

United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued March 6, 2023

Decided May 16, 2023

No. 22-1148

GPA MIDSTREAM ASSOCIATION AND AMERICAN PETROLEUM
INSTITUTE,
PETITIONERS

v.

UNITED STATES DEPARTMENT OF TRANSPORTATION AND
PIPELINE AND HAZARDOUS MATERIALS SAFETY
ADMINISTRATION,
RESPONDENTS

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

Keith J. Coyle argued the cause for petitioners. With him
on the briefs was *Christina Manfredi McKinley*.

Anna O. Mohan, Attorney, U.S. Department of Justice,
argued the cause for respondent. With her on the brief were
Brian M. Boynton, Principal Deputy Assistant Attorney
General, *Abby C. Wright*, Attorney, *Paul M. Geier*, Assistant
General Counsel, U.S. Department of Transportation, and
Charles E. Enloe, Senior Trial Attorney.

Before: CHILDS, *Circuit Judge*, and EDWARDS and GINSBURG, *Senior Circuit Judges*.

Opinion for the Court filed by *Senior Circuit Judge GINSBURG*.

GINSBURG, *Senior Circuit Judge*: The Pipeline and Hazardous Materials Safety Administration (PHMSA) prescribes safety standards for pipelines on behalf of the Secretary of Transportation. 49 U.S.C. § 60102(a)(2); 49 C.F.R. § 1.97(a)(1). Two oil and gas associations, GPA Midstream and the American Petroleum Institute, petition for review of a safety standard requiring their members to install remote-controlled or automatic shut-off valves in some types of new or replaced gas and hazardous liquid pipelines. 87 Fed. Reg. 20,940 (2022). The petitioners challenge the standard as it applies to “gathering” pipelines used to collect raw gas or crude oil from a well. They argue the PHMSA unlawfully failed to disclose the economic basis for regulating gathering pipelines when it proposed the standard, and also failed to make a reasoned determination that regulating these pipelines was appropriate.

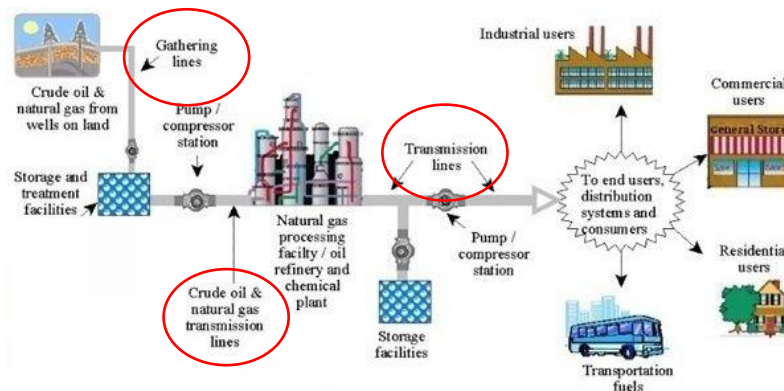
We agree. The PHMSA said nothing about the practicability or the costs and benefits of the standard for gathering pipelines until promulgating the final rule, even though the law required it to address those subjects when publishing the proposed rule for public comment and peer review. The PHMSA also ultimately failed to make a reasoned determination that the benefits of regulating gathering pipelines would exceed the costs, and that doing so would be practicable, as required by law. We therefore grant the petition for review.

I. Background

We begin with some regulatory and factual background.

A. Regulated Gathering Lines

In order to collect raw gas or crude oil from one or more wells, oil and gas companies rely upon so-called gathering pipelines, which pass mostly through rural areas. 49 C.F.R. §§ 192.3, 195.2. Oil and gas companies then rely upon a large network of transmission or “main” lines to transport gas, crude oil, and petroleum products long distances further down the supply chain, as illustrated by this graphic from the PHMSA.



The PHMSA regulates these pipelines under the Secretary’s longstanding authority to “prescribe minimum safety standards for pipeline transportation and for pipeline facilities.” 42 U.S.C. § 60102(a)(2). Although it has broad authority, the agency must follow detailed rulemaking procedures. As relevant here, a 1996 law provides the PHMSA must (1) “identify the costs and benefits associated with the proposed standard” in a risk assessment, and (2) submit this risk assessment to an advisory committee of experts for peer

review, and to the public for comment. Accountable Pipeline Safety and Partnership Act of 1996, § 4, Pub. L. 104-304, 110 Stat. 3794, 3795, *codified* at 49 U.S.C. § 60102(b)(3)(B), (4). Ultimately, the PHMSA must regulate “only upon a reasoned determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs.” 49 U.S.C. § 60102(b)(5).

