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ARTICLES

JUSTIFYING SAFETY: THE PARADOX OF RATIONALITY

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“The narrative of risk is a narrative of irony.”¹

*“[T]he very categories of thought underlying rational analysis
are themselves a kind of paradox, defined in political struggle.”²*

ABSTRACT

In 1994, House Republicans stood on the steps of the Capitol and signed the Contract with America, promising to revolutionize government by imposing “rationality” on environmental, health, and safety regulation. When the 104th Congress adjourned two years later, just one regulatory program had been remade in the rationalist image: the program governing the risks of energy pipelines. The pipeline safety program, like the millions of miles of pipelines underground, has operated out of sight. The scholarly debate over rationalism has largely failed to recognize the importance of the reforms to risk regulation. Once unearthed, however, the program provides a new lens through which to view the broader tension between rationality and democracy in the administrative state. More than twenty years later, the pipeline safety program is a policy paradox. It has not delivered the benefits predicted by rationalists—better decisionmaking, more efficient regulation of risk, and improved democratic governance. Meanwhile, the

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1. Ulrich Beck, *Living in the World Risk Society*, 35 *ECON. & SOC’Y* 329, 329 (2006).
2. DEBORAH STONE, *POLICY PARADOX: THE ART OF POLITICAL DECISION MAKING* 7 (1997).

results confirm many of the warnings of scholars who viewed the reforms as a threat to democratic process and values. The bargain offered by rationalists—better regulation in return for less direct democracy—has in practice resulted in political dysfunction. This Article contends that the rationalist experiment has not been successful because the rationalists' faith in technocratic decisionmaking obscured the real political struggle over risk. Instead of attempting to protect the administrative state from a fearful public, reformers should seek better regulation through deliberative processes that harness public concern.

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INTRODUCTION

On March 23, 1994, a major underground pipeline that transported natural gas from the Gulf Coast to the Northeast exploded in Edison Township, New Jersey.³ The explosion sent 1,500 nearby residents fleeing and turned the neighborhood “into a war zone of flames, panic and chaos.”⁴ Later that year, Republicans running for office stood on the steps of the Capitol and signed the Contract with America, promising voters that they would revolutionize government if they were given control of Congress.⁵ To combat costly,

3. NAT'L TRANSP. SAFETY BD., NTSB-PAR-95-01, PIPELINE ACCIDENT REPORT: TEXAS EASTERN TRANSMISSION CORPORATION NATURAL GAS PIPELINE EXPLOSION AND FIRE, EDISON, NEW JERSEY MARCH 23, 1994, at 1 (1995).

4. Robert D. McFadden, *Explosion in Edison: The Overview; New Jersey Pipeline Explosion Sets Off Panic, Chaos and Fear*, N.Y. TIMES (Mar. 25, 1994), <http://www.nytimes.com/1994/03/25/nyregion/explosion-edison-overview-new-jersey-pipeline-explosion-sets-off-panic-chaos.html?page-wanted=all> [perma: <http://perma.cc/N6RY-P2GT>].

5. See REPUBLICAN MEMBERS OF THE HOUSE OF REPRESENTATIVES, REPUBLICAN CONTRACT

“overburdensome” regulations,⁶ the signatories proposed reforms that would “rationalize” agency decisionmaking.⁷ These separate events converged during the pivotal first one hundred days of the 104th Congress, when House Republicans responded to the Edison disaster⁸ by introducing bills to reform the regulatory program governing the safety of oil and natural gas pipelines.⁹ Although the reforms encountered opposition in the House and Senate, they were ultimately enacted.¹⁰ The final legislation proved to be one of the revolutionaries’ few successes.¹¹ And it created the only enforceable rationalist mandate for risk regulation,¹² requiring the costs of each rule in the program to be justified.¹³

Like the millions of miles of underground pipelines in the United States, the pipeline safety program operates largely out of sight. Few scholars have recognized that the rationalist reforms put in place by the 104th Congress make the program unique among regulatory programs that address environmental, health, and safety risks.¹⁴ Yet, unearthed, the pipeline safety program provides a new lens through which to view the broader tension between rationality and

WITH AMERICA (Sept. 27, 1994) [hereinafter CONTRACT WITH AMERICA].

6. Representative Bill Paxon, Remarks at the Republican Contract with America Rally (Sept. 27, 1994), <http://www.c-span.org/video/?60472-1/republican-contract-america-rally> [perma: <http://perma.cc/SM3V-ZSLU>].

7. See JUDITH A. LAYZER, OPEN FOR BUSINESS: CONSERVATIVES’ OPPOSITION TO ENVIRONMENTAL REGULATION 200 (2012).

8. INGAA FOUND., NATURAL GAS PIPELINE SAFETY 1994 TO 1997: THE CHANGE TO A NEW PARADIGM 6 (1997) (calling the Edison explosion a “turning point”); see also 141 CONG. REC. 7,513 (1995) (statement of Rep. Petri).

9. H.R. 1323, 104th Cong. (introduced Mar. 24, 1995); H.R. 1187, 104th Cong. (introduced Mar. 9, 1995).

10. See Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104–304, 110 Stat. 3793 (codified as amended in scattered sections of 49 U.S.C.).

11. For critical assessments of the results of the revolution, see Thomas O. McGarity, *A Cost-Benefit State*, 50 ADMIN. L. REV. 7, 37–38 (1998) [hereinafter McGarity, *A Cost-Benefit State*], and Cass R. Sunstein, *Congress, Constitutional Moments, and the Cost-Benefit State*, 48 STAN. L. REV. 247, 284–86 (1996) [hereinafter Sunstein, *Congress & Cost-Benefit State*].

12. This Article follows policy theory in using the term “rationalism” to describe a positivist approach to policymaking that relies on methods such as cost-benefit analysis. See *infra* Part III.A. In the legal literature, academics have also described this approach as “technocratic” or based on a “traditional [expertise] model.” John S. Applegate, *Worst Things First: Risk, Information, and Regulatory Structure in Toxic Substances Control*, 9 YALE J. ON REG. 277, 293 n.66 (1992) (alteration in original) (quoting Richard B. Stewart, *The Reformation of American Administrative Law*, 88 HARV. L. REV. 1667, 1678–79 (1975)).

13. See Accountable Pipeline Safety and Partnership Act of 1996 § 4(b)(5) (“Except where otherwise required by statute, the Secretary shall propose or issue a standard under this Chapter only upon a reasoned determination that the benefits of the intended standard justify its costs.”). As discussed *infra* in Part III.C, commentators have generally overlooked the significance of this reform.

14. An exception is SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH 44 (2003) (noting that “[t]he pipeline regulation statute . . . represent[s] the only example of a mandatory marginal cost-benefit analysis standard”); see also Robert W. Hahn, *State and Federal Regulatory Reform: A Comparative Analysis*, 29 J. LEGAL STUD. 873, 889 (2000).

democracy in the administrative state.¹⁵ In the years since the Contract with America, proponents of a “cost-benefit state” have defended procedural rationalist tools such as cost-benefit analysis,¹⁶ and pressed for a substantive mandate that would impose rationalism directly.¹⁷ Opponents have criticized the cost-benefit state as antidemocratic and deregulatory, and argued instead for more protective standards that are responsive to public values.¹⁸ Meanwhile, members of Congress have continued to hold hearings on regulatory reform¹⁹ and introduce regulatory reform bills.²⁰

Today, the federal government’s interest in rationalism is the most fervent since the days of the Contract with America.²¹ Congress is considering regulatory reforms that would mandate rationalist decisionmaking in a manner similar to the pipeline safety reforms.²² Meanwhile, President Trump has enthusiastically

15. See, e.g., David J. Arkush, *Direct Republicanism in the Administrative Process*, 81 GEO. WASH. L. REV. 1458, 1476 (2013); Mariano-Florentino Cuéllar, *Rethinking Regulatory Democracy*, 57 ADMIN. L. REV. 411, 412–18 (2005); Jodi L. Short, *The Political Turn in American Administrative Law: Power, Rationality, and Reasons*, 61 DUKE L.J. 1811, 1811–12 (2012).

16. Cost-benefit analysis “involves the systematic identification of all of the costs and benefits associated with a forthcoming regulation, including nonquantitative and indirect costs and benefits, and how those costs and benefits are distributed across different groups in society.” MAEVE P. CAREY, CONG. RESEARCH SERV., R41974, COST-BENEFIT AND OTHER ANALYSIS REQUIREMENTS IN THE RULEMAKING PROCESS 1 (2014).

17. The proponents range from those who vehemently defend a comprehensive rationalist model to those who seek more intently rational decisionmaking. Compare John D. Graham, *Saving Lives Through Administrative Law and Economics*, 157 U. PA. L. REV. 395, 534 (2008) [hereinafter Graham, *Saving Lives*], with RICHARD L. REVESZ & MICHAEL A. LIVERMORE, RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH 3–5 (2008), and CASS R. SUNSTEIN, THE COST-BENEFIT STATE: THE FUTURE OF REGULATION PROTECTION 10 (2002) [hereinafter SUNSTEIN, COST-BENEFIT STATE].

18. Similarly, the opponents range from those who fundamentally reject the rationalist model to those who offer a pragmatic middle ground. Compare FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING 9–10 (2004) (describing human life, health, and nature as “priceless”), and DOUGLAS A. KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY, at ix–x (2010) (describing cost-benefit analysis as “a policy-making approach that achieves its appearance of case-specific rationality at the price of insensitivity to context and to longer-term, systemic rationality”), with Sidney A. Shapiro & Christopher H. Schroeder, *Beyond Cost-Benefit Analysis: A Pragmatic Reorientation*, 32 HARV. ENVTL. L. REV. 433, 471–76 (2008) (proposing a pragmatic approach to regulatory analysis that would be “problem-oriented, normative, discursive, and transparent”).

19. As one admittedly rough measure, a search of the ProQuest Congressional database reveals that from 1996 to January 2018, there have been forty-five published congressional hearings containing “Regulatory Reform” in the title.

20. See, e.g., CAREY, *supra* note 16, at 26; CURTIS W. COPELAND, CONG. RES. SERV., RL32356, FEDERAL REGULATORY REFORM: AN OVERVIEW, at CRS-2 to -3 (2004).

21. See Lisa Lambert, *Republicans Pass Sweeping Bill to Reform ‘Abusive’ U.S. Regulation*, REUTERS (Jan. 11, 2017, 7:51 PM), <http://www.reuters.com/article/us-usa-congress-regulations-idUSKBN14W02N> [perma: <http://perma.cc/2DYZ-ATS3>].

22. H.R. 5, 115th Cong. § 103(b) (2017) (requiring agencies to choose the “least costly rule” that “meets relevant statutory objectives” or demonstrate that the “additional benefits of the more costly rule justify its additional costs”); S. 951, 115th Cong. § 3(3) (2017) (requiring agencies to provide a “reasoned” explanation as to why the benefits of a “major” or “high-impact” rule justify the costs).

embraced regulatory reform.²³ He has ordered agencies to “reduc[e] regulation and control[] regulatory costs” by repealing at least two regulations for every one adopted and offsetting new regulatory costs.²⁴ To “implement[] and enforc[e] regulatory reform,”²⁵ the President has directed agencies to identify regulations that “impose costs that exceed benefits” or “create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies” for modification, replacement, or repeal.²⁶ While scholars have criticized the President’s focus on costs, there is broad support for regulatory reform and the use of cost-benefit analysis.²⁷ It seems an opportune time, then, to examine the pipeline program and its regulatory impact for insights into the new administrative state the reformers seek to create.

Regulation of oil and gas pipelines may at first seem an odd choice for revolutionary reform. But small risks of catastrophic events form the battleground on which much of the rationality debate is fought.²⁸ Members of the public are particularly concerned about hazards that create “dread risks”—hazards characterized by their potential for catastrophe, fatal consequences, uncontrollability, and involuntary exposure.²⁹ As a hazard exhibits more of these characteristics, the public perceives the risk of an event to be greater even if the annual fatalities do not change.³⁰ The public also believes that dread risks should be reduced through strict regulation.³¹ Rationalists contend that this can create an irrational regulatory system.³² Agencies, they argue, have a tendency to err on

23. Keith B. Belton, Kerry Krutilla & John D. Graham, *Regulatory Reform in the Trump Era*, 77 PUB. ADMIN. REV. 643, 643 (2017) (“Having campaigned on a deregulation platform reminiscent of Ronald Reagan’s 1980 ‘regulatory relief’ program, Donald Trump is using presidential powers aggressively in pursuit of regulatory reform.”).

24. Exec. Order No. 13,771, 82 Fed. Reg. 9,339 (Feb. 3, 2017).

25. Exec. Order No. 13,777, 82 Fed. Reg. 12,285 (Mar. 1, 2017).

26. *Id.* § 3(d). Strictly speaking, the cap on regulatory costs is not a rationalist mandate because it only considers costs, not net benefits. But the policy can complement rationalist decisionmaking and is designed to address the same purported problem: the political pressure on agencies to “overregulate.” Cf. TED GAYER, ROBERT LITAN & PHILIP WALLACH, BROOKINGS INST., EVALUATING THE TRUMP ADMINISTRATION’S REGULATORY REFORM PROGRAM 4–7 (2017).

27. See Cass R. Sunstein, *Trump’s Safe and Sane ‘Regulatory Reform’ Idea*, BLOOMBERGVIEW (Mar. 3, 2017, 8:30 AM), <http://www.bloomberg.com/view/articles/2017-03-03/trump-s-safe-and-sane-regulatory-reform-idea> [perma: <http://perma.cc/BF39-6LZ8>]; Joshua Linn & Alan J. Krupnick, *Ninety-Six Regulatory Experts Express Concerns About Trump Administration Reforms*, RESOURCES FOR THE FUTURE (May 24, 2017), <http://www.rff.org/blog/2017/ninety-six-regulatory-experts-express-concerns-about-trump-administration-reforms> [perma: <http://perma.cc/C2HV-RKMS>].

28. For one series of skirmishes, see Dan M. Kahan, Paul Slovic, Donald Braman & John Gastil, *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071, 1071–74 (2006) (reviewing CASS R. SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* (2005) [hereinafter SUNSTEIN, *LAWS OF FEAR*]); Cass R. Sunstein, *Misfearing: A Reply*, 119 HARV. L. REV. 1110, 1100–12 (2006) [hereinafter Sunstein, *Misfearing*] (responding to Kahan, Slovic, Braman & Gastil, *supra*); Dan M. Kahan & Paul Slovic, *Cultural Evaluations of Risk: “Values” or “Blunders”?*, 119 HARV. L. REV. F. 166, 166 (2006) (responding to Sunstein, *Misfearing*, *supra*).

29. Paul Slovic, *Perception of Risk*, 236 SCIENCE 280, 283 (1987).

30. *Id.*

31. *Id.*

32. See SUNSTEIN, *COST-BENEFIT STATE*, *supra* note 17, at 1, 25–26; STEPHEN BREYER,

the side of overregulation in the face of uncertainty³³ and react to public fear by adopting mandates that are out of proportion to the actual risk.³⁴ Meanwhile, agencies ignore more serious risks because the public is not aware of them.³⁵ This “syndrome of ‘paranoia and neglect,’” the rationalists contend, leads to fundamentally irrational results: regulation saves fewer lives and provides less environmental protection at a higher cost to society than would regulation based on rationalist principles.³⁶

Pipeline accidents like the Edison explosion are archetypal dread events that invoke public concern. The explosion was so powerful that witnesses compared it to a “blinding, scorching nuclear blast.”³⁷ The force of the explosion carved into the ground a crater that was one hundred twenty feet long and sixty feet deep, while the escaping natural gas caused an “enormous orange fireball” that “roared out of control for hours.”³⁸ This conflagration resulted in significant property damage and injuries. Approximately three hundred people lost their homes and one hundred suffered burns or were sickened by the smoke.³⁹ But while pipeline accidents can be catastrophic, the probability that someone will be harmed by such an accident is small.⁴⁰ From 1997 to 2016, accidents caused on average fifteen fatalities and sixty-five serious injuries per year.⁴¹ Rather than respond to public concern about the Edison explosion by directing the Pipeline and Hazardous Materials Safety Administration (PHMSA or the Agency)⁴² to

BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION 33–39 (1993) (arguing that public perception of small risks such as those from nuclear power plants creates a “vicious circle” that results in less rational regulation).

33. See Cass R. Sunstein, *The Paralyzing Principle*, REGULATION, Winter 2002–2003, at 32, 32; BREYER, *supra* note 32, at 43 (describing “safety-first canons” adopted by agencies).

34. See SUNSTEIN, LAWS OF FEAR, *supra* note 28, at 1; Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61, 98–100 (2002).

