additional firefighters to respond to LNG spills, hiring full-time fire specialists with expertise in LNG, equipping local fire departments with methane detectors, and providing local fire departments with bulk quantities of chemicals used specifically to extinguish LNG fires.

These expenditures constitute what precedent has long recognized to be a cognizable proprietary injury to states. This injury is in no way self-inflicted or premised on speculative harm. Instead, it involves direct expenses incurred and to be incurred because of the LNG Rule. The LNG Rule would be a

but-for cause of substantial LNG rail traffic in New York. And two states have recently experienced catastrophic DOT-113 rail car accidents leading to breached hulls. *See* Section II.3.B *infra*. Obviously, New York cannot wait until there is an LNG pool fire in its territory to begin spending funds on safety measures.

The Tribe also has adequately demonstrated its standing. The Tribe submitted a comment based on its concern that the Proposed Rule would lead to the transportation of LNG from a facility known as Tacoma LNG, which is adjacent to the Tribe's reservation. Tacoma LNG's owner, Puget LNG, has demonstrated its intent to ship LNG by rail by touting the facility's "easy access to . . . rail and roadways" and noting the "[r]ail spur on site for future potential rail car loading." J.A. 570.[4] The LNG Rule thus substantially increases the probability that LNG will be shipped by rail from Tacoma LNG through the Tribe's reservation, which is home to many Tribe members, institutions, and cultural or historic sites. The Rule therefore risks harm to the Tribe's "heritage, its land, its

[4] We disagree with PHMSA's dismissal of the Tribe's concerns as "inapposite." 85 Fed. Reg. at 45,022–23. The LNG Rule stated that "it does not appear that rail transportation of LNG to the Tacoma LNG facility is currently permitted by the terms of" the Washington State regulator's authorization and that this authorization also does not "seem to contemplate rail transportation of LNG from that facility." *Id.* at 45,022. It also asserted that the "schematics of the Tacoma LNG facility . . . suggest that rail infrastructure neither exists nor is contemplated at the site." *Id.* at 45,023. Yet a Puget LNG marketing document and the Tribe's standing declarations show that rail infrastructure does in fact exist at Tacoma LNG. Moreover, PHMSA's suggestion that LNG transport by rail is not covered by the current authorizations by Washington State focused mainly on a restriction on *importing* LNG to the facility rather than the relevant risk of *exporting* from the facility.

people, and its resources." Tribe Br. 17–18. This increased risk suffices to demonstrate the Tribe's standing. *See Nat. Res. Def. Council v. EPA*, 464 F.3d 1, 6 (D.C. Cir. 2006) ("[W]e have recognized that increases in risk can at times be 'injuries in fact' sufficient to confer standing."); *Dep't of Com. v. New York*, 139 S. Ct. 2551, 2565 (2019) (noting that "future injuries . . . 'may suffice if the threatened injury is certainly impending, or there is a substantial risk that the harm will occur'" (quoting *Susan B. Anthony List v. Driehaus*, 573 U.S. 149, 158 (2014)).

B.

The petitioners argue that PHMSA's decision not to prepare an EIS was arbitrary and capricious because it ignored the significant environmental consequences of the LNG Rule. They claim that PHMSA failed to take a hard look at how the LNG Rule would affect public safety and therefore violated NEPA. In support of their argument, they note that PHMSA disregarded the checkered safety record of the 120W tank car and ignored the risks of including numerous cars of LNG within a single train without any required speed limit. We agree and vacate the LNG Rule. We therefore need not reach the other challenges to the LNG Rule raised by the petitioners.[5]

---

[5] The State and Environmental Petitioners also argue that PHMSA violated NEPA's public participation requirement by adopting in the final Rule a novel tank car design and increased filling density, without any notice; violated the Hazardous Materials Transportation Act's requirement to prioritize safety; violated the Administrative Procedure Act by arbitrarily and capriciously disregarding safety concerns; and violated the APA's notice-and-comment requirements. In addition, they argue that PHMSA failed to consider the Rule's effects on greenhouse gas emissions and environmental justice communities. The Tribe contends that PHMSA's failure to prepare an EIS was arbitrary and capricious

NEPA requires an agency to prepare an EIS whenever it proposes a "major Federal action[] significantly affecting the quality of the human environment." 42 U.S.C. § 4332(C). The EIS must "discuss[] in detail the environmental impact of the proposed action, alternatives to the action, and other considerations." *Myersville Citizens for a Rural Cmty., Inc. v. FERC*, 783 F.3d 1301, 1322 (D.C. Cir. 2015) (citing 42 U.S.C. § 4332(C)). An EIS is necessary unless the agency finds "no significant impact" on the environment. *Standing Rock Sioux Tribe v. Army Corps of Eng'rs*, 985 F.3d 1032, 1039 (D.C. Cir. 2021); *see also* 42 U.S.C. § 4332(C). "If *any* significant environmental impacts might result from the proposed agency action, then an EIS must be prepared *before* agency action is taken." *Standing Rock*, 985 F.3d at 1039 (emphasis in original) (cleaned up).