Transmission pipelines have long been subject to federal safety standards. By contrast, for many years, gathering pipelines in rural areas were not subject to federal safety standards. In the 2000s, however, the PHMSA defined a new class of “regulated gathering line” subject to federal safety standards in rural areas. *See* 71 Fed. Reg. 13,289 (2006) (defining regulated gathering line for gas); 73 Fed. Reg. 31,634 (2008) (defining regulated rural gathering line for hazardous liquids); *see also* 49 U.S.C. § 60101(b)(2)(A) (authorizing the PHMSA to define the term “regulated gathering line”). This definition depends upon the proximity of a pipeline segment to an area where a rupture may cause serious harm.

A gas pipeline carries methane, which is a safety hazard. When a cloud of methane ignites, the resulting fireball and heat can kill and burn anything nearby. Since 2006, the PHMSA, therefore, has regulated segments of gas gathering pipeline near more than ten buildings intended for human occupancy, where burning gas may take lives and destroy property. 49 C.F.R. §§ 192.8(c)(1), 192.5(b)(2)–(4). The agency no longer treats rural and non-rural gas gathering pipelines differently.

Also in 2006, the PHMSA created two tiers of regulated gas gathering line—Types A and B—based upon “hoop stress,” that is, the force on the wall of a steel pipe as fluid

pushes outward against it.* Hoop stress is an important physical variable. When hoop stress exceeds the stress specified by the manufacturer, the pipe may permanently expand like an overstretched rubber band, thus thinning out the wall, which may eventually burst. This important specification is known as the “specified minimum yield strength” (SMYS) of the pipe. Thomas O. Miesner & William L. Leffler, *Oil and Gas Pipelines in Non-Technical Language* 232 (2006). A Type A line operates at or above 20% of the SMYS of the pipe, while a Type B line operates at a lower stress. 49 C.F.R. § 192.8(c). The PHMSA determined the stress of a Type A line was “indicative of onshore gathering lines whose operating pressure presents a significant enough risk in certain circumstances to warrant the same amount of regulation as transmission lines,” with exceptions not here relevant. 71 Fed. Reg. at 13,296/3; *see also* 49 C.F.R. § 192.9(c) (“An operator of a Type A regulated onshore gathering line must comply with the requirements of this part applicable to transmission lines, except . . .”). By contrast, a low stress Type B line must meet fewer safety standards. 49 C.F.R. § 192.9(d).

Hazardous liquid gathering pipelines, which largely transport crude oil, may contaminate drinking water or natural resources. In 2008, the PHMSA therefore regulated rural gathering pipelines located within a quarter mile of a source of drinking water or of an important ecological resource (e.g., a wetland frequented by migratory birds or by an endangered species), as long as the pipeline falls within a certain diameter range and operates at or above 20% of the SMYS of the steel pipe. *Id.* § 195.11(a). A regulated rural gathering line must

* Office of Pipeline Safety, Interpretation Response PI-70-024 (1970), <https://perma.cc/GEW6-SQBQ>. Hoop stress is determined by $S = D \times P / 2t$, where S is hoop stress, D is diameter, P is internal operating pressure, and t is wall thickness. *Id.*

comply with many of the safety standards that apply to a transmission line carrying hazardous liquids. *See id.* § 195.11(b); *see also* 73 Fed. Reg. at 31,640/3 (describing the overlapping rules). The PHMSA also continued regulating any gathering “pipeline located in a non-rural area.” 49 C.F.R. § 195.1(a)(4)(i). As a result, regulated gathering lines and transmission lines are now generally subject to many of the same safety standards.

B. The 2011 Act

In 2010, the rupture of a gas transmission pipeline destroyed a neighborhood in San Bruno, California. The ignition blast and fire resulting from the rupture killed eight and injured 51 persons, and destroyed or damaged more than 100 homes. It took 95 minutes to stop the flow of gas from the rupture, as firefighters struggled to contain the flames.

The National Transportation Safety Board investigated and prepared a report. *Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire*, NTSB/PAR-11/01 (2011), <https://perma.cc/868M-ASNR>. As relevant here, the Board found property damage could have been mitigated had two nearby valves been equipped with automatic or remote-controlled shut-off valves, which do not require dispatching a local mechanic to the site of the valve. *Id.* at 103–104, 125. The Board accordingly recommended that the PHMSA require automatic or remote-control shut-off valves in high-consequence areas and high-density locations. *Id.* at 129.