35. See SUNSTEIN, LAWS OF FEAR, *supra* note 28, at 1, 27–28.

36. Graham, *Saving Lives*, *supra* note 17, at 528–29 (quoting Robert W. Hahn & Cass R. Sunstein, *A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis*, 150 U. PA. L. REV. 1489, 1531 (2002)); see also SUNSTEIN, LAWS OF FEAR, *supra* note 28, at 25–26.

37. McFadden, *supra* note 4.

38. *Id.*

39. *Id.* Due to a fortunate set of circumstances, no one died at the site. See NAT’L TRANSP. SAFETY BD., *supra* note 3, at v (noting that a woman living a mile away died from a heart attack). The incident occurred late at night, when residents were inside, and the sounds of the explosion provided a few minutes of warning. *Id.* at 64. A berm had also absorbed some of the impact. Associated Press, *Berm, Time Lag Saved Lives near Pipeline*, ROME NEWS-TRIB., Mar. 25, 1994, at 8-A.

40. See *Pipeline Incident 20 Year Trends*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://www.phmsa.dot.gov/data-and-statistics/pipeline/pipeline-incident-20-year-trends> [perma: <http://perma.cc/Z52E-R3QR>] (last visited Feb. 18, 2018).

41. *Id.* Pipeline operators are required to report certain pipeline accidents to the federal government; these reported accidents are termed “incidents.” 49 C.F.R. §§ 191.3, 195.50 (2017). Among the accidents that must be reported are those that result in death or personal injury necessitating in-patient hospitalization. *Id.* §§ 191.3(1)(i), 195.50(c)–(d).

42. At the time of the accident, the agency that regulated pipeline safety was named the Research and Special Programs Administration. In the interest of simplicity, throughout the Article, the Agency is referred to by its current name—the Pipeline and Hazardous Materials Safety

reduce risk further, the 104th Congress sought to protect the Agency from public irrationality.⁴³ The reforms revolutionized the statutory framework governing agency decisionmaking. They replaced an open decisionmaking process with a specified rationalist analysis of costs and benefits,⁴⁴ transformed the goal of regulation from “practicable” safety to economic efficiency,⁴⁵ and encouraged a shift from a prescriptive policy approach to flexible compliance options.⁴⁶ By creating an enforceable rationalist mandate, the 104th Congress ensured that regulation based on public fear would be checked not only by executive oversight but also by judicial review of the substance of agency decisions.⁴⁷

More than twenty years later, the pipeline safety program is a policy paradox. The regulatory system embodies much of the rationalist system advocated by academic proponents.⁴⁸ The proponents promised two benefits: more efficient regulation of risk⁴⁹ and better democratic governance.⁵⁰ By requiring PHMSA to analyze the risks and justify the costs of regulation, the reforms should have reduced the most significant risks to safety and the environment.⁵¹ But the rate of significant pipeline incidents has not declined in sensitive areas where pipeline accidents could cause the greatest harm, even as it has fallen overall.⁵² By specifying the criteria to be used in decisionmaking and requiring information on costs and benefits to be made public, the reforms should have minimized the influence of special interests and improved transparency.⁵³ However, PHMSA remains heavily dependent on the pipeline industry, even as it has sought to involve the public.⁵⁴

At the heart of the policy paradox are normative assumptions about administrative decisionmaking and risk. Rationalists believe that experts in

Administration (PHMSA).

43. H.R. REP. NO. 104-110, pt. 1, at 10 (1995); *id.* pt. 2, at 10.

44. *Compare* 49 U.S.C. § 60102(b) (1996), *with* Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104-304, § 4, 110 Stat. 3793, 3794 (codified as amended in scattered sections of 49 U.S.C.).

45. *Compare* § 60102(b), *with* Accountable Pipeline Safety and Partnership Act of 1996 § 4(b)(5).

46. *Compare* § 60102(a)(1), *with* Accountable Pipeline Safety and Partnership Act of 1996 § 5.

47. *See* 49 U.S.C. § 60119(a)(1) (2012) (providing judicial review of regulations for adversely affected persons).

48. *See* Harvard Grp. on Risk Mgmt. Reform, Special Report, *Reform of Risk Regulation: Achieving More Protection at Less Cost*, 1 HUM. & ECOLOGICAL RISK ASSESSMENT 183, 186-90 (1995); *see also* SUNSTEIN, COST-BENEFIT STATE, *supra* note 17, at 22 (“Agencies should be required . . . to show that benefits justify costs in most circumstances.”); Graham, *Saving Lives*, *supra* note 17, at 433-36 (supporting a test that the “regulator . . . show that the benefits of a proposal ‘justify’ the costs”).

49. Graham, *Saving Lives*, *supra* note 17, at 411-12.

50. SUNSTEIN, COST-BENEFIT STATE, *supra* note 17, at 9.

51. Graham, *Saving Lives*, *supra* note 17, at 400; Matthew D. Adler & Eric A. Posner, *Rethinking Cost-Benefit Analysis*, 109 YALE L.J. 165, 175 (1999).

52. *See infra* notes 513-17 and accompanying text for a discussion of the effectiveness of cost-benefit analysis.

53. SUNSTEIN, COST-BENEFIT STATE, *supra* note 17, at 9.

54. *See infra* Part IV.B.

agencies should make comprehensively rational policy decisions using the best information.⁵⁵ Given the right criteria and incentives, the policymakers will choose the best outcomes. But the rationalist reforms have undercut agency expertise.⁵⁶ They have made it more difficult for regulators to address the largest risks and devolved ever more decisionmaking authority over the acceptability of risk to the private sector.⁵⁷ Meanwhile, Congress has continued to set its own priorities for PHMSA and to legislate prescriptively, indicating that it does not trust the Agency to use its regulatory expertise.⁵⁸ In weighing the effect of regulatory reform on formulating policy, this Article contributes to the growing legal scholarship on the nature of administrative decisionmaking.⁵⁹ As in other interdisciplinary scholarship, the Article seeks to bridge the gap between policy and administrative law scholarship by drawing on policy analysis theory for the normative contours of administrative decisionmaking.⁶⁰

The Article proceeds in four Sections. Section I describes the pipeline systems in the United States and the risks that they pose to human health and the environment. It then recounts the history of federal regulation. Section II examines the regulatory reform bills in the 104th Congress and the resulting rationalist regulatory framework for pipelines. Section III discusses the rationalism debate in public policy and its reflection in risk policy. Finally, Section IV assesses the outcome, comparing the actual results to the theoretical predictions. The Article concludes by briefly considering an alternative approach. Rather than viewing severe pipeline incidents as drivers of irrational regulation, policymakers could harness public concern to focus on the lessons that can be learned from the incidents.

I. PIPELINES AND RISK REGULATION

Pipeline systems move natural gas and liquid petroleum across the United States through an intricate underground network of pipes and aboveground facilities.⁶¹ While most of the nation's pipeline infrastructure is concentrated

55. See Sunstein, *Misfearing*, *supra* note 28, at 1–2.

56. See *infra* Part IV.B.

57. See *infra* Part IV.B.

58. See *infra* Part IV.B for a discussion of PHMSA decisionmaking.

59. See, e.g., Edward L. Rubin, *Bureaucratic Oppression: Its Causes and Cures*, 90 WASH. U. L. REV. 291, 291 (2012) (describing “[o]ne of the most salutary developments in modern public law scholarship” as “the emergence of an administrative law literature focusing on governance rather than legality”).

60. See, e.g., Shapiro & Schroeder, *supra* note 18, at 433, 436 (employing a “pragmatic policy analysis” to test the worthiness of ideas). For an early discussion of public policy theory, see Colin S. Diver, *Policymaking Paradigms in Administrative Law*, 95 HARV. L. REV. 393, 396–400 (1981) (explaining the comprehensive rationality model and the incrementalism model).

61. PIPELINES & INFORMED PLANNING ALL., HAZARD MITIGATION PLANNING: PRACTICE FOR LAND USE PLANNING AND DEVELOPMENT NEAR PIPELINES 15 (2015) [hereinafter HAZARD MITIGATION PLANNING]. Pipeline systems regulated under the same federal program also transport liquefied carbon dioxide and other hazardous liquid products, such as anhydrous ammonia and ethanol. See 49 C.F.R. §§ 195.1(a), 195.2 (2017). But these comprise a very small part of the total pipeline mileage in the United States. *Annual Report Mileage for Hazardous Liquid or Carbon*

along the Gulf Coast and in the middle of the country, pipelines are found both onshore and offshore, in rural and in urban areas.⁶² The systems transport almost all natural gas and roughly two-thirds of oil and petroleum products through ninety percent of U.S. counties.⁶³ Given the ubiquity of pipelines, accidents are common. In 2016, for example, pipeline operators reported 637 accidents (or “incidents”) to PHMSA.⁶⁴ While a majority of these incidents result in no or negligible harm,⁶⁵ pipelines present a classic case of a low-probability, high-consequence risk: in the event of a severe incident, there can be catastrophic consequences.⁶⁶

A. *The Pipeline System and Its Risks*

Energy pipelines were first built as a means of transporting oil from production wells to refineries and ports.⁶⁷ Local distribution systems also carried natural gas from wells to consumers in nearby cities, but technological difficulties constrained transport over longer distances.⁶⁸ During World War II, the U.S. government built “war emergency” pipelines to transport oil throughout the country instead of in tanker vessels that could be attacked by enemy submarines.⁶⁹ These pipelines were eventually sold to companies that used them to transport natural gas.⁷⁰ Following the war, the pipeline industry built an interstate network that continues to serve as the basis for the current pipeline system.⁷¹

Today’s energy pipeline system is composed of three types of pipelines: gathering lines, transmission lines, and distribution lines.⁷² Gathering pipelines bring natural gas or crude oil from production wells to treatment or storage

Dioxide Systems, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://cms.phmsa.dot.gov/data-and-statistics/pipeline/annual-report-mileage-hazardous-liquid-or-carbon-dioxide-systems> [perma: <http://perma.cc/A7FK-4E7M>] (last visited Feb. 18, 2018).

62. HAZARD MITIGATION PLANNING, *supra* note 61, 14–15.

63. *Id.* at 1; U.S. DEP’T OF TRANSP., OFFICE OF PIPELINE SAFETY, BUILDING SAFE COMMUNITIES: PIPELINE RISK AND ITS APPLICATION TO LOCAL DEVELOPMENT DECISIONS 3–4 (2010).

64. *Pipeline Incident 20 Year Trends*, *supra* note 40 (follow “All Reported Incident 20 Year Trend” hyperlink).

65. *See id.* (follow “Significant Incident 20 Year Trend” hyperlink) (reporting 307 “significant” incidents in 2016 and defining “significant incidents” as those resulting in a fatality, serious injury, total costs of at least \$50,000 in 1984 dollars, a liquid spill of at least fifty barrels, a release of at least five barrels of highly volatile liquid, or a liquid release that resulted in an unintentional fire or explosion).

66. Kyle Siler-Evans et al., *Analysis of Pipeline Accidents in the United States from 1968 to 2009*, 7 INT’L J. CRITICAL INFRASTRUCTURE PROTECTION 257, 264 (2014).

67. DAVID HACK, CONG. RESEARCH SERV., 58-428 O, PIPELINE SAFETY—THE RISE OF THE FEDERAL ROLE 12–14 (1986).

68. *Id.* at 23.

69. *Id.* at 16, 23.

70. *Id.* at 29.

71. *Id.* at 16, 29.

72. HAZARD MITIGATION PLANNING, *supra* note 61, at 16.

facilities.⁷³ The lines are traditionally small—two to twelve inches in diameter—and operate at low pressure, although operators have recently built much larger, high-pressure gathering lines to transport the oil and gas produced in areas of shale development.⁷⁴ Transmission lines are the largest pipelines, typically twenty-four to thirty-six inches in diameter.⁷⁵ They transport natural gas, crude oil, refined petroleum products, hydrocarbon gas liquids, and other industrial feedstock petrochemicals over long distances and at high pressure.⁷⁶ Finally, distribution lines are small, low-pressure pipelines that carry natural gas to end users.⁷⁷ The larger distribution lines range in size from two to more than twenty-four inches in diameter,⁷⁸ while lines that service individual customers are usually a half an inch to two inches wide.⁷⁹

In natural gas systems, gathering lines transport raw natural gas from onshore and offshore production wells to processing and treatment plants.⁸⁰ Using compressor stations spaced along the lines to move the product, transmission lines transport the processed gas directly to customers, such as power plants and large industrial facilities, and to local utilities for their distribution.⁸¹ From the city gate station, distribution lines carry the gas through mains to the service lines of residential, commercial, and smaller industrial consumers.⁸² The vast majority of the nation's 2.9 million miles of pipelines are local natural gas distribution lines, which extend 2.2 million miles and service 67

73. *Id.*

74. U.S. GOV'T ACCOUNTABILITY OFF., GAO-14-667, OIL AND GAS TRANSPORTATION: DEPARTMENT OF TRANSPORTATION IS TAKING ACTIONS TO ADDRESS RAIL SAFETY, BUT ADDITIONAL ACTIONS ARE NEEDED TO IMPROVE PIPELINE SAFETY 24 (2014).

75. HAZARD MITIGATION PLANNING, *supra* note 61, at 16–17.

76. *Id.* at 16; *Petroleum Pipeline Systems*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/PetroleumPipelineSystems.htm> [perma: <http://perma.cc/6Y9L-PEDE>] (last visited Feb. 18, 2018) (stating “Pipeline Safety Connects Us All”); *Hydrocarbon Gas Liquids Explained: Basics*, ENERGY INFO. ADMIN., http://www.eia.gov/energyexplained/index.cfm?page=hgls_home [perma: <http://perma.cc/TUL6-JNZD>] (last visited Feb. 18, 2018); *Hydrocarbon Gas Liquids Explained: Transporting and Storing Hydrocarbon Gas Liquids*, ENERGY INFO. ADMIN., http://www.eia.gov/energyexplained/index.cfm?page=hgls_transporting_storing [perma: <http://perma.cc/3JSP-LMGC>] (last visited Feb. 18, 2018).

77. *Id.*

78. *How Does the Natural Gas Delivery System Work?*, AM. GAS ASS'N, <http://www.aga.org/how-does-natural-gas-delivery-system-work> [perma: <http://perma.cc/8R2T-P6M4>] (last visited Feb. 18, 2018).

79. *Natural Gas Pipeline Systems*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/NaturalGasPipelineSystems.htm> [perma: <http://perma.cc/55LZ-8ZKV>] (last visited Feb. 18, 2018).

80. *Id.* (follow “Natural gas from oil wells on land” pictorial hyperlink).

81. *Id.* (follow “Compressor station” pictorial hyperlink).

82. *Id.* (follow “City Gate” pictorial hyperlink). A city gate is “[t]he point at which the local distribution system connects to the natural gas transmission pipeline,” where “the gas pressure is lowered and a sour-smelling odorant is added to the gas.” *Fact Sheet: Distribution Pipelines*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSDistributionPipelines.htm> [perma: <http://perma.cc/YCR6-RH2N>] (last visited Feb. 18, 2018).

million customers.⁸³ Other parts of the natural gas system include an estimated 240,000 miles of field and gathering lines and 300,000 miles of transmission lines, most of which were built in the 1950s and 1960s.⁸⁴

Liquid petroleum systems, in contrast, are composed of only gathering lines and transmission lines.⁸⁵ Crude oil flows from production wells through gathering lines to storage and treatment tanks, before being transported through transmission or “trunk” lines to refineries and chemical plants.⁸⁶ Refined products, such as gasoline and kerosene, are transported in batches through other transmission lines to storage facilities and distribution terminals.⁸⁷ Liquefied gases, such as butane and propane, are also transported by pipelines from refineries and natural gas processing plants.⁸⁸ Pumps move the liquids through the lines.⁸⁹ Some of the products are then transferred to trucks for delivery.⁹⁰ These liquid pipeline systems are less extensive than natural gas systems.⁹¹ There are an estimated 30,000 to 40,000 miles of crude oil gathering lines, 76,000 miles of crude oil transmission lines, and 130,000 miles of petroleum product transmission lines.⁹²

The probability of a pipeline accident is dependent on several factors. These include factors internal to the industry, such as the materials and construction used at the time of installation, the commodity being transported, and the decisions made by operators; and external factors, such as the environment, land use patterns, and natural forces. Manufacturing defects such as impurities in steel or improper welding during construction can cause a pipeline to fail.⁹³ A breakdown in a pipeline component can cause a leak in that piece of equipment or lead to a failure in other parts of the system.⁹⁴ Exposure to the external environment and to the substances transported inside the pipeline can corrode

83. PAUL W. PARFOMAK, CONG. RESEARCH SERV., R44201, DOT’S FEDERAL PIPELINE SAFETY PROGRAM: BACKGROUND AND KEY ISSUES FOR CONGRESS 1–2 (2016).