An agency's decision not to prepare an EIS will be overturned "only if it was arbitrary, capricious or an abuse of discretion." *Grand Canyon Tr. v. FAA*, 290 F.3d 339, 340 (D.C. Cir. 2002), *as amended* (Aug. 27, 2002) (cleaned up). A court's role in reviewing that decision "is a limited one, designed primarily to ensure that no arguably significant consequences have been ignored." *Myersville Citizens*, 783 F.3d at 1322 (cleaned up). Accordingly, a court asks "whether the agency (1) has accurately identified the relevant environmental concern, (2) has taken a hard look at the problem in preparing its [environmental assessment], (3) is able to make a convincing case for its finding of no significant impact, and (4) has shown that even if there is an impact of true significance, an EIS is unnecessary because changes or safeguards in the project sufficiently reduce the impact to a

---

because it failed to consider the LNG Rule's disparate impact on the Tribe. It also argues that PHMSA failed to adequately consult with it about the LNG Rule.

minimum." *Id.* (cleaned up). NEPA requires an agency to "look at both the probabilities of potentially harmful events and the consequences if those events come to pass." *Standing Rock*, 985 F.3d at 1049 (cleaned up).

In this case, PHMSA determined that an EIS was not required because authorizing LNG transport by rail under the LNG Rule would have no significant impact on the environment. But the record reflects that transporting LNG by rail poses a low-probability but high-consequence risk of a derailment that could seriously harm the environment: A breach of one or more rail cars containing LNG could cause an explosion, an inferno, or the spread of a freezing, flammable, suffocating vapor cloud. The real possibility of such catastrophes significantly affects the quality of the human environment. For that reason, NEPA required PHMSA to prepare an EIS.

PHMSA's consideration of the probability of a rail accident involving LNG tank cars was demonstrably inadequate. We have noted that "a finding of no significant impact is appropriate only if a grave harm's probability is so low as to be remote and speculative, or if the combination of probability and harm is sufficiently minimal." *Standing Rock*, 985 F.3d at 1049 (cleaned up). Here, a derailment resulting in the release of LNG was undoubtedly a "grave harm"; and the risk of that happening was neither "so low as to be remote and speculative" nor "sufficiently minimal" under the circumstances. *Id*. PHMSA found only that there was a "low probability" of a high-consequence rail accident, J.A. 446–50, which was plainly insufficient to support a finding of no significant impact under our precedents.

The effects of a rail accident that breached one or more LNG tank cars could be dire, if not cataclysmic. The

Environmental Assessment acknowledged two potentially significant scenarios in which LNG could be released: (1) an "[a]ccident release causing outer tank damage resulting [in] vapor release from pressure relief device," and (2) an "[a]ccident release causing outer and inner tank damage resulting in large release/spill." J.A. 457. The Environmental Assessment explained that each possibility could have a "high consequence." *Id.* It noted that the controlled venting of vapor from a pressure relief device in the first scenario is less concerning than the unmanaged release of the entire cargo, but the vapor could catch fire as it is released. Alternatively, it noted, if LNG spilled and ignited, the LNG would burn at 2,426° F and imperil everything in the vicinity. Absent an ignition source, the LNG would rapidly vaporize into an odorless, flammable gas cloud that would crawl along the ground until eventually warming to the ambient air temperature — or igniting. There is also the possibility of a BLEVE, although PHMSA considered a BLEVE "highly unlikely." J.A. 456.

The risk of such a "high consequence" derailment is real. The Environmental Assessment identified two derailments within a four-year period in which both the inner and outer tanks of DOT-113 rail cars were breached. Because two such incidents have already occurred, the risk of a third is neither remote nor speculative. *See Carolina Env't Study Grp. v. United States*, 510 F.2d 796, 799 (D.C. Cir. 1975) (probability of an accident that ranges from one in 100,000 to one in a billion is "remote"). The first incident occurred in Moran, Kansas, in 2011. A train going 46 miles per hour came upon a broken rail and suddenly applied its emergency brakes, derailing three DOT-113 cars that contained refrigerated ethylene. Two of the cars were breached and went up in flames. Although the third car was not breached, its pressure relief valves began venting gas, which caught fire from an

adjacent car's blaze. In the second incident, two cars carrying refrigerated argon — which is not flammable — derailed in Mer Rouge, Louisiana, in 2014. One of the derailed cars was a DOT-113 tank car, and damage from the derailment caused the breach of its inner tank and the release of argon. 85 Fed. Reg. at 45,005. Neither event caused any injuries or fatalities, but neither event involved LNG. *Id.*

The prior performance of DOT-113 cars does not suggest a minimal risk of accidents, despite PHMSA's frequent touting of their "excellent safety record." *See, e.g.*, 85 Fed. Reg. at 45,003. The information relied upon by PHMSA addresses how the tank cars withstood the impacts of previous train derailments, but not the probability that future derailments would occur. Moreover, "[g]iven the small number of DOT-113 tank cars in use," NTSB concluded that the cars do not have "a compelling 'demonstrated safety record.'" NTSB Comments 4. The considered concerns of a "highly specialized governmental agenc[y]" like the NTSB carry relevant weight when determining whether an EIS is required. *Nat'l Parks Conservation Ass'n v. Semonite*, 916 F.3d 1075, 1085 (D.C. Cir.), *amended on reh'g in part*, 925 F.3d 500 (D.C. Cir. 2019); *Standing Rock*, 985 F.3d at 1043.