Within a few months, the Congress passed the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, § 4 of which directs the PHMSA to require automatic or remote-controlled valves “if appropriate” in “transmission pipeline facilities”:

Not later than 2 years after the date of enactment of this subsection, and after considering the factors specified in subsection (b)(2), the [PHMSA], if appropriate, shall require by regulation the use of automatic or remote-controlled shut-off valves, or equivalent technology, where economically, technically, and operationally feasible on transmission pipeline facilities constructed or entirely replaced after the date on which the [PHMSA] issues the final rule containing such requirement.

49 U.S.C. § 60102(n)(1).

C. The Proposed Rule

In 2020, the PHMSA published a notice of proposed rulemaking to implement § 4. The agency proposed requiring automatic or remote-controlled shut-off valves or an equivalent technology “on all newly constructed or entirely replaced natural gas transmission and hazardous liquid pipelines that have nominal diameters of 6 inches or greater.” 85 Fed. Reg. 7162, 7164/1 (2020). As required by law, the PHMSA also prepared a risk assessment purporting to “identify the costs and benefits associated with the proposed standard.” 49 U.S.C. § 60102(b)(3)(B). Notably, however, the notice of proposed rulemaking and risk assessment said nothing about the costs and benefits of applying the standard to gathering pipelines.

Pursuant to certain pre-existing rules, however, new or replaced regulated gathering lines would have been subject to the proposed standard unless expressly carved out by the rule. In their comments, the petitioners accordingly sought an exemption for gathering pipelines. Among other things, they argued the risk assessment lacked the cost-benefit data needed to justify applying the rule to gathering pipelines.

D. The Advisory Committee Recommendation

As required by law, the PHMSA also made the risk assessment available for public comment and for peer review by two federal advisory committees, one for gas pipelines and one for pipelines carrying hazardous liquids. 49 U.S.C. §§ 60102(b)(4)(A)–(B), 60115. Because the risk assessment said nothing about the costs and benefits of applying the safety standard to gathering pipelines in particular, however, the public committees had no economic data or analysis about gathering pipelines to review and analyze.

Nevertheless, when the PHMSA presented the proposal to the advisory committees, the agency revealed for the first time that it would be applying the standard to at least some regulated gathering lines. Members of the committees argued this was inappropriate because they had been given no analysis or data for gathering pipelines. Because of this gap, the committees recommended deferring the safety standard for gathering pipelines until a future rulemaking.

E. The Final Rule

The PHMSA plowed ahead anyway. In the final rule, the PHMSA required automatic or remote-controlled shut-off valves in many new or replaced pipelines with a diameter of six or more inches, including Type A lines and regulated rural gathering lines that carry hazardous liquids across a body of water wider than 100 feet. 68 Fed. Reg. at 20,941/3, 20,949.

The PHMSA addressed some objections in the preamble to the final rule. *Id.* at 20,949. It pointed out that the proposed rule never said regulated gathering lines would be exempt—which is correct because the proposed rule said nothing at all

about gathering lines. *Id.* at 20,949/1. The PHMSA also said regulating Type A lines made sense because “ruptures on these pipelines will generally present a higher risk of public safety consequences, similar to gas transmission lines.” *Id.*

The risk assessment accompanying the final rule included some data about gathering pipelines. To identify the costs, the PHMSA estimated the number of new or replaced miles of pipeline that would be subject to the standard each year—including, for the first time, the number of miles of gathering pipelines. Still, when the PHMSA then estimated the number of valves needed, the annualized cost of the equipment, and other costs, it used no data for gathering pipelines; nor did it discuss the benefits of applying the standard to regulated gathering lines. It filled the gap by assuming the methodology and data for transmission pipelines were also valid for gathering lines.

The PHMSA said it was “not able to quantify the benefits,” because “a detailed projection of avoided incidents and avoided costs of those incidents is not available”; therefore, it discussed benefits in qualitative terms. The PHMSA claimed the standard could avoid “significant” property and environmental damages. To support this claim, the PHMSA relied upon a foundational technical study the agency commissioned from Oak Ridge National Laboratory, modeling the property and environmental damages that could be avoided by using automatic or remotely-controlled valves in specific scenarios. *See Studies for the Requirements of Automatic and Remotely Controlled Shutoff Valves on Hazardous Liquids and Natural Gas Pipelines with Respect to Public and Environmental Safety*, ORNL/TM-2012/411 (2012), <https://perma.cc/QZP7-6FKX> (Oak Ridge). The study, however, covered only transmission pipelines. *Id.* at 6 (“The results of this study apply to natural gas and hazardous liquid transmission lines.”).