84. *Id.* at 1.

85. *Petroleum Pipeline Systems*, *supra* note 76.

86. *Id.*; *Definition of Hazardous Liquid Trunkline*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/glossary/index.htm?nocache=8845#HazardousLiquidTrunkline> [perma: <http://perma.cc/3PLJ-Y6A3>] (last visited Feb. 18, 2018).

87. *Petroleum Pipeline Systems*, *supra* note 76; HAZARD MITIGATION PLANNING, *supra* note 61, at 18.

88. *Hydrocarbon Gas Liquids Explained: Transporting and Storing Hydrocarbon Gas Liquids*, *supra* note 76.

89. HAZARD MITIGATION PLANNING, *supra* note 61, at 17.

90. *Petroleum Pipeline Systems*, *supra* note 76.

91. *See Annual Report Mileage for Hazardous Liquid or Carbon Dioxide Systems*, *supra* note 61.

92. *Id.*

93. *Fact Sheet: Material/Weld Failures*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSMaterialWeldFailure.htm> [perma: <http://perma.cc/8BDZ-7S5Q>] (last visited Feb. 18, 2018).

94. *Fact Sheet: Equipment Failure*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSEquipmentFailure.htm> [perma: <http://perma.cc/RJ8K-6H6N>] (last visited Feb. 18, 2018).

the wall of the steel pipe over time.⁹⁵ Pipeline operators can make mistakes, such as overpressurizing equipment.⁹⁶ Third parties or pipeline contractors can accidentally strike a pipeline while excavating.⁹⁷ Severe weather and natural disasters such as hurricanes and earthquakes can damage a pipeline,⁹⁸ as can other rare events such as car accidents or vandalism.⁹⁹ These threats can also act in combination. A pipeline that is corroded will be more likely to rupture if an excavator strikes the line.¹⁰⁰

Pipeline incidents can result in fatalities, injuries, property damage, or environmental destruction.¹⁰¹ Of the incidents that occurred in 2016, roughly half were considered to be significant by PHMSA because they caused public safety or environmental impacts.¹⁰² The consequences of any incident will vary significantly by the product being transported.¹⁰³ Natural gas is very flammable, as are liquefied petroleum gas products (such as propane) that have a high vapor pressure.¹⁰⁴ Ruptures in pipelines carrying these substances will cause explosions and fires if the gas is ignited.¹⁰⁵ Unlike natural gas, which will disperse rapidly upon release, denser refined-product gases can drift away from the rupture before reaching an ignition source.¹⁰⁶ Crude oil and petroleum products that remain in liquid form can flow across land and into waterways, causing environmental damage and contaminating water supplies.¹⁰⁷ Volatile liquids such as gasoline evaporate more quickly and are flammable, while heavier liquids will

95. *Fact Sheet: Corrosion*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSCorrosion.htm> [perma: <http://perma.cc/F8W7-QEJJ>] (last visited Feb. 18, 2018).

96. *Fact Sheet: Incorrect Operation*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSIncorrectOperation.htm> [perma: <http://perma.cc/K5ZB-8KKD>] (last visited Feb. 18, 2018).

97. *Fact Sheet: Excavation Damage*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSExcavationDamage.htm> [perma: <http://perma.cc/5XGJ-YJZE>] (last visited Feb. 18, 2018).

98. *Fact Sheet: Natural Force Damage*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSNaturalForce.htm> [perma: <http://perma.cc/9XMB-3NXV>] (last visited Feb. 18, 2018).

99. *Fact Sheet: Other Outside Force*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/FactSheets/FSOtherOutsideForce.htm> [perma: <http://perma.cc/G2D4-B3L7>] (last visited Feb. 18, 2018).

100. *Fact Sheet: Corrosion*, *supra* note 95.

101. See *Pipeline Incident 20 Year Trends*, *supra* note 40 (follow “Significant Incidents” hyperlink).

102. *Id.* (follow “Significant Incident 20 Year Trend” hyperlink) (defining “significant incidents” as those resulting in a fatality, serious injury, total costs of at least \$50,000 in 1984 dollars, a liquid spill of at least fifty barrels, a release of at least five barrels of highly volatile liquid, or a liquid release that resulted in an unintentional fire or explosion).

103. OFFICE OF PIPELINE SAFETY, *supra* note 63, at 7.

104. *Id.*

105. *Id.*

106. *Id.*; HAZARD MITIGATION PLANNING, *supra* note 61, at 31–32.

107. OFFICE OF PIPELINE SAFETY, *supra* note 63, at 7; HAZARD MITIGATION PLANNING, *supra* note 61, at 30.

persist in the environment and have long-term impacts.¹⁰⁸ Human health effects can range from asphyxiation to respiratory problems and skin irritation.¹⁰⁹ The long-term effects are unclear.¹¹⁰

When there is a pipeline incident, catastrophic consequences occur more often than would be predicted by a normal distribution of events.¹¹¹ In particular, incidents involving hazardous liquid pipelines are more likely to result in serious injuries and large spills, incidents involving gas transmission pipelines are more likely to result in fatalities, and incidents involving gas distribution pipelines are more likely to result in serious injuries and fatalities.¹¹² Moreover, the majority of the property damage is concentrated in relatively few incidents.¹¹³ In 2015, for example, a single pipeline spill off the coast of Santa Barbara, California, resulted in 46% of the total property damage caused by pipelines during that year.¹¹⁴ In contrast, fatalities and injuries are spread over incidents.¹¹⁵ In 2015, six of the ten total deaths occurred in single-fatality incidents.¹¹⁶

B. *The Beginnings of Regulation*

Early regulation of energy pipelines primarily focused on the dangers of unfair pricing and inadequate service, not on the effects on public health and safety.¹¹⁷ By its nature, pipeline transportation tends toward a natural monopoly: the infrastructure is expensive to build and maintain, creating a barrier to entry for potential competitors.¹¹⁸ Early on, municipalities controlled the monopolistic power of local natural gas distribution companies through franchise agreements

108. See OFFICE OF PIPELINE SAFETY, *supra* note 63, at 7.

109. See, e.g., U.S. DEP'T OF HEALTH & HUMAN SERVS., AGENCY FOR TOXIC SUBSTANCES & DISEASE REGISTRY, PUBLIC HEALTH STATEMENT: TOTAL PETROLEUM HYDROCARBONS 3 (1999) [hereinafter PUBLIC HEALTH STATEMENT] (explaining the short-term health effects of exposure to total petroleum hydrocarbons, a family of chemicals commonly found in petroleum products); INST. OF MED., ASSESSING THE EFFECTS OF THE GULF OF MEXICO OIL SPILL ON HUMAN HEALTH: A SUMMARY OF THE JUNE 2010 WORKSHOP 45–57 (2010) (discussing short-term health effects of the Deepwater Horizon disaster on residents and clean-up volunteers).

110. See, e.g., PUBLIC HEALTH STATEMENT, *supra* note 109, at 3 (explaining how lack of data prevents the scientific community from classifying many total petroleum hydrocarbons as carcinogenic); INST. OF MED., *supra* note 109, at 45–57 (explaining, inter alia, how “very few” of the chemical structures in crude oil have been tested individually for “toxic potential”).

111. Siler-Evans et al., *supra* note 66, at 264.

112. *Id.*

113. *Id.* at 265.

114. *Pipeline Incident 20 Year Trends*, *supra* note 40 (follow “Significant Incident 20 Year Trend” hyperlink; then follow “329” hyperlink for 2015 incidents; then follow “32” hyperlink for incidents caused by external corrosion) (showing total costs of \$142.9 million for Santa Barbara incident).

115. Siler-Evans et al., *supra* note 66, at 265.

116. See *Pipeline Incident 20 Year Trends*, *supra* note 40 (follow “Serious Incident 20 Year Trend” hyperlink; then follow “28” hyperlink for 2015 incidents).

117. HACK, *supra* note 67, at 103–04.

118. Herbert Hovenkamp, *Technology, Politics, and Regulated Monopoly: An American Historical Perspective*, 62 TEX. L. REV. 1263, 1273 (1984) (describing characteristics of natural monopolies).

that set rates and minimum service requirements, and then exercised control through direct regulation.¹¹⁹ The states took over in the early 1900s, giving state public utility commissions the general authority to regulate the service provided by distribution companies.¹²⁰ Meanwhile, federal economic regulation of interstate oil transmission pipelines began under the Hepburn Act of 1906,¹²¹ and regulation of natural gas transmission pipelines followed under the Natural Gas Act of 1938.¹²² Disputes involving rates and state-federal jurisdiction dominated the field.¹²³

Initially, the federal government did not take much interest in pipeline safety.¹²⁴ Under the federal Transportation of Explosives Act of 1921, the Interstate Commerce Commission (ICC) could regulate the safety of interstate oil and refined products transmission pipelines as carriers of “explosives and other dangerous articles.”¹²⁵ But the ICC never exercised its authority, leaving the pipelines in practical effect unregulated.¹²⁶ In 1960, Congress removed the pipelines from the Act altogether.¹²⁷ While the Natural Gas Act arguably gave the Federal Power Commission (FPC) authority to impose safety conditions on the route and construction of new interstate natural gas pipelines,¹²⁸ it is not clear that the FPC imposed such conditions until Congress became interested in pipeline safety in the mid-1960s.¹²⁹

Nor did the states generally regulate the safety of pipelines within their borders. Even when public utility commissions had regulatory oversight of

119. Werner Troesken, *Regime Change and Corruption: A History of Public Utility Regulation*, in *CORRUPTION AND REFORM: LESSONS FROM AMERICA'S ECONOMIC HISTORY* 259, 260–62 (Edward L. Glaeser & Claudia Goldin eds., 2006).

120. *Id.* at 262.

121. Hepburn Act, Pub. L. No. 59–337, 34 Stat. 584 (1906) (codified as amended in scattered sections of 49 U.S.C.).

122. Natural Gas Act of 1938, Pub. L. No. 75–688, 52 Stat. 821 (codified as amended at 15 U.S.C. § 717).

123. *Congress Approves Gas Pipeline Safety Measure*, CQ ALMANAC, <http://library.cqpress.com/cqalmanac/cqal68-1283882> [perma: <http://perma.cc/4QEF-KN2N>] (last visited Feb. 18, 2018).

124. HACK, *supra* note 67, at 68, 103–04.

125. Transportation of Explosives Act of 1921, Pub. L. No. 66–400, 41 Stat. 1444.

126. See *Transportation of Hazardous Materials by Pipeline*, 33 Fed. Reg. 10,213, 10,214 (proposed July 17, 1968) (to be codified at 49 C.F.R. pt. 180).

127. *Id.*; see also Act of Sept. 6, 1960, Pub. L. No. 86–710, 74 Stat. 808 (codified as amended in scattered sections of 49 U.S.C.).

128. HACK, *supra* note 67, at 104; *Natural Gas Pipeline Safety Regulations: Hearing on S. 1166 Before the S. Comm. on Commerce*, 90th Cong. 34–35 (1967) [hereinafter *Senate Hearing on Natural Gas Pipeline Safety Regulations*] (statement of Lee C. White, Chairman, Federal Power Commission).

129. HACK, *supra* note 67, at 104 (stating that the FPC's use of safety conditions is unclear until after 1968); *Senate Hearing on Natural Gas Pipeline Safety Regulations*, *supra* note 128, at 35 (statement of Lee C. White, Chairman, Federal Power Commission) (listing orders that the FPC issued in 1966 with specific safety conditions); General Certificate Condition Respecting Safe Operating Pressures, 31 Fed. Reg. 9,347, 9,347 (July 8, 1966) (requiring, for the first time, applicants for a certificate to establish a maximum operating pressure and prohibiting operation of the certificated pipeline above the maximum pressure).

pipeline operators as public utilities, the states deferred to the industry's private governance.¹³⁰ Under the auspices of a standard-setting organization, the industry developed its first tentative code for pressure piping in 1935, which it finalized in 1942.¹³¹ The code was primarily designed to standardize parts, not for safety.¹³² In the years following 1942, the industry revised the code to broaden its scope beyond industrial applications and power plants,¹³³ and it eventually established separate codes for natural gas and hazardous liquid pipelines.¹³⁴ The standards primarily focused on the engineering of new pipelines: the design of the pipe, the materials used, the construction techniques, and the installation of the pipeline in the ground.¹³⁵ Many of the standards in the natural gas pipeline code were based on risk.¹³⁶ The more populated the area, the more protective the standards.¹³⁷

When the states finally began to regulate the safety of natural gas pipelines, they largely adopted the standards established by the industry.¹³⁸ In 1952, after a series of natural gas distribution lines in a suburb of Rochester burst and killed three residents, New York became the first state to adopt comprehensive regulations.¹³⁹ These regulations required operators of natural gas transmission and distribution pipelines to comply with the standards in the 1951 version of the industry code, adding only a few more stringent measures.¹⁴⁰ By 1965, twenty-six states regulated the safety of at least part of the natural gas pipeline network within their borders.¹⁴¹ Some regulated privately owned distribution lines, but not municipally owned lines; others regulated intrastate transmission lines, but not interstate lines.¹⁴² There was one constant: twenty-five of the states based

130. HACK, *supra* note 67, at 104. There were some exceptions. In 1937, Texas required local natural gas distribution companies to add "odorants" to natural gas to help the public detect leaks. H.B. 1017, 45th Leg., Gen. Sess. § 1 (Tex. 1937) (codified at TEX. REV. CIV. STAT. ANN. art. 6053a, § 2 (1938)); Tex. R.R. Comm'n, Gas Utilities Docket 122 (1937). This mandate followed a natural gas explosion in a school caused by an undetected pipeline leak, which killed almost three hundred teachers and students. See Irvin M. May, *New London School Explosion*, TEX. STATE HISTORICAL ASS'N (June 15, 2010), <http://www.tshaonline.org/handbook/online/articles/yqn01> [perma: <http://perma.cc/WR5A-SQP4>].

131. See HACK, *supra* note 67, at 57; JOHN F. KIEFNER & CHERYL J. TRENCH, OIL PIPELINE CHARACTERISTICS AND RISK FACTORS 21, 45–47 (2001) (describing history of standards).

132. HACK, *supra* note 67, at 56.

133. *Id.* at 56–58.

134. KIEFNER & TRENCH, *supra* note 131, at 21.

135. See *Senate Hearing on Natural Gas Pipeline Safety Regulations*, *supra* note 128, at 32 (statement of Lee C. White, Chairman, Federal Power Commission) (describing natural gas standard).

136. See FED. POWER COMM'N, 89TH CONG., SAFETY OF INTERSTATE NATURAL GAS PIPELINES 6–7, 9 (Comm. Print 1966) [hereinafter SAFETY OF INTERSTATE NATURAL GAS PIPELINES].

137. *Id.* at 6.

138. *Id.* at 9.

139. See HACK, *supra* note 67, at 58; SAFETY OF INTERSTATE NATURAL GAS PIPELINES, *supra* note 136, at 124 tbl.2, 126 tbl.3.

140. See SAFETY OF INTERSTATE NATURAL GAS PIPELINES, *supra* note 136, at 9.

141. *Id.* at 9–10.

142. *Id.* at 9. Many of the states later adopted legislation when faced with the possibility of federal regulation. *Natural Gas Pipeline Safety: Hearings on H.R. 6551 & S. 1166 Before the House*

their safety standards on the industry code.¹⁴³

A dramatic shift in regulation occurred in 1965, one that would end in a new federal framework for pipeline safety. It began with a request by the oil pipeline industry.¹⁴⁴ In the five years since Congress had removed interstate hazardous liquid pipelines from the Transportation of Explosives Act, some state and local governments had taken steps to regulate the safety of these pipelines.¹⁴⁵ In Pennsylvania, a group of landowners opposed to a new interstate gasoline pipeline had successfully lobbied the state to impose some safety requirements because of concerns about the stringency of the industry code.¹⁴⁶ Faced with the potential for new safety requirements and conflicts among different jurisdictions, industry representatives told Congress that pipeline companies preferred federal regulation.¹⁴⁷ Indeed, the industry contended that it had never sought to be removed from federal oversight.¹⁴⁸ Congress agreed with the request, and reinstated the ICC's authority with the understanding that the ICC would finally adopt safety regulations.¹⁴⁹

The same year, a natural gas pipeline exploded in Natchitoches, Louisiana, setting fire to a thirteen-acre area and killing seventeen people.¹⁵⁰ The incident prompted Senator Warren Magnuson, a Democrat from Washington and Chair of the Commerce Committee, to introduce an expansive bill granting the new Department of Transportation (DOT) authority to regulate all types of natural gas pipelines.¹⁵¹ The Johnson Administration and consumer advocate Ralph Nader supported the bill, arguing that there was a strong federal interest in the safety of natural gas pipelines.¹⁵² The Administration contended that the

Subcomm. on Comm'n & Power of the Comm. on Interstate & Foreign Commerce, 90th Cong. 131-32 (1967-1968) [hereinafter *Combined Hearings on Pipeline Safety*] (statement of J. David Francis, Chairman, Committee on Gas, National Association of Regulatory Utility Commissioners).