Although the past accidents considered by PHMSA did not result in injury or death, PHMSA's focus on the "generally low consequences" of those accidents is misplaced because the prior incidents involved the derailment of only two or three railcars that were carrying ethylene and argon. J.A. 449. By contrast, LNG is a particularly hazardous material and may be transported in an unlimited number of tank cars per train under the LNG Rule. Indeed, the Environmental Assessment recognized that "neither cryogenic ethylene nor cryogenic argon is transported in the quantities that are possible for the transport of LNG" under the LNG Rule. J.A. 450. And "the

risks associated with hazardous materials transportation rise with quantity." J.A. 495. As we previously have explained, if an agency seeks to depart from past practice, it cannot use minimal past harm to "brush[] away" safety concerns, but must instead "look *forward* to examine the effects of" the change. *New York v. Nuclear Regul. Comm'n*, 681 F.3d 471, 481 (D.C. Cir. 2012) (emphasis in original). It must also consider whether the lack of past injury was only "because of site-specific factors or even sheer luck." *Id*. PHMSA made no effort to take those considerations into account.

Nor has PHMSA shown that "even if there is an impact of true significance, an EIS is unnecessary because changes or safeguards in the project sufficiently reduce the impact to a minimum." *Myersville Citizens*, 783 F.3d at 1322 (cleaned up). The LNG Rule fails to ameliorate the risk of accidents. First, it does not impose a mandatory speed limit on trains carrying LNG cars. The faster the train, the greater the risk that a tank car will crack or puncture if there is a derailment. Yet the LNG Rule relies on a nonbinding, recommended speed limit of 50 miles per hour that only kicks in when a train has 20 or more cars of hazardous materials. *See* 85 Fed. Reg. at 45,007; *see also id.* at 45,018. Even that voluntary standard may be insufficient because breaches of DOT-113 rail cars have occurred at speeds below 50 miles per hour, such as in the Kansas accident.

Second, PHMSA declined to cap the number of LNG tank cars per train. 85 Fed. Reg. at 45,005. Danger increases with the number of tank cars in a single train, as the failure of one could trigger the "[c]ascading [f]ailure of [m]ultiple" cars. J.A. 459. For example, in the Kansas incident, LNG that was vented from a pressure relief valve caught fire from an adjacent car's blaze. Responders had to intentionally breach the tank car in a "controlled vent and burn process." J.A. 450. Yet even as

PHMSA acknowledged that "rail incidents can be high-consequence events, given the quantity of hazardous materials in transportation," J.A. 450, and noted that one operator planned to string together at least 80 cars per train, 85 Fed. Reg. at 45,005, it found that the Rule posed no significant environmental impact.

Although PHMSA adopted some safety measures in the LNG Rule — including requiring thicker outer tanks made of higher-quality steel — it never explained why those safety measures were adequate to address the extreme dangers associated with a derailment. To the contrary, one of PHMSA's own safety studies raised concerns about the efficacy of the 120W9 design. In that study, PHMSA compared three similar derailment accidents involving cars with tanks of either 9/16″ or 7/16″ thickness. 85 Fed. Reg. at 45,005–06. The thicker cars had between 62–69% fewer punctures than the thinner ones. *Id.* But a quarter of the thicker cars were still breached. *Id.* As previously discussed, any breach of a rail car containing LNG could be disastrous.

In sum, transporting LNG by rail entails a potent combination of risk and extreme danger that plainly has a significant impact on the environment. Although the probability of an accident "may be low, that risk is sufficient that a person of ordinary prudence would take it into account in reaching a decision to approve the [agency action], and its potential consequences are therefore properly considered here." *Standing Rock*, 985 F.3d at 1050 (cleaned up). PHMSA's decision not to prepare an EIS was therefore arbitrary and capricious.[6]

---

[6] Of course, while we hold that the LNG Rule raises substantial environmental questions that required preparation of an EIS, we express no opinion on the wisdom of any particular set of safety

* * *

Because PHMSA failed to prepare an EIS as required, we vacate the LNG Rule and remand to PHMSA for further proceedings. Remand with vacatur is the ordinary remedy for unlawful agency action, *United Steel v. Mine Safety & Health Admin.*, 925 F.3d 1279, 1287 (D.C. Cir. 2019), and the government has not asked us to depart from the ordinary course here.

So ordered.

---

protocols. NEPA is "primarily information-forcing," so it "directs agencies only to look hard at the environmental effects of their decisions, and not to take one type of action or another." *Sierra Club v. FERC*, 867 F.3d 1357, 1367 (D.C. Cir. 2017) (cleaned up). After preparing an EIS, the agency will be best positioned to determine whether the environmental risk is worth taking. Any future legal challenges to the substance of that decision would then be brought under some other statute, not NEPA. Because we vacate the instant LNG Rule due to PHMSA's failure to prepare an EIS, such questions are left for another day.