Relying upon this final risk assessment, the PHMSA concluded, in the preamble to the final rule, that the “(unquantified) public safety, environmental, and equity benefits of the final rule . . . justify the costs of the final rule.” 68 Fed. Reg. at 20,943/1.

II. Analysis

We begin by considering whether the petition for review is timely. Finding it is, we proceed to the merits, applying the familiar standards of review in the Administrative Procedure Act (APA). 49 U.S.C. § 60119(a)(3). To the extent the petitioners argue the safety standard exceeds the PHMSA’s authority, we deny the petition. We agree, however, that the PHMSA prescribed the standard “without observance of procedure required by law.” 5 U.S.C. § 706(2)(D). We further agree that the PHMSA ultimately failed to show that regulating gathering pipelines would be “appropriate.” 49 U.S.C. § 60102(b)(2)(B).

A. The Petition for Review Is Timely

A petition for review of a safety standard must be filed “not later than 89 days after the regulation is prescribed.” 49 U.S.C. § 60119(a)(1). A final rule is “prescribed” when it is “established authoritatively.” *Nat. Res. Def. Council v. Nat’l Highway Traffic Safety Admin.*, 894 F.3d 95, 106 (2d Cir. 2018) (brackets omitted) (quoting Black’s Law Dictionary (10th ed. 2014)). A legislative rule is established authoritatively when it is duly fixed and so becomes binding on the public, “even if it sets a future effective date.” *Humane Soc’y v. Dep’t of Agric.*, 41 F.4th 564, 571 (D.C. Cir. 2022).

A final rule is not duly fixed at least until it is filed for public inspection with the Office of the Federal Register. *See id.* at 570. Until then, it may be withdrawn without explanation or notice and comment and is “not valid” and enforceable against the public at large. 44 U.S.C. § 1507; *Humane Soc’y*, 41 F.4th at 575. Because a legislative rule that is unenforceable and may be withdrawn at will is not “duly fixed,” we hold a standard is not “prescribed” by the PHMSA at least until the agency files the final rule for public inspection. *Cf.* James Madison, *The Federalist*, No. 62, at 381 (Clinton Rossiter ed., 1961) (“Law is defined to be a rule of action; but how can that be a rule, which is little known, and less fixed?”).

That was done on April 7, 2022. The petitioners filed their petition on July 1, 2022, 85 days later. The petition is therefore timely. Because the petition is timely, we have no occasion to decide whether the filing clock started running only after the rule was first published in the Federal Register, as the petitioners argue, citing *Natural Resources Defense Council*, 894 F.3d at 106 (“[A] regulation is not ‘prescribed’ until it has legal effect, and it does not have legal effect until it is published in the Federal Register.”). Nor have we occasion to decide whether the 89-day deadline is jurisdictional.

B. The PHMSA Did Not Exceed Its Legal Authority

In their briefs, the petitioners argued § 4 of the 2011 Act, 49 U.S.C. § 60102(n)(1), strips the PHMSA of power to require automatic or remote-controlled shut-off valves in gathering pipelines under its general rulemaking authority. *Id.* § 60102(a)(2). During oral argument, however, counsel for petitioners conceded the PHMSA retains this power. Any argument to the contrary is, therefore, waived.

The petitioners now press a narrower argument. They claim the PHMSA needed to find automatic or remote-controlled shut-off valves “appropriate” for new transmission pipelines pursuant to § 4 before it could require them for gathering pipelines. Now that the PHMSA has made that finding under § 4, however, the petitioners concede the agency may “use [its] general rulemaking authority tomorrow to go out and do a rule” for gathering pipelines. In other words, they argue that § 4 creates only a condition precedent, not a ban.

Section 4 creates neither a condition precedent nor a ban. As the petitioners themselves explain at length in their opening brief, § 4 does not apply to gathering pipelines. Section 4 by its plain terms applies only to “transmission pipeline facilities.” We do not understand how § 4 could plausibly be read to create a condition precedent for a different type of pipeline facility. Nor do we see any reason to think the condition precedent, if there were one, would have to be met through a separate rulemaking. More to the point, we have no discretion to order a separate rulemaking unless a statute clearly ordains a particular sequence of procedures. *See Perez v. Mortg. Bankers Ass’n*, 575 U.S. 92, 102 (2015) (“Agencies are free to grant additional procedural rights in the exercise of their discretion, but reviewing courts are generally not free to impose them if the agencies have not chosen to grant them.” (quoting *Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council, Inc.*, 435 U.S. 519, 524 (1978))).