143. SAFETY OF INTERSTATE NATURAL GAS PIPELINES, *supra* note 136, at 9.

144. See *Transportation of Hazardous Materials by Pipeline*, 33 Fed. Reg. 10,213, 10,214 (proposed July 17, 1968) (codified at 49 C.F.R. pt. 180).

145. *Id.*; *Safety Regulation by ICC of Interstate Pipelines: Hearing on S. 1021 Before the S. Comm. on Commerce*, 89th Cong. 11 (1965) [hereinafter *Hearing on Safety Regulation by ICC of Interstate Pipelines*] (statement of Arthur Helmbrecht, Executive Vice President, Buckeye Pipe Line Co.).

146. See *id.* at 34-35 (statement of Southeastern Pennsylvania Landowners Association).

147. *Id.* at 10-11 (statement of J.D. Durand, General Counsel, Association of Oil Pipe Lines).

148. *Id.* at 10.

149. *Transportation of Hazardous Materials by Pipeline*, 33 Fed. Reg. at 10,214; see Act of July 27, 1965, Pub. L. 89-95, 79 Stat. 285.

150. FED. POWER COMM'N, BUREAU OF NAT. GAS, CP65-267, FINAL STAFF REPORT ON INVESTIGATION OF TENNESSEE GAS TRANSMISSION COMPANY PIPELINE NO. 100-1 FAILURE NEAR NATCHITOCHEs, LOUISIANA MARCH 4, 1965, at 1, 3 (1965).

151. 113 CONG. REC. 32,040-65 (1967) (introducing S. 1166, 90th Cong. (1967)). Senator Magnuson also introduced a bill right after the explosion to give the FPC authority to regulate the safety of natural gas pipelines under the Natural Gas Act, but that bill was never voted out of committee. See 111 CONG. REC. 5,236 (1965).

152. See *Senate Hearing on Natural Gas Pipeline Safety Regulations*, *supra* note 128, at 3 (statement of Alan S. Boyd, Secretary, Department of Transportation); *id.* at 193 (statement of Ralph Nader).

network had grown dramatically since the war to include 800,000 miles of pipeline, and that all other forms of transportation were already federally regulated.¹⁵³ But the natural gas industry, unlike the hazardous liquids pipeline industry, vociferously objected to any federal oversight.¹⁵⁴ The states also opposed the bill, contending that the safety of natural gas pipelines was squarely within their traditional authority.¹⁵⁵

The legislative hearings raised two issues that presaged the debate twenty years later in the 104th Congress. The first was whether federal regulation was justified given the risk.¹⁵⁶ Interstate natural gas transmission pipelines had caused 64 fatalities and 222 injuries between 1950 and 1965, an annual rate of 4.3 deaths and 14.8 injuries.¹⁵⁷ Distribution pipelines had caused 46 deaths per year over a similar time period.¹⁵⁸ The natural gas pipeline industry contended that such figures represented an excellent safety record when compared to other forms of transportation, and that it should not be judged by incidents such as Natchitoches.¹⁵⁹ Federal regulation, the industry argued, would lead to costly requirements that would result in only a small reduction in risk.¹⁶⁰ The states agreed.¹⁶¹ The Administration testified, however, that regulation was about the future, and that a combination of aging pipelines, population growth, and sprawling development would increase both the probability and consequences of an incident.¹⁶²

The second issue was whether the pipeline industry should regulate itself through private standards. The industry contended that it was in the best position to regulate risk.¹⁶³ The standards, developed by experts, set minimum requirements but also gave operators discretion to make decisions adapted to the

153. *Id.* at 4 (statement of Boyd).

154. *See, e.g., id.* at 53–54, 80 (statement of H. Donald Borger, Chairman of the Board and Chief Executive, Consolidated Natural Gas System) (declaring that “the oil industry was sound asleep when they asked for an amendment to a criminal code”).

155. *Id.* at 161–62 (statement of J. David Francis, Chairman, Commission on Gas, National Association of Regulatory Utility Commissioners).

156. *See id.* at 1 (opening the hearings on the bill by quoting President Johnson, who stated both that “[t]he natural gas industry is among the most safety conscious in the Nation” and also that “[i]f we act now . . . in the public interest . . . we can reduce significantly the possibility of tragedy later on” (omissions in original)); *Combined Hearings on Pipeline Safety, supra* note 142, at 15 (statement of Boyd) (noting that “[f]ew industries have devoted the time and attention to safety procedures as has this one . . . [y]et pipeline transportation of the commodity in which this industry deals is inherently dangerous”).

157. SAFETY OF INTERSTATE NATURAL GAS PIPELINES, *supra* note 136, at 11.

158. *Senate Hearing on Natural Gas Pipeline Safety Regulations, supra* note 128, at 50 (statement of H. Donald Borger).

159. *Combined Hearings on Pipeline Safety, supra* note 142, at 160 (statement of W.A. Strauss, Past President, Independent Natural Gas Association); *id.* at 225 (statement of Robert A. Hornby, Chairman, Special Committee of Executives on Regulatory Affairs, American Gas Association).

160. *See id.* at 165–66 (statement of Strauss); *id.* at 231 (statement of Hornby).

161. *Id.* at 133–35 (statement of Francis).

162. *Id.* at 15 (statement of Boyd).

163. *Id.* at 164 (statement of Strauss); *id.* at 225–26 (statement of Hornby).

circumstances.¹⁶⁴ Moreover, the industry had significant private incentives to ensure safety.¹⁶⁵ Incidents imposed high costs.¹⁶⁶ And if the public believed that natural gas was not safe, it would select a different source of energy, thus impacting the industry's bottom line.¹⁶⁷ But the Administration testified that private standards developed by the industry were not sufficient.¹⁶⁸ Because the standards were adopted through consensus, they were often couched in permissive, discretionary language, and a segment of the industry could obstruct any given safety improvement.¹⁶⁹

C. *The Federal Framework*

After a bitter debate in the House,¹⁷⁰ Congress passed the Natural Gas Pipeline Safety Act (NGPSA) in 1968.¹⁷¹ The NGPSA gave the Secretary of Transportation authority to establish safety standards for natural gas pipelines and associated facilities.¹⁷² Under the Act, standards governing design, installation, construction, and initial inspection and testing could only be applied to new pipelines.¹⁷³ Each safety standard was required to meet two substantive criteria; it must be both "practicable" and "designed to meet the need for pipeline safety."¹⁷⁴ The NGPSA directed the Secretary of Transportation to consider "relevant available" data on pipeline safety, the appropriateness of the standard for the type of pipeline transportation, the reasonableness of the standard, and the contribution to public safety.¹⁷⁵ A technical pipeline safety standards committee was charged with reviewing proposed standards and "prepar[ing] a report on the technical feasibility, reasonableness, and practicability of each such proposal."¹⁷⁶ PHMSA could reject the conclusions of the committee, but only if it published its reasons.¹⁷⁷

The NGPSA created a regulatory framework based on a cooperative

164. *Id.* at 163–64 (statement of Strauss); *id.* at 226 (statement of Hornby).

165. *Id.* at 162–63 (statement of Strauss); *id.* at 222 (statement of Hornby).

166. *Id.*

167. *Id.* at 222 (statement of Hornby).

168. *Id.* at 15–17, 19 (statement of Boyd); *id.* at 51–52 (statement of Lee C. White, Chairman, Federal Power Commission).

169. *Id.* at 52; *see also Senate Hearing on Natural Gas Pipeline Safety Regulations, supra* note 128, at 193 (statement of Ralph Nader) (stating more colorfully that "the crux of the challenge [is] . . . whether an industry controlled standards institution will set the standards for the Federal Government under color of public law or whether the Federal Government will be provided by Congress with authority that considers openly all interests in the society, presents open reasons for its decisions, and refuses to permit preferential or unilateral domination by any one interest group").

170. *See* 114 CONG. REC. 19,714–46 (1968).

171. Natural Gas Pipeline Safety Act of 1968, Pub. L. No. 90–481, 82 Stat. 720 (codified as amended in scattered sections of 49 U.S.C.).

172. *Id.* §§ 2(3), 3(b).

173. *Id.* § 3(b).

174. *Id.*

175. *Id.*

176. *Id.* § 4(a)–(b).

177. *Id.* § 4(b).

federalist model, in which the federal government set minimum standards and the states could choose to impose more stringent standards on pipelines under their jurisdictions.¹⁷⁸ The statute gave states the authority to regulate intrastate transmission and distribution pipelines if they submitted a certification to PHMSA demonstrating that they had adopted the federal safety standards and were able to enforce these standards.¹⁷⁹ PHMSA, however, retained exclusive authority to regulate the safety of interstate transmission lines.¹⁸⁰ The NGPSA focused on safety—the specific routes of interstate pipelines remained the province of the FPC, while the routes of intrastate pipelines remained with the states.¹⁸¹

In many respects, the NGPSA fit the mold of federal transportation safety laws of the era. These laws granted the DOT broad authority to regulate the safety of different transportation modes, such as roadways¹⁸² and rail operations,¹⁸³ and the transit of hazardous materials.¹⁸⁴ The standard-setting provisions in the NGPSA were modeled on the National Traffic and Motor Vehicle Safety Act of 1966.¹⁸⁵ This Act, passed two years earlier, gave the DOT authority to establish safety standards for new motor vehicles.¹⁸⁶ Both acts required the safety standards to be “practicable,” and designed to “meet the need for . . . safety.”¹⁸⁷ And both acts directed the Agency to consider certain factors such as the appropriateness and reasonableness of the standards.¹⁸⁸

But the NGPSA also contained critical differences that circumscribed PHMSA’s authority to regulate pipeline safety. While other safety laws created advisory committees and even required the Agency to consult with the committees in setting standards, the committee was ultimately limited to giving advice.¹⁸⁹ The technical advisory committee created by the NGPSA, in contrast, was designed to act as a review board that could hold PHMSA publicly

178. *Id.* §§ 3(b), 5.

179. *Id.* § 5(a).

180. *Id.* § 3(b).

181. *See id.* § 2(4) (prohibiting PHMSA from approving the siting of pipelines).

182. National Traffic and Motor Vehicle Safety Act of 1966, Pub. L. No. 89–563, 80 Stat. 718 (codified as amended in scattered sections of U.S.C.); Highway Safety Act of 1966, Pub. L. No. 89–564, 80 Stat. 731 (codified as amended in scattered sections of 23 U.S.C.).

183. Federal Railroad Safety Act of 1970, Pub. L. No. 91–458, 84 Stat. 971 (codified as amended in scattered sections of 45 U.S.C.).

184. Hazardous Materials Transportation Act of 1975, Pub. L. No. 93–633, 88 Stat. 2156 (codified as amended in scattered sections of 49 U.S.C.).

185. Natural Gas Pipeline Safety Act of 1968 § 3(b); National Traffic and Motor Vehicle Safety Act of 1966 § 103(a), (f).

186. *See* National Traffic and Motor Vehicle Safety Act of 1966 § 103(a), (f).

187. *Compare id.* § 103(a), *with* Natural Gas Pipeline Safety Act of 1968 § 3(b). The National Traffic and Motor Safety Act of 1966 also required the standard to “be stated in objective terms.” National Traffic and Motor Safety Act of 1966 § 101(a).

188. *Compare* National Traffic and Motor Vehicle Safety Act of 1966 § 103(f), *with* Natural Gas Pipeline Safety Act of 1968 § 3(b).

189. *See, e.g.*, National Traffic and Motor Vehicle Safety Act of 1966 § 104(a)–(b).

accountable for its decisions.¹⁹⁰ In addition, most other transportation safety laws gave the federal government the primary authority to regulate,¹⁹¹ and limited the states to enforcing more stringent provisions¹⁹² and localized regulation.¹⁹³ Under the NGPSA, the states could regulate intrastate pipelines once they submitted a certification to PHMSA; PHMSA could only assert federal jurisdiction if it determined that the state was not satisfactorily enforcing compliance with federal standards, after giving notice and an opportunity for a hearing.¹⁹⁴

In 1979, Congress completed the pipeline safety framework by placing hazardous liquid pipelines under the same program.¹⁹⁵ The Hazardous Liquid Pipeline Safety Act (HLPSA) was identical in form and structure to the NGPSA.¹⁹⁶ The Act used the same substantive decisionmaking criteria and factors.¹⁹⁷ As with the NGPSA, the oil industry and states opposed comprehensive federal regulation.¹⁹⁸ One of the most controversial aspects of the legislation was the role of the technical committee in rulemaking. Concerned about the outsize influence of industry on the existing natural gas committee, PHMSA requested that committees be removed from the regulatory process.¹⁹⁹

190. Natural Gas Pipeline Safety Act of 1968 § 4 (requiring Secretary of Transportation to submit all proposed standards and amendments to the committee, authorizing the committee to prepare a report on the proposals that would be incorporated into the administrative record, and requiring the Secretary of Transportation to publish the reasons for rejecting the conclusions of the committee); see also *Combined Hearings on Pipeline Safety*, *supra* note 142, at 18 (statement of Alan S. Boyd, Secretary, Department of Transportation) (calling the requirement to publish reasons for rejection of a committee recommendation “an unreasonable administrative burden” and stating that no other safety act administered by the DOT treated advisory committees in this manner).

191. See, e.g., Federal Railroad Safety Act of 1970, Pub. L. No. 91-458, §§ 205-06, 84 Stat. 971, 972-73; National Traffic and Motor Vehicle Safety Act of 1966 § 103(d).

192. See, e.g., Hazardous Materials Transportation Act of 1975, Pub. L. No. 93-633, § 112, 88 Stat. 2156, 2161 (codified in 49 U.S.C. § 1810); National Traffic and Motor Vehicle Safety Act of 1966 § 103(d) (authorizing states to adopt more stringent standards for motor vehicles they procure for their own use).

193. See, e.g., Federal Railroad Safety Act of 1970 §§ 205-06.

194. Natural Gas Pipeline Safety Act of 1968 § 5(a). Even the Highway Safety Act of 1966, which authorized state programs, gave the federal government the initial authority to approve the programs. Highway Safety Act of 1966, Pub. L. No. 89-564, § 402, 80 Stat. 731, 731 (codified as amended in scattered sections of 23 U.S.C.).

195. Hazardous Liquid Pipeline Safety Act of 1979, Pub. L. No. 96-129, §§ 201-11, 93 Stat. 989, 1003-16 (codified as amended in scattered sections of 49 U.S.C.). Title II is the Hazardous Liquid Pipeline Safety Act of 1979.

196. *Id.*

197. See *id.* § 203(a)-(c).

198. *Pipeline Safety Act of 1979: Hearing on H.R. 2207 and H.R. 51 Before the Subcomm. on Surface Transp. of the H. Comm. on Pub. Works & Transp.*, 96th Cong. 239-40 (1979) (statement of Paul Rodgers, Administrative Director and General Counsel, National Association of Regulatory Utility Commissioners) (opposing federal regulation of intrastate liquid lines); *id.* at 272 (statement of the American Petroleum Institute and the Association of Oil Pipe Lines) (opposing federal regulatory framework as duplicative of current authority).

199. *Pipeline Safety Act of 1979: Hearing on S. 411 Before the S. Comm. on Commerce, Sci. & Transp.*, 96th Cong. 46 (1979) (statement of Brock Adams, Secretary, Department of Transportation)

The states and industry argued that the committees provided needed technical expertise.²⁰⁰ The final bill retained the natural gas committee and created an identical committee for hazardous liquid pipelines.²⁰¹ Congress further cemented the influence of the committees by requiring them to meet at least once every six months.²⁰²

II. RATIONALISM AND THE 104TH CONGRESS

Just as Congress completed the pipeline safety framework, a backlash against broad environmental, health, and safety regulation gained momentum.²⁰³ Scholars and commentators from across the political and ideological spectrum criticized the regulatory system governing risk for its inefficiency and ineffectiveness.²⁰⁴ Some critics argued that policymakers should use a rational approach to reducing risk by making decisions based on the costs and benefits of regulation.²⁰⁵ In 1994, Republicans running for Congress utilized these arguments in the Contract with America and promised a rationalist revolution in the entire regulatory system if elected.²⁰⁶ Once in power, the Republicans ultimately failed to accomplish the revolution they had promised. But they were successful in rationalizing regulation of one source of risk during the 104th Congress—natural gas and hazardous liquid pipelines.