C. The PHMSA Failed To Observe the Rulemaking Procedures

Although the PHMSA had the power to regulate, the agency had to follow the hybrid rulemaking procedures laid out in the APA, 5 U.S.C. § 553(c), and the pipeline safety laws. 49 U.S.C. § 60102(b)(3)–(4). The petitioners argue the PHMSA

did not follow those procedures because the risk assessment made available for peer review and public comment said nothing about regulating gathering pipelines.

Indeed, the notice of proposed rulemaking and accompanying risk assessment were all about transmission lines. They contained no data, analysis, or conjecture about the costs and benefits of applying the proposed safety standard to gathering facilities. The study by Oak Ridge, upon which the agency relied to show the feasibility and benefits of the safety standard, also addresses only transmission pipelines. The proposed rule did not even make a finding that the standard would be “appropriate” for gathering pipelines. Gathering pipelines, it seems, were a mere afterthought when they surfaced during the advisory committees’ deliberation.

Both the pipeline safety laws and the APA require more. Under the former, the PHMSA must consider “the appropriateness of the standard for the particular type of pipeline transportation or facility.” 49 U.S.C. § 60102(b)(2)(B). To be appropriate for a particular type of pipeline facility, the standard must be “practicable,” and the benefits must justify the costs. *Id.* § 60102(b)(1)(A), (5); *cf. Michigan v. EPA*, 576 U.S. 743, 752 (2015) (“No regulation is ‘appropriate’ if it does significantly more harm than good.”). The PHMSA, therefore, had to explain why the safety standard is practicable and makes sense for regulated gathering lines, but it made no effort to do so until issuing the final rule, when there could be no peer review or public comment.

That was a serious error. We have long held that, in order to provide the public with a meaningful chance of participating in the rulemaking process, as required by the APA, *see* 5 U.S.C. § 553(c), an agency must disclose critical information justifying the proposal in time for public comment. *See Owner-*

Operator Indep. Drivers Ass’n, Inc. v. Fed. Motor Carrier Safety Admin., 494 F.3d 188, 199 (D.C. Cir. 2007) (citing cases). The procedures required by the pipeline safety laws are more specific and still more demanding. As noted above, the PHMSA must submit for peer review and make available for public comment a risk assessment identifying “the costs and benefits associated with the proposed standard.” 49 U.S.C. § 60102(b)(3)(B), (4)(A). It must also “identify technical data or other information upon which the risk assessment information and proposed standard is based.” *Id.* § 60102(b)(3)(D). In sum, the risk assessment made available for comment and peer review had to contain the technical and cost-benefit information critically needed to justify the safety standard for each type of pipeline transportation and facility. The risk assessment did not comply with this requirement because it said nothing about the practicability or the costs and benefits of regulating the gathering sector of the pipeline industry.

The PHMSA tries to make something out of nothing, but that is an impossible task. *Cf. Kooritzky v. Reich*, 17 F.3d 1509, 1513 (D.C. Cir. 1994) (“Something is not a logical outgrowth of nothing.”).

The agency first argues the analysis for transmission pipelines was good enough. The petitioners do not dispute this. The agency then points out the methodology and data for transmission pipelines were exposed to comment and refutation. Again, no dispute. Because it later used the same methodology and data to calculate the costs for gathering pipelines, the PHMSA argues, in essence, that the final risk assessment merely “expands on and confirms data in the rulemaking record,” which is permitted under our precedent. *Competitive Enter. Inst. v. Dep’t of Transp.*, 863 F.3d 911, 920

(D.C. Cir. 2017); *see also* *Chamber of Commerce v. SEC*, 443 F.3d 890, 900 (D.C. Cir. 2006).

That is not an accurate account of the final rule. For one, the PHMSA's estimate of the number of miles of gathering line subject to the safety standard "was entirely new." *Owner-Operator Indep. Drivers Ass'n*, 494 F.3d at 201. That datum is critical, as it determines the number of valves needed to comply and hence the cost. More important still, the PHMSA had never before exposed its methodological assumption that the analysis and data regarding transmission lines would be equally applicable to gathering lines. This was not a "minor modification used to check or confirm prior analysis." *Id.* If the PHMSA thought the information for transmission pipelines was valid for gathering lines, then it should have said so in time for peer review and public comment. By remaining silent about this critical assumption until the final risk assessment, the PHMSA sandbagged the advisory committees and the public, sidestepping the process of public deliberation required by law.