A. *The Rise of Rationalism*

As federal agencies began exerting their powers to regulate private activities under new environmental, health, and safety laws, criticism and calls for reform inevitably followed.²⁰⁷ Scholars from diverse perspectives agreed that regulation was not as cost effective or as successful in reducing risk as it could

(contending that “[c]ommittee decisions are generally biased in favor of lessening the restrictions on industry”).

200. *Id.* at 121 (statement of Paul G. Doran, President, Texas Eastern Products Pipeline Co.); *Pipeline Safety Act of 1979: Hearing on H.R. 2207 and H.R. 51 Before the Subcomm. on Surface Transp. of the H. Comm. on Pub. Works & Transp.*, 96th Cong. 249–50 (1979) (statement of Paul Rodgers, Administrative Director and General Counsel, National Association of Regulatory Utility Commissioners).

201. Hazardous Liquid Pipeline Safety Act of 1979 §§ 102, 204.

202. *Id.*

203. See W. KIP VISCUSI, *FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK* 248–49 (1992) (describing the growing concern about the cost and ineffectiveness of “the new wave of . . . health, safety, and environmental regulation,” resulting in reform as “a prominent political issue less than one decade after the establishment of [the new] agencies”); Thomas O. McGarity, *The Expanded Debate over the Future of the Regulatory State*, 63 U. CHI. L. REV. 1463, 1474 (1996) (describing a “swift and powerful” resistance to implementation of public interest statutes).

204. See Harvard Grp. on Risk Mgmt. Reform, *supra* note 48, at 186–87; see also S. REP. NO. 104-90, at 37–44 (1995) (listing studies and reports).

205. See John D. Graham, *The Risk Not Reduced*, 3 N.Y.U. ENVTL. L.J. 382, 383 n.9 (1994) [hereinafter Graham, *Risk Not Reduced*] (listing rationalist scholars’ critiques).

206. See generally CONTRACT WITH AMERICA, *supra* note 5.

207. VISCUSI, *supra* note 203, at 248–49.

be.²⁰⁸ The government's regulatory focus did not always match the significance of the risk, and in a world of constrained resources, the costs of regulating small risks did not always justify the benefits for human health, safety, and the environment.²⁰⁹ There was widespread agreement that the system could be reformed by improving regulatory decisionmaking²¹⁰—policymakers should make decisions using better information and with more attention to the relationship between costs and benefits and to cost-effective policy options.²¹¹

But some scholars saw a more systemic problem in the rationality of the regulatory system.²¹² They argued that policymakers tended to make overly conservative decisions that imposed high costs on the private sector.²¹³ In particular, policymakers focused their attention on reducing small risks, even when the costs of regulation generally outweighed the benefits of risk reduction.²¹⁴ Stephen Breyer, then a prominent academic, termed the phenomenon of focusing attention on reducing small risks “tunnel vision,” or “the last 10 percent.”²¹⁵ In the narrow pursuit of these risks, policymakers did not act rationally. They did not consider the opportunity costs of failing to direct resources towards reducing larger risks, and they ignored the foreseeable costs associated with side effects of regulation and the tradeoffs between different risks.²¹⁶

These scholars cited several examples of irrational risk regulation. Federal policymakers focused their attention on reducing the small risk of pesticides in food—including banning carcinogens—but did not devote similar resources to protecting farmworkers, who were exposed to pesticides at higher doses.²¹⁷

208. See, e.g., Harvard Grp. on Risk Mgmt. Reform, *supra* note 48, at 186 (“[C]omplete elimination of risk regulation is not a desirable course and has few serious advocates. The emerging consensus is, however, that risk regulation can be made more effective and less costly without becoming less democratic or less equitable.”).

209. See *id.* at 187–88, 194.

210. See *id.* at 190–200 (proposing four recommendations to alter decisionmaking).

211. See *id.* at 190–96.

212. See, e.g., Graham, *Risk Not Reduced*, *supra* note 205, at 383 n.9, 384 (listing rationalist scholars' critiques and describing the “intellectual and political movement aimed at reforming risk regulation” that “is animated by the perception that our current regulatory regime produces arbitrary and inefficient results”).

213. See VISCUSI, *supra* note 203, at 157; Graham, *Risk Not Reduced*, *supra* note 205, at 394–98 (criticizing risk regulation as “unscientific” and inefficient, and describing “technical inconsistencies” that result in conservative regulation).

214. See e.g., VISCUSI, *supra* note 203, at 149; Graham, *Risk Not Reduced*, *supra* note 205, at 395 (comparing the cost per life saved of cancer screenings and toxics regulation); see also Cass Sunstein, *Paradoxes of the Regulatory State*, 57 U. CHI. L. REV. 407, 410–11 (1990) [hereinafter Sunstein, *Paradoxes of the Regulatory State*] (stating that regulation has been successful but it has also “frequently failed,” in part because it “has imposed enormously high costs for speculative benefits,” and using Occupational Safety & Health Administration's carcinogen regulations as an example).

215. BREYER, *supra* note 32, at 11.

216. *Id.* at 19–20, 23.

217. Harvard Grp. on Risk Mgmt. Reform, *supra* note 48, at 187; see also BREYER, *supra* note 32, at 17 (questioning the ban on EDB, a grain fumigant, in part because farmers could switch to other fumigants that posed greater risk).

Policymakers required abandoned hazardous waste sites to be cleaned up to reduce the small risk of lead exposure to the nearby public, but had paid little attention to the more significant risk from lead paint in housing.²¹⁸ And policymakers responded quickly to asbestos in schools even though there was a small risk that children would be exposed, but acted more slowly to address significant risks to students from voluntary activities.²¹⁹

Underlying these critiques was the concern that an emotional, uninformed public was driving decisions about risk regulation.²²⁰ One scholar termed the problem a “syndrome of paranoia and neglect” that infected the process of policymaking.²²¹ The public demanded the right to be safe from certain low-probability risks such as cancer because of fear and media attention.²²² At the same time, the public neglected larger but more familiar risks over which they had control, such as the dangers of car travel.²²³ Congress responded to public pressure by focusing its attention on dread risks, setting goals that incorporated little if any consideration of costs.²²⁴ The implementing agencies, reacting to the legislative mandate, interest group pressure, and uncertainties in assessing risk, then set stringent prescriptive standards without analyzing the costs or tradeoffs of regulation.²²⁵

In 1981, proponents of rationality in risk regulation won an early victory when President Reagan signed an executive order directing agencies to issue rules only if the potential benefits to society outweighed the potential costs, choose regulatory objectives that maximize the net benefits to society, and adopt the alternative involving the least net cost to society.²²⁶ The order also required agencies to conduct a comprehensive analysis of the costs, benefits, and

218. Harvard Grp. on Risk Mgmt. Reform, *supra* note 48, at 188; *see also* BREYER, *supra* note 32, at 12, 18–19 (criticizing the cost of cleanups of toxic waste sites for “non-existent dirt-eating children” and arguing that the funds could be used to “address more serious environmental or social problems”).

219. Harvard Grp. on Risk Mgmt. Reform, *supra* note 48, at 188; *see also* BREYER, *supra* note 32, at 12–13 (describing asbestos in schools and other buildings as “virtually harmless” when left in place but posing greater risk during removal).

220. *See, e.g.*, VISCUSI, *supra* note 203, at 149, 158–59.

221. John D. Graham, *Making Sense of Risk: An Agenda for Congress*, in RISKS, COSTS, AND LIVES SAVED: GETTING BETTER RESULTS FROM REGULATION 183, 183 (Robert W. Hahn ed., 1996) [hereinafter Graham, *Making Sense of Risk*]; *see also* VISCUSI, *supra* note 203, at 149 (“We overreact to some risks and virtually ignore others.”).

222. VISCUSI, *supra* note 203, at 149, 159; *see also* Frank B. Cross, *The Public Role in Risk Control*, 24 ENVTL. L. 887, 924–26 (1994); BREYER, *supra* note 32, at 35–39 (arguing that members of the public might honestly believe that such risks are significant but their perception of risk is not in fact rational because of several factors).

223. VISCUSI, *supra* note 203, at 150–51; Cross, *supra* note 223, at 920.

224. BREYER, *supra* note 32, at 33; *cf.* Harvard Grp. on Risk Mgmt. Reform, *supra* note 48, at 194 (stating that “[m]any of the existing enabling statutes covering risks were passed on the heels of emotionally charged situations” such as Love Canal, the Bhopal disaster, and the Valdez oil spill; and “Congress did not enact provisions requiring agencies to achieve a reasonable balance between the benefits and costs of regulatory action”).

225. BREYER, *supra* note 32, at 33.

226. Exec. Order No. 12,291, § 2, 3 C.F.R. 127 (1982).

alternatives of “major” rules and subject the analysis to regulatory review.²²⁷ President Clinton followed in 1993 with an executive order that was more moderate in tone but more extensive in vision.²²⁸ The order contained twelve principles of regulation, which included requiring agencies to consider the degree and nature of the risks within the agency’s jurisdiction during rulemaking, design cost-effective regulations, and adopt regulations “only upon a reasoned determination that the benefits of the intended regulation justify its costs.”²²⁹ Like the previous order, President Clinton’s order directed agencies to conduct an analysis of the costs, benefits, and alternatives for certain important regulatory actions.²³⁰ But these orders had limited effect because they did not alter the substantive statutory decisionmaking standards.²³¹

The scholars recommended several reforms to impose rationality on risk regulation.²³² While the details of the suggested policies differed, the core prescription was remarkably similar: policymakers must engage in a methodical risk-based decisionmaking process.²³³ In this process, the policymakers should consider all types of risks and systematically prioritize the most significant ones.²³⁴ Policymakers should regulate a risk after considering the alternatives and when the benefits justify the costs.²³⁵ Policymakers should also use regulatory tools such as performance standards and give regulated entities flexibility to address risks, rather than impose so-called command-and-control requirements.²³⁶ The process should circumscribe agency decisionmaking, thereby shielding regulators from irrational public demands for safety, but should also incorporate reasonable and thoughtful value judgments for different

227. *Id.* § 3.

228. Exec. Order No. 12,866, 3 C.F.R. 638 (1994), *reprinted as amended in* 5 U.S.C. § 601 (2012).

229. *Id.* § 1(b)(4)–(6).

230. *Id.* § 6.

231. *See* Exec. Order No. 12,291, § 2; Exec. Order No. 12,866, § 9.

232. BREYER, *supra* note 32, at 59–61; VISCUSI, *supra* note 203, at 249–51; Graham, *Making Sense of Risk*, *supra* note 221, at 189–92; *see also* Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 294–98 (proposing reforms in response to the 104th Congress).

233. BREYER, *supra* note 32, at 59–61; VISCUSI, *supra* note 203, at 249–51; Graham, *Making Sense of Risk*, *supra* note 221, at 188–92; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 292–96.

234. VISCUSI, *supra* note 203, at 249–50; Graham, *Making Sense of Risk*, *supra* note 221, at 193–94; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 257–60, 297; *see also* BREYER, *supra* note 32, at 60, 67, 77 (proposing a centralized administrative group that would have a “rationalizing mission,” including a “risk agenda” to prioritize reductions in risk).

235. VISCUSI, *supra* note 203, at 250 (discussing “appropriate balance” and a strict cost-benefit test); Graham, *Making Sense of Risk*, *supra* note 221, at 200 (proposing a “reasonable relationship”); Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 292, 294–95 (proposing a general requirement of cost-benefit balancing, described as “ask[ing] administrators to look at costs, or adverse effects, as well as at benefits” and a more specific criterion when the statute is responding to a market failure); *see also* BREYER, *supra* note 32, at 66, 76–77 (proposing that a centralized administrative group develop models that policymakers could use to determine a “natural regulatory stopping place” and avoid regulation of “the last 10 percent”).

236. VISCUSI, *supra* note 203, at 249–50; Graham, *Making Sense of Risk*, *supra* note 221, at 188–92; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 260–61, 267–68, 297–98.

types of risks.²³⁷

B. The Broad Regulatory Reforms

On September 27, 1994, three hundred sixty-seven Republican candidates for the House of Representatives signed the Contract with America.²³⁸ To the signatories, the federal government was “too big, too intrusive, and too easy with the public’s money.”²³⁹ The Contract would begin “a new era in American government”²⁴⁰ based on three principles: accountability, responsibility, and opportunity.²⁴¹ Within the first one hundred days of the 104th Congress, the signatories pledged to bring ten bills to the floor for a vote.²⁴² Among the promised bills was the “Job Creation and Wage Enhancement Act,” which would include “risk assessment/cost-benefit analysis” and other measures to create jobs and raise wages.²⁴³ The signatories did not explain the specific policy proposals during the campaign.²⁴⁴ But after the Republicans won a majority in both the House and the Senate that November, their first majority in forty years, they made regulatory reform a priority.²⁴⁵

As promised, House Republicans introduced House Bill 9, the Job Creation and Wage Enhancement Act, in the first few days of the 104th Congress.²⁴⁶ In addition to mandating regulatory review of the impact of all “major rules,”²⁴⁷ the bill contained a title specifically focused on regulation of health, safety, and environmental risks.²⁴⁸ Title III began with findings that expressed a rationalist vision of the policy problem.²⁴⁹ According to the bill, regulations had successfully improved environmental quality and reduced human health risk, but they had “been more costly and less effective than they could have been” because “regulatory priorities have not been based upon a realistic consideration of risk,

237. BREYER, *supra* note 32, at 62–63, 78; Graham, *Making Sense of Risk*, *supra* note 221, at 194–95; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 264–67.

238. CONTRACT WITH AMERICA: THE BOLD PLAN BY REP. NEWT GINGRICH, REP. DICK ARMEY AND THE HOUSE REPUBLICANS TO CHANGE THE NATION 3–7 (Ed Gillespie & Bob Schellhas eds., 1994).

239. CONTRACT WITH AMERICA, *supra* note 5.

240. *Republican Contract with America Rally*, C-SPAN (Sept. 27, 1994), <http://www.c-span.org/video/?60472-1/republican-contract-america-rally> [perma: <http://perma.cc/9MCM-JR2H>] (remarks of Rep. Dick Arme).

241. CONTRACT WITH AMERICA, *supra* note 5.

242. *Id.*

243. *Id.*

244. RICHARD J. LAZARUS, *THE MAKING OF ENVIRONMENTAL LAW* 129 (2004).

245. *Id.* (noting that the Republicans “targeted federal environmental protection programs more than any other area of the law for significant curtailment”).

246. Job Creation and Wage Enhancement Act of 1995, H.R. 9, 104th Cong. (1995) (introduced Jan. 4, 2005).

247. *Id.* § 7004 (requiring review in accordance with President Reagan’s executive order and defining a “major rule” as one that has an annual effect on the economy of \$100 million or more, affects more than 100 persons, or requires compliance costs of \$1 million or more from an individual).

248. *Id.* § 3001.

249. *Id.*

risk reduction opportunities, and costs.”²⁵⁰ The bill warned that society’s resources “are not unlimited.”²⁵¹ Those resources must be prioritized “to address the greatest needs in the most cost-effective manner” and allocated only when “the incremental costs of regulatory options are reasonably related to the incremental benefits.”²⁵² In addition, the public has a “right-to-know” about risk regulation, and transparency would “allow for public scrutiny” and promote democratic accountability.²⁵³

Under Title III, an agency that developed a “major rule”²⁵⁴ would be required to employ a rational decisionmaking process that comprehensively analyzed the policy alternatives, including the incremental costs and benefits of each alternative and the tradeoffs between risks.²⁵⁵ In this process, the decisionmaker would evaluate “all significant and relevant information” in an “objective” and “unbiased” way.²⁵⁶ Risk assessments and characterizations relied on by the decisionmaker would also provide the “most scientifically objective and unbiased information” to decisionmakers and the public.²⁵⁷ Peer review of the “technical, scientific, and economic merit of the data and methods” would serve as a check on the decisionmaker’s objectivity.²⁵⁸ Finally, the policy itself would be required to “produce benefits to human health or the environment that will justify the costs”²⁵⁹ and to be at least as cost-effective as the alternatives.²⁶⁰

Proponents of rationalism, including scholars and industry organizations, urged the House committees considering Title III to go further by requiring a government-wide ranking of risks and authorizing direct executive oversight of

250. *Id.* § 3001(1).

251. *Id.* § 3001(2).

252. *Id.*

253. *Id.* § 3001(5).

254. *Id.* § 3201(a), (c)(2) (defining a “major rule” broadly to include a regulation that would be likely to result in an annual effect on the economy of \$25 million or more, a major increase in costs or prices, or significant adverse effects on business competitiveness, employment, investment, productivity, or innovation).

255. *Id.* § 3201(a)(1), (3)–(4).

256. *Id.* § 3201(a)(5)(A) (requiring the director of the agency to certify that the analysis is “based on an objective and unbiased scientific and economic evaluation of all significant and relevant information provided to the agency”).

257. *Id.* § 3102(1); *see also id.* § 3103(b) (applying, with limited exceptions, to all risk assessments and risk characterizations prepared for regulatory programs designed to protect human health, safety, or the environment).

258. *Id.* § 3301(b)–(d), (h) (requiring peer review of “scientific and economic information” evaluated by the agency in its cost-benefit analysis or “for purposes of any significant risk or cost assessment prepared in connection with” a rule that would be likely to result in an annual effect on the economy of \$100 million or more).

259. *Id.* § 3201(a)(5)(C).

260. *Id.* § 3201(a)(5)(D) (requiring certification “that there is no regulatory alternative that is allowed by the statute under which the regulation is promulgated that would achieve an equivalent reduction in risk in a more cost-effective manner, along with a brief explanation of why other regulatory alternatives that were considered by the head of the agency were found to be less cost-effective”).

agency risk assessments and cost-benefit analyses.²⁶¹ They also urged a “super mandate” that would specifically override statutory standards and prohibit agencies from adopting rules unless the benefits of the policy justified the costs to society.²⁶²

This version of House Bill 9, which passed the House by a wide margin in March of 1995, incorporated versions of all of these policy proposals.²⁶³ Most notably, the bill directed agencies to use a rationalist decision criterion for regulations promulgated under all statutes, even those with conflicting statutory standards.²⁶⁴ To adopt a “major rule,” the agency would need to demonstrate that the incremental benefits of the policy “will be likely to justify, and be reasonably related to, the incremental costs.”²⁶⁵ The agency would also have to demonstrate that the policy would be at least as cost-effective or as flexible as the alternatives it considered.²⁶⁶

Meanwhile, the Senate considered two bills to rationalize regulation: Senate Bill 291²⁶⁷ and Senate Bill 343.²⁶⁸ Like the House bill, the Senate bills directed agencies to employ rationalist principles when conducting assessments and characterizations of environmental, health, or safety risks.²⁶⁹ But rather than create a separate decisionmaking process for regulation of these risks, the bills prescribed a rationalist process for all major rules.²⁷⁰ The final compromise version of Senate Bill 343 considered by the Senate²⁷¹ was less stringent than

261. See, e.g., *Risk Assessment and Cost/Benefit Analysis for New Regulations: Joint Hearings on Title III-H.R. 9 Before the Subcomm. on Commerce, Trade, and Hazardous Materials and the Subcomm. on Health and Env't of the H. Comm. on Commerce*, 104th Cong. 295 (1995) (statement of John D. Graham, Director, Center for Risk Analysis, Harvard School of Public Health); *id.* at 339–40 (statement of Jerry J. Jasinowski, President, National Association of Manufacturers).

262. See, e.g., *id.* at 295 (statement of Graham); *id.* at 340 (statement of Jasinowski).

263. See Job Creation and Wage Enhancement Act of 1995, H.R. 9, 104th Cong. (as referred to S. Comm. on Governmental Affairs, Mar. 9, 1995).

264. H.R. 9, 104th Cong. § 422(b) (as passed by the House on March 3, 1995) (providing that “[n]otwithstanding any other provision of Federal law, the decision criteria of subsection (a) shall supplement and, to the extent there is a conflict, supersede the decision criteria for rulemaking otherwise applicable under the statute pursuant to which the rule is promulgated”).

265. *Id.* § 422(a)(2).

266. *Id.* § 422(a)(3).

267. Regulatory Reform Act of 1995, S. 291, 104th Cong. (introduced Jan. 27, 1995).

268. Comprehensive Regulatory Reform Act of 1995, S. 343, 104th Cong. (introduced Feb. 2, 1995).

269. See, e.g., S. 291 § 101(a) (as introduced) (proposed 5 U.S.C. §§ 631–40); S. 343 § 3 (as introduced) (proposed 5 U.S.C. §§ 631–41); S. 343 § 3 (as reported by S. Comm. on Governmental Affairs, May 26, 1995) (proposed 5 U.S.C. §§ 631–40c); S. 343 § 3 (as reported by S. Comm. on the Judiciary, May 26, 1995) (proposed 5 U.S.C. §§ 631–40).

270. See, e.g., S. 291 § 101(a) (as introduced) (proposed 5 U.S.C. § 622); S. 343 § 3 (as introduced) (proposed 5 U.S.C. § 622); S. 343 § 3 (as reported by S. Comm. on Governmental Affairs) (proposed 5 U.S.C. § 622); S. 343 § 3 (as reported by S. Comm. on the Judiciary) (proposed 5 U.S.C. § 622).

271. This version, known as the Dole-Johnston Bill, was introduced on the Senate floor on June 30, 1995, as an amendment to Senate Bill 343. See 141 CONG. REC. 18,064–75 (1995); 141 CONG. REC. S9547 (daily ed. June 30, 1995).

House Bill 9. For each “major rule,”²⁷² the bill required agencies to evaluate the “reasonably identifiable significant” costs and benefits of the rule and the “reasonable alternatives.”²⁷³ An agency would still be required to develop a risk assessment and provide for peer review, but the provisions were less prescriptive.²⁷⁴ And the bill softened the application of substantive criteria.²⁷⁵ The benefits of the rule were required to justify the costs, but only if this criterion did not supersede the “decisional criteria otherwise provided by law.”²⁷⁶ Flexible alternatives were to be used “to the extent practicable.”²⁷⁷ While requiring that the rule “adopt[] the least cost alternative” and be “likely to significantly reduce” risks, the bill provided exceptions based on uncertainty or nonquantifiable benefits.²⁷⁸ Still, after a long floor fight, the Senate failed to close debate on the bill by two votes.²⁷⁹

When the 104th Congress adjourned in September 1996, the revolutionaries had failed in their efforts to enact broad-based rationalist reform.²⁸⁰ The consensus among scholars and commentators is that the Congress made a few changes to risk regulation around the edges but did not fundamentally alter it in any way.²⁸¹ As one scholar concluded, “[a]ll in all, there was a great deal of noise

272. S. 343 § 4 (June 30, 1995 amendments) (proposed 5 U.S.C. § 621(5)(A)), *published in* 141 CONG. REC. S9,542–7 (daily ed. June 30, 1995) (defining, in the June 30, 1995 amendment, a “major rule” as one that “is likely to have a gross annual effect on the economy of \$50,000,000 or more in reasonably quantifiable increased costs” that is not within twelve exempted categories).

273. *Id.* (proposed 5 U.S.C. §§ 621(2)–(4), 622(c)–(d)).

274. *Id.* (proposed 5 U.S.C. §§ 632(a), 633(a)(1), (4)) (requiring agency to conduct risk assessment “in a manner that promotes rational and informed” decisions and employ “the level of detail and rigor considered by the agency as appropriate and practicable for reasoned decisionmaking”).

275. William W. Buzbee, *Regulatory Reform or Statutory Muddle: The “Legislative Mirage” of Single Statute Regulatory Reform*, 5 N.Y.U. ENVTL. L.J. 298, 331 (1996) (concluding that S. 343 “would always require attention to cost effectiveness and regulatory flexibility and require selection of the single most cost-effective alternative, but would not preclude promulgation of at least some regulations flunking a societal cost-benefit test threshold”).

276. S. 343 § 4 (June 30, 1995 amendments) (proposed 5 U.S.C. § 624(a)), *published in* 141 CONG. REC. S9,545 (daily ed. June 30, 1995) (providing that the “requirements of this section shall supplement, and not supersede, any other decisional criteria otherwise provided by law”); *id.* (proposed 5 U.S.C. § 624(b)) (stating that “[e]xcept as provided in subsection (c),” the agency must find that “the benefits from the rule justify the costs of the rule”); *id.* (proposed 5 U.S.C. § 624(c)) (allowing the rule if it meets the remaining decision criteria when agency cannot satisfy the criteria because of the governing statute).

277. *Id.* (proposed 5 U.S.C. § 624(b)(1)–(2)).

278. *Id.* at S9,546 (proposed 5 U.S.C. § 624(b)(3)–(4)) (providing exception in cases of “scientific, technical, or economic uncertainties or nonquantifiable benefits to health, safety, or the environment”).

279. 141 CONG. REC. S10,399 (daily ed. July 20, 1995) (vote to close debate on S. 343).

280. *E.g.*, McGarity, *A Cost-Benefit State*, *supra* note 11, at 9; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 250.

281. *See, e.g.*, McGarity, *A Cost-Benefit State*, *supra* note 11, at 9 (concluding that “[i]n the final analysis . . . Congress enacted few of the ambitious reforms that the Contract envisioned”); Robert W. Hahn, Sheila M. Olmstead & Robert N. Stavins, *Environmental Regulation in the 1990s: A Retrospective Analysis*, 27 HARV. ENVTL. L. REV. 377, 388–89 (2003) (stating that “[m]ost of the 104th

and bluster—a great deal of signaling—but surprisingly little in the way of concrete results.”²⁸² Proponents of rationalism have variously sought to pin blame for the 104th Congress’s failure on partisan politics,²⁸³ reactionary forces with an antiregulatory agenda,²⁸⁴ institutional defects inherent in Congress,²⁸⁵ and the public’s view of reform.²⁸⁶ While there was little mourning of the death of some of the more extreme proposals, such as a strict cost-benefit super mandate,²⁸⁷ rationalist scholars did lament a missed opportunity to change risk regulation to be more technocratic.²⁸⁸ Overlooked in the postmortem analysis of the 104th Congress was one notable rationalist success: the very concrete reforms to the pipeline safety program.

C. *The Pipeline Safety Reforms*

During the first one hundred days of the 104th Congress, the House took up reauthorization of the pipeline safety program—and with it, regulatory reform.²⁸⁹ The program was an unlikely target. During the debates on the general reform bills in the House and Senate, no one identified pipeline safety as

Congress’ general regulatory reform proposals either failed to pass both Houses or were vetoed by President Clinton,” but the Contract with America “did lead to a prominent public debate over regulatory reform”); John Shanahan, *Regulating the Regulators: Regulatory Process Reform in the 104th Congress*, REGULATION, Winter 1997, at 27, 27 (stating that “regulatory process reform appears to have been more about rhetoric than real reform”). *But see* Bill Frenzel, *Assessing the 104th Congress: (This One Is Different)*, BROOKINGS INST. (Mar. 1, 1996), <http://www.brookings.edu/articles/assessing-the-104th-congress-this-one-is-different/> [perma: <http://perma.cc/DPC4-3AUX>] (“[P]resent this Congress . . . a small ribbon for dreaming big dreams of big change. Throw in another for courage, for willingness to take big risks for big principles. Add one more for persistence, for hanging tough when nearly everybody advised it to cave in. . . . In sum, the first session of the 104th Congress may have been better than you thought.”).

282. Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 250.

283. John D. Graham, *Legislative Approaches to Achieving More Protection Against Risk at Less Cost*, 1997 U. CHI. LEGAL F. 13, 57 [hereinafter Graham, *Legislative Approaches*] (blaming the Democratic leadership and President Clinton). For a broader political analysis by scholars who are more critical of rationalism, see Marc Landy & Kyle D. Dell, *The Failure of Risk Reform Legislation in the 104th Congress*, 9 DUKE ENVTL. L. & POL’Y F. 113, 119 (1998) (describing the “proximate cause” as “intrusion of presidential election politics”).

284. Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 271 (describing a “less attractive strand [in reform] . . . as reactionary,” with a goal “to stall or eliminate regulation whatever its content”).

285. *Id.* at 284–86 (“Congress [may be] institutionally ill-equipped to attempt major reform, at least if it does a great deal at the micro level.”).

286. *Id.* at 284 (concluding that “[i]n the end regulatory reform failed because the public was not unambiguously committed to it”); *see also* Landy & Dell, *supra* note 283, at 128–30 (concluding that the “public’s preoccupation with rights talk represents the more fundamental cause” of the defeat (footnote omitted)).

287. *See* Graham, *Legislative Approaches*, *supra* note 283, at 49; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 292.

288. *See, e.g.*, Fred Anderson et al., *Regulatory Improvement Legislation: Risk Assessment, Cost-Benefit Analysis, and Judicial Review*, 11 DUKE ENVTL. L. & POL’Y F. 89, 89–90 (2000); Graham, *Saving Lives*, *supra* note 17, at 437; Sunstein, *Congress & Cost-Benefit State*, *supra* note 11, at 308–09.

289. *See, e.g.*, H.R. 1187, 104th Cong. § 4 (1995).

an area in need of reform.²⁹⁰ The discussion in Congress primarily focused on environmental laws and cancer.²⁹¹ Supporters of regulatory reform cited examples such as drinking water standards,²⁹² the ban on carcinogenic food additives under the Delaney Clause,²⁹³ cleanup of hazardous waste sites under the Superfund law,²⁹⁴ and removal of asbestos in schools.²⁹⁵ Nor did any pipeline safety regulations appear on the list of health and safety rules that showed the cost per premature death averted, which reformers used to demonstrate the irrationality of the regulatory system.²⁹⁶ Indeed, PHMSA had already embraced rationalist principles. In 1993, the Agency established a process to identify the most significant safety issues and rate solutions by potential reduction in risk and implementation cost.²⁹⁷

The 1994 natural gas pipeline explosion in Edison, New Jersey, would frame much of the debate over reform. Soon after the congressional session began, the National Transportation Safety Board (NTSB), an independent federal agency charged with investigating transportation accidents and making safety recommendations,²⁹⁸ issued a report on the Edison explosion that was sharply critical of PHMSA.²⁹⁹ The NTSB reviewed the history of pipeline incidents and found that PHMSA had “repeatedly failed to address public pipeline safety concerns in a timely manner.”³⁰⁰ The NTSB was particularly critical of PHMSA’s decisions not to issue regulations because of compliance costs, describing one

290. See, e.g., *Comprehensive Regulatory Reform Act of 1995: Hearings on S. 343 Before the Subcomm. on Admin. Oversight and the Courts of the S. Comm. on the Judiciary*, 104th Cong. 1–265 (1995) (no mention of pipelines); *Regulatory Reform: Hearings Before the S. Comm. on Gov’t Affairs*, 104th Cong. 1–580 (1995) (same); *Regulatory Reform: Hearing on S. 343 Before the S. Comm. on the Judiciary*, 104th Cong. 1–107 (1995) (same); cf. *Regulatory Reform and Environmental Laws: Hearing Before the S. Comm. on Env’t & Pub. Works*, 104th Cong. 35 (1995) (statement of Stephen H. Kaplan, General Counsel, U.S. Dep’t of Transp.) (using the aftermath of the Edison explosion as an example of government-industry cooperation); *Risk Assessment and Cost/Benefit Analysis for New Regulations: Joint Hearings on Title III-H.R. 9 Before the Subcomm. on Commerce, Trade, and Hazardous Materials and the Subcomm. on Health and Env’t of the H. Comm. on Commerce*, 104th Cong. 201 (statement of Rep. Frank Pallone, Jr.) (arguing that regulatory reform requirements will negatively impact consumers because the pipeline safety program is funded through user fees); *Risk Assessment and Cost Benefit Analysis: Hearings Before the H. Comm. on Sci.*, 104th Cong. 559 (1995) (including letter from DOT highlighting PHMSA’s use of risk assessment as one of the few examples in the department).

291. See, e.g., H.R. REP. NO. 104-33, pt. 1, at 35 (1995) (quoting John A. Moore, President of Institute for Evaluating Health Risks, who criticized the “preoccupation with theoretical cancer risk that has dominated regulatory activity, [and] diverted attention from other adverse effects that may be of equal or greater public health importance”).

292. *Id.* at 33–34.

293. *Id.* at 35.

294. *Id.* at 22, 25, 28, 34.

295. *Id.* at 33.

296. *Id.* at 17–18.