The PHMSA argues the final rule came as no surprise because transmission and regulated gathering lines are treated alike by default under preexisting rules. That is beside the point. The petitioners do not dispute the rule was a logical outgrowth of the proposal; they cheerfully concede they knew regulated gathering lines would be regulated unless carved out. Their gripe is with the agency's failure to do an adequate risk assessment in time for peer review and public comment. The agency may not avoid these "troublesome rulemaking procedures . . . simply by announcing its independence in a general rule." *United States v. Picciotto*, 875 F.2d 345, 347 (D.C. Cir. 1989).

The PHMSA argues it satisfied the requirements, at least for Type A pipelines, because of its longstanding judgment that

Type A lines present “a significant enough risk in certain circumstances to warrant the same amount of regulation as transmission lines.” 71 Fed. Reg. at 13,296/3. The petitioners do not quibble with this general proposition about a similarity in risk, and it may have support in the record. Operating at 20% of the SMYS may increase the risk of a rupture. *See, e.g.*, 87 Fed. Reg. at 20,960/2 (“PHMSA is aware of data that would indicate that pipelines operating at pressures lower than 20 percent of SMYS are at less risk of rupturing.”). Hoop stress is also related to internal pressure and diameter, which increase the rate of gas flow and thus the magnitude of the expected harm of a rupture. *See Oak Ridge* at 8, 11. If a finding that a Type A line presents a risk comparable to that of a transmission line were enough, then perhaps the PHMSA would be in the clear.

A similarity in risk, operating pressures, or diameters, however, does not mean the safety standard is practicable or has similar benefits and costs when applied to a different sector of the pipeline industry. For example, according to the PHMSA’s risk assessment, the cost of the equipment needed to comply with the final rule doubles when a pipeline operator must upgrade from a manual valve rather than from a valve already equipped with an “automating actuator” (a motor or equivalent device, which still requires adding a communications system to operate a valve remotely or automatically). If gathering operators use actuators at a lower rate than do transmission operators, then they would face greater costs per mile to upgrade their equipment in order to comply with the standard, regardless of similarity in risk, operating pressure, or diameter.

Finally, the PHMSA argues it actually did say something about gathering pipelines in its proposal. Here the PHMSA points to a Leak Detection Study, which it cited in the preamble

to the proposal, that discusses past accidents in both transmission and gathering pipelines. The study expressly says, however, it “does not address th[e] issue of shut-off valves.” David Shaw et al., *Leak Detection Study 2-2* (Dec. 2012), <https://perma.cc/SNG6-6GAQ>; see also 87 Fed. Reg. at 20,945/2–3 (summarizing the report). A report that does not address the relevant safety technology is not a starting point for a risk assessment of the proposed standard.

We conclude that, although the PHMSA was required by law to identify the costs and benefits of requiring automatic or remote-controlled shut-off valves for gathering pipelines in a risk assessment of the proposed rule, it did not even attempt to do so. By remaining mum, the PHMSA flouted the pipeline safety laws and a cardinal rule of administrative law.

D. The PHMSA’s Procedural Error Is Prejudicial

The petitioners have shown the PHMSA erred, but they also must show the error is prejudicial to them, as we do not right wrongs that make no difference. 5 U.S.C. § 706. To show prejudice, the petitioners must raise a credible argument about the merits of the rule. *Owner-Operator Indep. Drivers Ass’n, Inc.*, 494 F.3d at 202. They need not show the agency, had it adhered to the procedural requirements of the law, “would have reached a different result.” *Chamber of Commerce*, 443 F.3d at 905. They need only show they “had something useful to say.” *Id.*

We are convinced the petitioners do have something useful to say to the PHMSA, and that they raise a credible argument on the merits. Indeed, as we explain next, the petitioners have shown the final rule was arbitrary and capricious, so they necessarily have satisfied their burden of proof. See *Owner-Operator Indep. Drivers Ass’n, Inc.*, 494 F.3d at 202–03

(finding the procedural error prejudicial because the petitioners also showed the agency did not reasonably explain the analysis in the final rule).

E. The PHMSA Failed To Make a Reasoned Determination

Apart from following the statutory procedures, the PHMSA was ultimately required to show regulating gathering pipelines would be “appropriate.” 49 U.S.C. § 60102(b)(2)(B). To do so reasonably, it had to consider the relevant factors and explain why regulating gathering pipelines would be practicable, and show that the benefits would justify the costs. It did not do so.