297. Risk Assessment Prioritization, 58 Fed. Reg. 51,402, 51,402–05 (Oct. 1, 1993) (request for information).

298. See 49 U.S.C. §§ 1111(a), 1131(a)(1) (2012).

299. NAT’L TRANSP. SAFETY BD., *supra* note 3, at 79.

300. *Id.* at 75.

cost-benefit analysis as “seriously flawed” and “defective.”³⁰¹ And the NTSB warned that the explosion “again demonstrates the need to improve pipeline safety measures, particularly in urban communities.”³⁰²

The Edison explosion produced two very different policy responses in the House. Citing the concerns of their constituents, representatives from the Edison area introduced bills to amend the Pipeline Safety Act (PSA)³⁰³ by adding specific safety measures that addressed several sources of risk.³⁰⁴ The bills required operators to install automatic or remotely controlled shut-off valves for gas pipelines³⁰⁵ and conduct internal inspections of pipelines.³⁰⁶ They also included measures directed at third-party excavation damage, such as prohibiting excavators from dumping solid waste within a right-of-way³⁰⁷ and requiring states to consider comprehensive “one-call” notification systems.³⁰⁸ Finally, they required operators to share more information about pipelines and their location with PHMSA,³⁰⁹ municipal governments,³¹⁰ and neighborhood residents.³¹¹

Meanwhile, a competing bill, House Bill 1187, was introduced at the behest of the pipeline industry³¹² to rationalize PHMSA’s regulatory program and remove prescriptive measures.³¹³ Like the general reform bill in the House, House Bill 1187 sought to reform regulation by requiring the Agency to comprehensively analyze policy options,³¹⁴ certify that its analysis was objective and unbiased,³¹⁵ subject the data and methods of analysis to

301. *Id.* at 52–53.

302. *Id.* at 41.

303. The NGPSA and the HLPSCA were later combined and recodified as the Pipeline Safety Act (PSA). *See* Act of July 5, 1994, Pub. L. No. 103–272, 108 Stat. 745 (codified as amended in scattered sections of 49 U.S.C.).

304. Comprehensive One-Call Notification Act of 1995, H.R. 431, 104th Cong. (1995); Natural Gas Pipeline Safety Improvement Act of 1995, H.R. 432, 104th Cong. (1995); Durham Woods Natural Gas Pipeline Safety Act of 1995, H.R. 1126, 104th Cong. (1995).

305. H.R. 432 § 11.

306. *Id.* § 9; H.R. 1126 § 2.

307. H.R. 432 § 8.

308. H.R. 431 §§ 4–7.

309. H.R. 1126 § 8.

310. H.R. 432 § 7.

311. *Id.* § 10.

312. *See Reauthorization of the Natural Gas Pipeline Safety Act and the Hazardous Liquid Pipeline Safety Act: Hearing Before the Subcomm. on Energy & Power of the H. Comm. on Commerce*, 104th Cong. 22 (1995) [hereinafter *Reauthorization Hearing Before the Subcomm. on Energy & Power*] (referring to H.R. 1187 as the “industry bill”); 141 CONG. REC. 7,513 (1995) (statement of Rep. Petri) (introducing H.R. 1187 “at the request of the pipeline industry” and stating that the bill “represents the consensus view of both the natural gas and hazardous liquid pipeline industries on the future direction of pipeline safety programs”).

313. Pipeline Safety Act of 1995, H.R. 1187, 104th Cong. (1995).

314. *Id.* § 4(5) (requiring a risk assessment and cost-benefit analysis for standards or regulations issued under specific sections of the PSA).

315. *Id.* §§ 3, 4(3) (requiring “an objective and unbiased scientific and economic evaluation of all significant and relevant information” to issue a “significant standard” that is likely to result in compliance costs greater than one million dollars).

peer review,³¹⁶ and meet substantive rationalist criteria.³¹⁷ But House Bill 1187 took the rationalist approach even further. It required the incremental benefits of standards that imposed compliance costs of more than one million dollars to “equal or exceed, and be reasonably related to” the incremental costs.³¹⁸ It also gave the power of peer review to the existing technical committees and mandated a new analysis if their review resulted in a “negative recommendation.”³¹⁹

At the House subcommittee hearings on the bills, the participants debated the direction of the pipeline safety program.³²⁰ Conspicuously missing from the debate were the NTSB and members of the public.³²¹ The 104th Congress, one chair declared, found itself “at a crossroads.”³²² It could respond to public concern about the Edison explosion by directing PHMSA to adopt further safety measures.³²³ Alternatively, it could transform the regulatory program into one based on rational assessment and management of risk.³²⁴ Of the witnesses at the hearings, only the representatives from Edison testified in support of the first policy approach.³²⁵ The pipeline industry argued that the second approach was necessary to reduce the high costs of regulation and address the most significant risks.³²⁶ Much of the industry testimony focused on the previous legislative mandates that required PHMSA to prescribe “one-size-fits-all” rules;³²⁷ there was surprisingly little discussion of the flaws in the Agency’s discretionary decisionmaking.³²⁸

316. *Id.* § 4(5) (requiring the existing technical committees to conduct peer review standards or regulations issued under specific sections of the PSA).

317. *Id.* §§ 3(6), 4(4) (applying substantive criteria of cost-effectiveness, flexibility, and the relationship between costs and benefits to “significant standard[s]”).

318. *Id.* § 4(3).

319. *Id.* § 4(5).

320. *Reauthorization of Natural Gas and Hazardous Liquid Pipeline Safety Acts: Hearing on H.R. 1187 Before the Subcomm. on Surface Transp. of the H. Comm. on Transp. & Infrastructure, 104th Cong. 2 (1995)* [hereinafter *Reauthorization Hearing Before the Subcomm. on Surface Transp.*]; *Reauthorization Hearing Before the Subcomm. on Energy & Power, supra* note 312, at 2.

321. *See Reauthorization Hearing Before the Subcomm. on Surface Transp., supra* note 320, at III; *Reauthorization Hearing Before the Subcomm. on Energy & Power, supra* note 312, at III.

322. *Reauthorization Hearing Before the Subcomm. on Surface Transp., supra* note 320, at 1 (statement of Rep. Thomas E. Petri, Chairman, H. Subcomm. on Surface Transp.).

323. *See id.*

324. *See id.*

325. *See id.* at 39–40 (statement of Rep. Bob Franks); *id.* at 70–73 (statement of Rep. Frank Pallone); *Reauthorization Hearing Before the Subcomm. on Energy & Power, supra* note 312, at 6 (statement of Rep. Bob Franks).

326. *See Reauthorization Hearing Before the Subcomm. on Surface Transp., supra* note 320, at 41–48 (statement of Debbie Fretz, President, Sun Pipeline Company); *id.* at 56–69 (statement of Ron Mucci, Vice President of Marketing, Northwest Pipeline); *Reauthorization Hearing Before the Subcomm. on Energy & Power, supra* note 312, at 31–33 (statement of Larry Thomas, President, BP Oil Pipeline Co.); *id.* at 38–45 (statement Larry Hall, President and CEO, KN Energy).

327. *See, e.g., Reauthorization Hearing Before the Subcomm. on Surface Transp., supra* note 320, at 56 (statement of Ron Mucci, Vice President of Marketing, Northwest Pipeline).

328. *See id.* at 62 (stating that “[a]ny federal regulations should be as cost-effective as possible

Already frustrated by outside interference, PHMSA did not fully support either policy approach.³²⁹ Both removed decisionmaking authority from the Agency. In the first, Congress chose the risk to be regulated and the policy to respond to the risk.³³⁰ In the second, Congress constrained PHMSA's decisionmaking process, leaving it reliant on the regulated industry for information.³³¹ With the proposed cuts in funding in the bill, PHMSA predicted that such a comprehensive analysis would stymie the Agency and prevent it from issuing needed regulations.³³² PHMSA argued instead for a third approach: reforms that would enhance its authority to prioritize risks and make the best policy decisions.³³³ PHMSA's legislative proposal ratified its existing process of prioritizing risks based on effectiveness and efficiency, and authorized PHMSA to create a database of risk information.³³⁴ Even so, the proposal deferred to Congress by specifying that certain safety measures must be assessed and requiring PHMSA to submit its findings and a regulatory plan to Congress for review.³³⁵

After the hearings, a new bill was introduced to reauthorize the pipeline safety program: House Bill 1323.³³⁶ The bill, which moved swiftly through committee,³³⁷ adopted the rationalist approach embodied in House Bill 1187.³³⁸

and only be imposed when there clearly exists a widespread problem with the current safety program"). The industry was hard pressed to explain why House Bill 1187 employed extensive risk assessment provisions from House Bill 9 that seemed inapplicable to pipelines. *See id.* at 36 (discussing Representative Mineta's assertion that there was a "ready, fire, aim" approach).

329. *See Reauthorization Hearing Before the Subcomm. on Energy & Power, supra* note 312, at 16–17 (statement of George W. Tenley, Jr., Associate Administrator, PHMSA) (declaring that the Agency "ha[s] been suffering under too many mandates in response to specific accidents"); Risk Assessment Prioritization, 58 Fed. Reg. 51,402, 51,402 (Oct. 1, 1993) (request for information) (stating that PHMSA "frequently must allocate its resources to address safety actions identified by authorities outside of the agency, including Congress, the National Transportation Safety Board, and the General Accounting Office," but PHMSA "believes that pipeline safety resources can be most effectively utilized through analysis and prioritization").

330. *See* Durham Woods Natural Gas Pipeline Safety Act of 1995, H.R. 1126, 104th Cong. § 2 (1995) (requiring PHMSA to issue regulations with specific inspection requirements).

331. *See Reauthorization Hearing Before the Subcomm. on Energy & Power, supra* note 312, at 20 (statement of George W. Tenley, Jr., Associate Administrator, PHMSA) (stating that the approach was "too constraining" and that "in 99 percent of the cases, the only information we get to regulate this industry is from this industry").

332. *Id.* (stating that the reforms would "basically prevent us from taking actions that we need to take").

333. *Id.* at 14–15 (stating that the Agency "will seek a risk management framework that will enable Congress to direct us to examine issues, while reserving to the [PHMSA] the discretion to determine how best to address those issues").

334. The Edison representatives included the proposal in their bills. *See* Natural Gas Pipeline Safety Improvement Act of 1995, H.R. 432, 104th Cong. § 5 (1995); H.R. 1126 § 7.

335. H.R. 1126 § 7.

336. H.R. 1323, 104th Cong. (1995) (introduced March 24, 1995).

337. The bill was reported out of the Committee on Transportation on May 1, 1995, and out of the Committee on Commerce on June 1, 1995. *See* H.R. REP. NO. 104-110, pt. 1, at 1 (1995); *id.* pt. 2, at 1.

338. *Id.* pt. 1, at 10 (stating that the bill would shift "the prescriptive model" of regulating

But the more stringent prescriptions advocated by the pipeline industry were brought in line with the general reform bill.³³⁹ In tying reform of pipeline safety regulation to the broader reform movement in the House, committee members held up the program as one “ideally suited” to reform because the cost and benefits of policy options were “generally readily identifiable and quantifiable.”³⁴⁰ They promised that the reforms would “increase real safety and cost effectiveness” by focusing regulation on “the most significant and realistic risks.”³⁴¹ Dissenting members, however, castigated the majority for blindly applying its “familiar” approach to regulatory reform.³⁴² They argued that far from being ideally suited to reform, the requirements were “particularly inappropriate” because the safety risks were more obvious and less subject to speculation than latent health risks.³⁴³ They also sided with PHMSA in predicting that the procedures and a lack of resources would “tie [the program] in knots.”³⁴⁴

Almost a year later, the Senate took up reauthorization of the pipeline safety program.³⁴⁵ While the Senate pipeline safety bill, Senate Bill 1505, was introduced by Senator Lott after defeat of broad regulatory reform, it retained many of the controversial proposals.³⁴⁶ Among them were requirements to analyze the incremental costs and benefits of the proposed policy; certify that the incremental benefits of the final policy would “likely justify, and be reasonably related to the incremental costs”; and explain why other policies would be less cost-effective or flexible.³⁴⁷ Moreover, the reforms were no longer limited to a subset of significant or major rules.³⁴⁸ Other provisions weakened or limited the application of existing safety requirements.³⁴⁹

PHMSA strongly opposed the bill, arguing that the reforms would “hinder the effectiveness of the regulatory process” rather than empower the Agency to address significant risks.³⁵⁰ Yet the Agency remained committed to rationalism.

“perceived safety problems . . . towards a risk-based approach featuring risk assessment, risk management and industry-agency partnership”). *Compare* H.R. 1187, *with* H.R. 1323.

339. H.R. REP. NO. 104-110, pt. 1, at 11; *see also* H.R. 1323 §§ 3–4.

340. H.R. REP. NO. 104-110, pt. 1, at 11.

341. *Id.* pt. 2, at 11.

342. *Id.* at 40 (describing regulatory reform as composed of “unnecessary risk analysis, inadequate budgets, and cost-benefit requirements that undermine the very premises on which our public health and safety statutes are based”).

343. *Id.*

344. *Id.* at 40–41.

345. *See National Transportation Safety Board Reauthorization and Pipeline Safety Act Reauthorization: Hearing on S. 1505 Before the S. Comm. on Commerce, Sci. & Transp.*, 104th Cong. 1–5 (1996) [hereinafter *Hearing Before the S. Comm. on Commerce, Sci. & Transp.*] (holding the first hearing on the bill on Apr. 16, 1996).

346. Accountable Pipeline Safety and Partnership Act of 1995, S. 1505, 104th Cong. § 1 (1995).

347. *Id.* § 4(b).

348. *Id.* (applying substantive criteria to all standards issued under specific sections of the PSA).

349. *See id.* § 4(d) (information on gathering lines); *id.* § 4(e) (inspections); *id.* § 8 (excess flow valves).

350. *Hearing Before the S. Comm. on Commerce, Sci. & Transp.*, *supra* note 345, at 41

It offered two compromise policies in place of the regulatory reform provisions: (1) a version of the rationalist decisionmaking process in its earlier legislative proposal, which would prioritize regulation based on PHMSA's expert assessment of the largest risks and the "technically feasible and economically justified" policy options; or (2) a softer rationalist substantive criterion, drawn from President Clinton's executive order on regulation.³⁵¹ The committee accepted the latter proposal, but did not alter the fundamental decisionmaking process in the bill.³⁵²

The debate on the bill was brief.³⁵³ On the Senate floor, the bill was amended to direct PHMSA to consider two safety issues from the Edison explosion,³⁵⁴ but the bill continued to take a rationalist approach. Once again, a proponent held up the pipeline safety program as the very type of program that should be rationalized.³⁵⁵ He reassured his colleagues that "[c]ost benefit analysis for pipeline safety is straight forward and largely quantifiable" unlike "health-related analyses."³⁵⁶ Senate Democrats allowed the bill to pass on the condition that the rationalist provisions would not serve "as a precedent for adopting a similar standard in any other [f]ederal program"³⁵⁷ or "in the debate on the larger regulatory reform bill."³⁵⁸ When the bill returned to the House, only a few Democratic members spoke out against it.³⁵⁹ The opponents included a representative of Edison, who once again invoked the explosion in his district and argued that the bill failed to respond to the public's rising concern about pipeline risks.³⁶⁰ The bill nevertheless passed the House easily.³⁶¹ Opponents lobbied President Clinton for a pocket veto; however, PHMSA supported the

(statement of Richard Felder, Associate Administrator, PHMSA).

351. *Id.* at 47–48 (proposing to issue a standard "only upon a reasoned determination that the benefits of the intended standard justify its costs," except "where otherwise required by statute"); Exec. Order No. 12,866, 3 C.F.R. 638 (1994), *reprinted as amended in* 5 U.S.C. § 601 (2012).

352. Accountable Pipeline Safety and Partnership Act of 1996, S. 1505, 104th Cong. § 4(b) (1996).

353. *See* 142 CONG. REC. 23,966–67, 23,973–76, 25,093–97, 25,568–76 (1996).

354. *Id.* at 23,967 (adding provisions on public awareness and remotely controlled valves, and other miscellaneous changes).

355. *Id.* at 23,975–76 (statement of Sen. Exon).

356. *Id.* ("Pipelines are fixed facilities in known locations that carry finite quantities of specific products. The consequences of different types of ruptures or problems is [sic] therefore very quantifiable. The costs of various proposed requirements is [sic] usually also very quantifiable as most proposals seek to use existing procedures, processes, or tools . . ."); *see also id.* at 23,976 (statement of Sen. Lott) ("The cost-benefit standard . . . works for pipeline safety, because it was specifically written with the knowledge of that office and its unique responsibilities in mind.").

357. *Id.* at 23,975 (statement of Sen. Levin).

358. *Id.* at 23,976 (statement of Sen. Glenn).

359. *See id.* at 25,568–73 (statements of Reps. Pallone, Dingell, and Markey).