The PHMSA claims it satisfied its statutory duty by asserting in a footnote of the final risk assessment that regulated gathering lines are similar to transmission lines “in terms of design and operating characteristics, and risks to public safety and the environment,” and therefore “similar behavior by operators is expected.” It argues we must defer to this “general analysis based on informed conjecture.” *Chamber of Commerce v. SEC*, 412 F.3d 133, 142 (D.C. Cir. 2005). Because we conclude the PHMSA’s conjecture was not “informed,” we do not defer to it.

At best, the record shows regulated gathering lines and transmission pipelines pose a comparable risk. As we have already explained, however, this does not mean gathering pipelines are similar in all important respects. Indeed, the petitioners point out the PHMSA failed to consider how gathering pipelines are different from transmission pipelines in a number of other respects. For example, they submit declarations with their opening brief stating that regulated segments of gathering line are typically short and regulated

only intermittently, which they argue will make compliance far more difficult and expensive than the PHMSA recognized. The PHMSA never considered this aspect of the problem during the rulemaking and never disputed the merits of this argument in its brief, so we assume it is true. During oral argument, counsel for the PHMSA did say the agency could take these difficulties into account later because the rule authorizes site-specific exemptions when an operator shows compliance is not feasible. *See* 49 C.F.R. §§ 192.179(g); 195.258(e). Because this argument would impermissibly shift the burden of proof to the petitioners and other operators, we must reject it.

The operators point to several other differences between gathering and transmission lines. They tell us, for example, that transmission pipelines are run from “evolved control rooms” that complement automatic or remote-controlled shut-off valves, whereas the gathering sector is made up of smaller players that rely more upon on-site personnel. They also tell us gas transmission operators behave differently because they are price-regulated public utilities, while the gas gathering sector relies upon market prices to recover costs. Although we cannot fully evaluate the importance of these asserted differences precisely because the agency failed to develop an adequate administrative record in time for comment, they surely seem relevant to the agency’s decision making, and at a minimum show the agency’s procedural error was prejudicial.

The PHMSA concedes there may be a difference in cost. In particular, it concedes gathering operators may install automatic or remote-controlled shut-off valves at lower rates, or not at all. By contrast, many transmission operators already install compliant valves, and their high baseline rate of compliance means they will incur little additional cost for equipment. A lower baseline rate of compliance for gathering pipelines, therefore, “could in turn increase compliance costs

for those lines,” as the PHMSA conceded in a footnote to its final risk assessment. This would seem a relevant factor as well. The PHMSA nonetheless downplayed its significance on the ground that few gathering pipelines will be subject to the rule, so the increase in the total cost of the final rule will be small and, if the baseline rate of compliance is lower for gathering lines, then “the benefits of the rulemaking would be higher.”

We are not reassured. The relevant question under the law is whether the benefits of regulating gathering lines justify the costs, and that question cannot be answered by comparing costs against costs. As to the “higher” benefits, we would perhaps find this assertion more persuasive had the agency made the requisite “thorough” assessment of the benefits it claims to have made. Far from finding the assessment “thorough,” however, we find it inadequate, and conclude the agency failed to make a “reasoned determination that the benefits, including safety and environmental benefits, of the intended standard justify its costs.” 49 U.S.C. § 60102(b)(5).

The risk assessment does not quantify any of the benefits of the standard. This is troubling enough, as a reasoned decision would explain why any unquantified benefits cannot reasonably be quantified. *Id.* § 60102(b)(2)(D), (b)(5); *see also Bus. Roundtable v. SEC*, 647 F.3d 1144, 1149 (D.C. Cir. 2011) (agency “failed adequately to quantify the certain costs or to explain why those costs could not be quantified”). Quantifying benefits always requires making projections, so it is no answer to say “a detailed projection of avoided incidents and avoided costs is not available.” The agency even conceded “it could be possible [to] estimate the benefit of this rule for hazardous pipelines,” and still, it did not do so. Without quantified benefits to compare against costs, it is not apparent just how

the agency went about weighing the benefits against the costs. 49 U.S.C. § 60102(b)(5).

Even the qualitative discussion of the benefits does not say anything about gathering pipelines. The risk assessment relies upon estimates of avoided damages modeled in the Oak Ridge study but, as mentioned above, that study by its terms does not cover gathering pipelines. The PHMSA now argues the same results and hypothetical pipeline configuration would be representative for gathering pipelines of a similar pressure and diameter, but that is not obvious; the study relies upon a “hypothetical” pipeline configuration where, among other things, “pump stations are located at 100 mile intervals along the pipeline.” Oak Ridge at 34, 150. That may be typical of long-distance transmission pipelines, but it would seem highly unusual among gathering pipelines. Be that as it may, the agency did not make this point in the administrative record so for us to consider it would “contradict[] the foundational principle of administrative law that a court may uphold agency action only on the grounds that the agency invoked when it took the action.” *Michigan*, 576 U.S. at 758 (citing *SEC v. Chenery Corp.*, 318 U.S. 80, 87 (1943)).

Because the PHMSA invites us to rely upon the estimates of avoided damages in the Oak Ridge study, we note two additional problems lest the agency overlook them in any further rulemaking applying the safety standard to gathering lines.

First, the avoided damages touted by the agency ignore the probability of a rupture. Oak Ridge modeled avoided damages “based on the premise that the releases occur (100% failure likelihood),” and, to boot, assuming the worst type of rupture—a “guillotine” break that slices a pipeline, exposing the entire diameter of the pipe. Oak Ridge at 34, 150. As Oak Ridge

carefully noted, however, the benefit of the technology is also “a function” of the “probability of failure,” and the probability of a rupture, let alone the worst type of rupture, “is low.” *Id.* at 33. In order to identify the expected benefits of avoiding a rupture, a rational analysis would have to consider the probability of a rupture, not just the magnitude of the harm avoided. *Cf.* Cass Sunstein, *Worst-Case Scenarios* 2 (2007) (“People who are sensible, or even sane, do not treat a 1 percent risk of loss the same as a certainty of a loss.”). The agency keeps detailed data on the frequency of pipeline accidents, so the limitations of the Oak Ridge study do not excuse the agency’s failure to consider the low probability of a rupture when reporting avoided costs.

Second, and more important still, the study does not help justify the standard for gas gathering pipelines. Far from it. According to Oak Ridge, the cost-benefit ratio for automatic or remote-controlled shut-off valves on gas pipelines is generally “negative” because most of the severe damage from a gas fire happens “before valve closure can isolate the damaged pipeline and begin limiting the amount of natural gas that escapes and burns.” Oak Ridge at 181. Even assuming the worst type of rupture occurs with certainty, *id.* at 34, Oak Ridge found no net safety benefit in any scenarios it modeled for a gas pipeline (even for a high-pressure, large-diameter gas transmission pipeline located in a densely populated area) unless the valves close within “10 minutes or less after the break.” *Id.* at 184.

The final rule gives operators 30 minutes to close the valves “measured from an operator’s identification of a rupture after notification of a potential rupture,” which may be well after the rupture occurred. 68 Fed. Reg. at 20,941/3, *codified at* 49 C.F.R. § 192.636(b). As the PHMSA itself observed, “potential property damages are likely to be largely complete before the 30-minute limit.” The PHMSA says it expects

operators will overcomply, but it does not explain why or by how much, or whether they will usually be able to shut off valves within 10 minutes after a break. Therefore, even if the results of the Oak Ridge study applied to gathering pipelines, the agency fails adequately to explain why the study supports the agency's position on the merits.

Considering asserted differences between transmission and gathering pipelines with respect to their operations and the cost of compliance; the PHMSA's failure to quantify any benefits; its weak qualitative analysis; and the record as a whole, we conclude the agency has not reasonably explained why the rule is appropriate for gathering pipelines.

F. The Remedy Is a Limited Vacatur

That leaves the question of remedy. The petitioners argue for vacatur of the rule only as it applies to gathering pipelines. The PHMSA agrees with the proposed remedy, asking us, should we find a prejudicial error, to "sever the portion of the rule applicable to transmission lines and vacate the rule only as applied to gathering lines." Although the text of the final rule is not divisible in this way, we may "invalidate only some applications even of indivisible text." *Nat. Res. Def. Council v. Wheeler*, 955 F.3d 68, 81 (D.C. Cir. 2020). We therefore vacate the rule in its entirety as it applies to gathering pipeline facilities.

III. Conclusion

As the Supreme Court has said, "the Government should turn square corners in dealing with the people." *Dep't of Homeland Sec. v. Regents of the Univ. of Cal.*, 140 S. Ct. 1891, 1909 (2020). The PHMSA did not turn square corners here. It cut corners to the prejudice of the petitioners, the

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administrative process, and thus the public. We therefore grant the petition for review and vacate the final rule as it applies to gathering pipeline facilities.

So ordered.