360. *Id.* at 25,572 (statement of Rep. Pallone) ("Essentially what came out of the Edison explosion . . . was a feeling nationally that was expressed by many organizations that more needed to be done to protect residents, to protect the average American from the dangers of pipelines. . . . Yes, what do we get instead? We have a Congress now that, instead of reacting to that in a progressive way, instead puts in place a regressive [bill] The germ of all this is that risk assessment procedure.").

361. *Id.* at 25,576 (passing by 276 votes in favor to 125 against).

bill³⁶² and the President ultimately signed it, agreeing that the rationalist approach would “protect public safety and the environment and help create a government that works better and costs less.”³⁶³

III. THE THEORETICAL DEBATE

Administrative law traditionally has treated an agency as a “black box,”³⁶⁴ and sought to ground itself in theories of accountability through presidential control and judicial review.³⁶⁵ Thus, the scholarly debate about rationalism usually revolves around whether tools such as cost-benefit analysis hold agencies accountable to the president³⁶⁶ or to the public.³⁶⁷ Fewer scholars have explored normative theories underpinning the process of policymaking itself.³⁶⁸ In contrast to legal scholarship, the field of public policy has extensively theorized the question of how policymakers should make decisions.³⁶⁹ The field is split between two very different normative approaches to policymaking: rationalism and postpositivism. Rationalists view policymaking as an analytical decision process conducted by experts to find the “right” answer, while postpositivists view policymaking as a political conflict about public values.

A. *The Epistemological Approaches*

Scholars of public policy have long debated the normative dimensions of policymaking. From this debate, two broad epistemological approaches have emerged: rationalism and postpositivism. Scholars in the rationalist tradition

362. John H. Cushman, Jr., *Democrats Urge Veto of Measure Easing Pipeline Regulations*, N.Y. TIMES, Oct. 10, 1996, at A29 (quoting unnamed Administration officials as saying, “the Department of Transportation’s pipeline safety office . . . helped negotiate the bill and continues to support it”).

363. William J. Clinton, *Statement on Signing the Accountable Pipeline Safety and Partnership Act of 1996*, AM. PRESIDENCY PROJECT (Oct. 12, 1996), <http://www.presidency.ucsb.edu/ws/?pid=87540> [perma: <http://perma.cc/UE9K-CN8L>] (noting that “the bill’s risk assessment and cost-benefit provisions codify current Department of Transportation practices and, as Senators Glenn and Levin have made clear, are not to have any precedential effect for other programs”).

364. Mark Seidenfeld, *Cognitive Loafing, Social Conformity, and Judicial Review of Agency Rulemaking*, 87 CORNELL L. REV. 486, 487 (2002).

365. See Lisa Schultz Bressman, *Beyond Accountability: Arbitrariness and Legitimacy in the Administrative State*, 78 N.Y.U. L. REV. 461, 468–91 (2003) (tracing the evolution of theory from “preventing arbitrariness to promoting accountability”); Rubin, *supra* note 59, at 291 (“Until recently, scholarship about the operation of modern government devoted nearly all its attention to the legal limits on administrative action.”).

366. Compare Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2282 (2001), and Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 U. CHI. L. REV. 1137, 1143 (2001), with Nicholas Bagley & Richard L. Revesz, *Centralized Oversight of the Regulatory State*, 106 COLUM. L. REV. 1260, 1312 (2006).

367. See Michael A. Livermore & Richard L. Revesz, *Regulatory Review, Capture, and Agency Inaction*, 101 GEO. L.J. 1337, 1340–41 (2013) (arguing that cost-benefit analysis could be used as a means of countering agency capture in cases of agency inaction).

368. See Seidenfeld, *supra* note 364, at 487 (noting that law “has been slow to utilize theories of decisionmaking when analyzing the conduct of administrative agencies”).

369. See KEVIN B. SMITH & CHRISTOPHER W. LARIMER, *THE PUBLIC POLICY THEORY PRIMER* 6 (2009) (describing the question as “what should we do?”).

view policymaking as a linear decisionmaking problem, one in which experts should strive to determine the “best” answer through objective analysis of data.³⁷⁰ In contrast, postpositivist scholars view policymaking as inherently political and value-laden, not as an empirical or “positivist” endeavor.³⁷¹ In the postpositivist tradition, an objectively “best” policy is a mirage: policymaking should be a discursive democratic exercise that interprets social values through deliberation.³⁷²

In its purest form, rationalist policymaking is based on the comprehensive rationality model.³⁷³ When a policymaker is confronted with a policy problem that requires the government to take action, she should determine the optimal solution by engaging in a comprehensive decisionmaking process.³⁷⁴ The policymaker should first establish the policy objective, or goal, that will guide the decision process.³⁷⁵ She should then gather all relevant information on the problem, identify the policy options that will address the problem, and systematically evaluate the outcomes of each option.³⁷⁶ Finally, based on this extensive analysis, the policymaker should choose the policy option that maximizes the established objective.³⁷⁷

In the comprehensive rationality model, a policymaker’s decision should flow from the choice of policy objective.³⁷⁸ Most policy problems, however, involve more than one objective, and the objectives may conflict.³⁷⁹ Rationalists therefore turn to welfare economics for decision criteria.³⁸⁰ The objective of public policy, according to welfare economists, should be allocative efficiency—a state in which all resources are allocated so that no individual can be made better off by satisfying his preferences without making another individual worse off.³⁸¹ This state, known as Pareto optimality, replicates the results of a perfectly

370. *See id.* at 49.

371. FRANK FISCHER, REFRAMING PUBLIC POLICY: DISCURSIVE POLITICS AND DELIBERATIVE PRACTICES 12–13 (2003) [hereinafter FISCHER, REFRAMING PUBLIC POLICY].

372. *See id.* at 10–16.

373. *See* Charles E. Lindblom, *The Science of “Muddling Through”*, 19 PUB. ADMIN. REV. 79, 81 (1959) (terming the approach the “rational-comprehensive method”). Other public policy scholars have used the term “rational model.” *See* FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 4–5, or “rationality project,” STONE, *supra* note 2, at 6–7. Legal academics have used yet other terms to describe similar policy approaches. *See, e.g.*, Jim Rossi, *Participation Run Amok: The Costs of Mass Participation for Deliberative Agency Decisionmaking*, 92 NW. U. L. REV. 173, 196–97, 222, 226 (1997) (terming this type of decisionmaking “expertocratic”).

374. STONE, *supra* note 2, at 8.

375. *Id.*; Lindblom, *supra* note 373, at 81.

376. STONE, *supra* note 2, at 8; Lindblom, *supra* note 373, at 81.

377. STONE, *supra* note 2, at 8; Lindblom, *supra* note 373, at 81.

378. SMITH & LARIMER, *supra* note 369, at 106–07.

379. *Id.* at 107.

380. *Id.*

381. Robert H. Haveman & Burton A. Weisbrod, *Defining Benefits of Public Programs: Some Guidance for Policy Analysts*, in 3 THE SCIENCE OF PUBLIC POLICY: ESSENTIAL READINGS IN POLICY SCIENCES I, at 111, 113–14 (Tadao Miyakawa ed., 1999).

competitive market.³⁸² A policy thus improves allocative efficiency under the Pareto criterion if it leaves at least one individual better off but no one worse off.³⁸³

In practice, however, policies usually redistribute resources, leaving both winners and losers.³⁸⁴ Welfare economists thus recognize that a policy that makes some individuals better off and some worse off potentially improves allocative efficiency if the policy produces a net gain.³⁸⁵ This is because the winners could compensate the losers, thus ensuring that no one is made worse off and satisfying the Pareto test.³⁸⁶ Under the weaker criterion of compensation, known as the Kaldor-Hicks criterion, policymakers can evaluate policy options by calculating the total costs and benefits of each option to all individuals.³⁸⁷ The effects of a policy on social welfare are thus measured by the aggregated effects on individual welfare.³⁸⁸ The policymakers should then choose the policy that provides the greatest net benefits, maximizing the policy objective of improving social welfare.³⁸⁹

Many rationalist scholars recognize that the comprehensive rationality model is aspirational.³⁹⁰ In the real world of “bounded rationality,” policymakers do not have perfect information.³⁹¹ They cannot analyze every possible alternative, both because of resource constraints and because of their own cognitive limitations that constrain information processing.³⁹² Uncertainty about the cause of the problem and the effects of a policy may be so great that analytical techniques do not provide much assistance. Instead, a policymaker should “satisfice”: choose the policy that *satisfies* a threshold of acceptability and thus *suffices*, given the limitations.³⁹³ Even though the solutions are not optimized, such “good enough” decisions are rational in intent.³⁹⁴ The decisionmakers should be goal oriented and choose effective means to achieve their ends.³⁹⁵

Faced with a world of bounded rationality, policymakers are likely to choose incremental change over comprehensive reform.³⁹⁶ Incrementalism

382. *Id.*

383. *Id.* at 114.

384. *Id.*

385. *See id.*

386. *Id.*

387. SMITH & LARIMER, *supra* note 369, at 110.

388. *Id.* at 108.

389. *Id.* at 112.

390. *Id.* at 56.

391. *Id.* at 51.

392. *Id.*

393. *Id.*; *see also* Diver, *supra* note 60, at 395–402 (describing and contrasting the comprehensive rationalist and incrementalist models).

394. SMITH & LARIMER, *supra* note 369, at 51–52; *see also* Herbert A. Simon, *Human Nature in Politics: The Dialogue of Psychology with Political Science*, 79 AM. POL. SCI. REV. 293, 297 (1985).

395. Simon, *supra* note 394, at 297.

396. *See* Lindblom, *supra* note 373, at 80.

makes fewer information demands, since policy alternatives are more closely linked to a known policy.³⁹⁷ Scholars in this tradition argue that incremental policymaking is not just an accurate description of decisionmaking in a boundedly rational world—it is also better for the most difficult policy problems.³⁹⁸ When complex issues and uncertain consequences undermine the analysis at the heart of a completely rational system, policymakers who rely on that system are left without guidance.³⁹⁹ In contrast, an incrementalist approach narrows the alternatives to those likely to succeed and produces policies that can be altered more easily.⁴⁰⁰

Both the comprehensive and the bounded rationality models are based on expertise. In the comprehensive rationality model, the decisionmaker is either a policy analyst or someone who relies on policy analyses conducted by experts.⁴⁰¹ The analyst is trained in sophisticated quantitative methods, including statistics and economics.⁴⁰² Such an analyst treats a policy problem neutrally and objectively, following the facts and analysis wherever they may lead.⁴⁰³ In the bounded rationality model, the decisionmaker derives expertise from the succession of incremental changes over time.⁴⁰⁴ Knowledge of the consequences of past policies and controversies informs the policymaker's decisions.⁴⁰⁵ As incremental policies are implemented, the policymaker continues to learn from the tests of predictions.⁴⁰⁶

Because of the focus on experts, both models treat the public as peripheral to policymaking. In the comprehensive rationality model, a technocratic decisionmaking process mechanically produces an objectively correct result.⁴⁰⁷ Unless the member of the public is an expert who can identify mistakes in the policy analysis, her opinion is considered uninformed at best and irrational at worst.⁴⁰⁸ The only aspect of policymaking that admits of public values is the choice of policy objective, but policymaking is already based on an objective—allocative efficiency.⁴⁰⁹ In the bounded rationality model, the decisionmaking process is more open. Yet incremental policymaking relies heavily on the policymaker's historical knowledge. Members of the public may call attention to issues that the policymaker has not considered, but these issues will be filtered

397. *Id.* at 84.

398. *See, e.g., id.* at 88.

399. *Id.* at 85.

400. *Id.*

401. SMITH & LARIMER, *supra* note 369, at 104–05.

402. *Id.* at 105.

403. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 5.

404. *See* Lindblom, *supra* note 373, at 86.

405. *Id.*

406. *Id.*

407. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 5; Lindblom, *supra* note 373, at 79–80.

408. *See* SMITH & LARIMER, *supra* note 369, at 11.

409. *See id.* at 108.

through the policymaker's past experience before the decision is made.⁴¹⁰

While rationalists view politics as “an unfortunate obstacle to clear-headed, rational analysis and good policy (which are the same thing),” postpositivists view politics as “the path to good public policy.”⁴¹¹ To them, policymaking is a subjective endeavor involving contested values, one that cannot be separated from the admittedly messy world of politics.⁴¹² Because each political actor sees a policy problem through a different interpretive lens, postpositivists contend that there are no neutral facts or objective analyses.⁴¹³ The scientific approach provides only one perspective on the policy issue, which must be balanced against others that are equally valid.⁴¹⁴ Policy is socially constructed and given meaning through narrative and argument. It is thus necessarily a normative enterprise, serving “to communicate, implement, and enforce explicitly political values.”⁴¹⁵

Postpositivists dispute the claim that comprehensive analytic rationality is objectively correct and free of values.⁴¹⁶ Information is manipulable and imperfect.⁴¹⁷ Policy problems are not self-evident; instead, they are created by political actors, who use causal stories and metaphors to strategically highlight a particular problem and explain why the problem should be addressed. In this nonlinear world of politics, policymakers may choose problems to create the need for particular policies rather than the reverse. Policy objectives are value-laden, malleable, and may change to meet the needs of political actors. For example, by choosing allocative efficiency as the policy objective, rationalists adopt a set of values that define social good as individual, self-interested utility maximization rather than as the public interest of the community. Instead of being a neutral measure of social welfare, the Kaldor-Hicks criterion leads to inequitable distribution of the benefits and burdens.⁴¹⁸

To postpositivists, policymakers are interpreters and translators.⁴¹⁹ Faced with a policy question, a policymaker should focus on “the crucial role of language, discourse, rhetorical argument, and stories,” which “shows how our understanding of the social world is framed through the discourses of the actors

410. See Lindblom, *supra* note 373, at 86.

411. SMITH & LARIMER, *supra* note 369, at 125 (quoting STONE, *supra* note 2, at xi).

412. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 13–14.

413. *Id.* at 13 (“‘Facts’ are always ‘theory-laden’ and thus rest on interpretations.”).

414. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 13 (“In the postempiricist view, there are many valid forms of explanation, empirical-scientific/causal analysis being only one of them.”); SMITH & LARIMER, *supra* note 369, at 116.

415. SMITH & LARIMER, *supra* note 369, at 117.

416. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 13 (describing postpositivism as “anchored . . . in a critique of bureaucratic culture and the positivist emphasis on ‘technical rationality’ supporting it” and arguing that the “main problem with modern-day neopositivism . . . is that it still deceptively offers an appearance of truth”).

417. STONE, *supra* note 2, at 76.

418. SMITH & LARIMER, *supra* note 369, at 120.

419. *Id.* at 121–22.

themselves, rather than fixed in nature.”⁴²⁰ For example, some postpositivists propose that policymakers employ an “argumentative turn,” using the crafted argument as the unit of analysis.⁴²¹ In this approach, a policymaker should identify the normative arguments for and against a policy and use modes of practical reasoning to determine the effects of a policy on different levels.⁴²² Empirical data is still relevant to this reasoning process. But policymakers should fit the data into the normative argument rather than use it as a basis for the argument.

Beyond interpretation and argument, postpositivists view the role of a policymaker as a facilitator and mediator of deliberative democratic processes.⁴²³ They contend that “public decision making should be made through a process of informed reflection and dialogue” among citizens, policymakers, and experts.⁴²⁴ In participatory policy analysis, for example, policymakers convene a panel of citizens with different perspectives who are interested in the policy problem but are not typical stakeholders.⁴²⁵ Citizens learn about the issues over time, utilizing the knowledge of experts but ultimately considering many different sources of information.⁴²⁶ With the assistance of facilitators, the citizens then deliberate among themselves until they reach a policy consensus.⁴²⁷

Postpositivists are skeptical of policy “experts” who are trained in traditional empirical methodologies.⁴²⁸ In the view of postpositivists, the analyses of these experts support the power of the bureaucracy at the expense of citizens, whether intentionally or unintentionally.⁴²⁹ By claiming that only they can provide the “right” answer, experts undermine public participation in politics.⁴³⁰ Yet postpositivists recognize that policy analysts need expertise in interpreting arguments, practical reasoning, and facilitating deliberations.⁴³¹ The policy analyst is viewed as a craftsperson who should learn the skills of the trade from experience and practice.⁴³² To postpositivists, the craft is as much a social process

420. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 14. *See generally* HENDRIK WAGENAAR, MEANING IN ACTION: INTERPRETATION AND DIALOGUE IN POLICY ANALYSIS (2011); DVORA YANOW, CONDUCTING INTERPRETIVE POLICY ANALYSIS (2000).

421. *E.g.*, Frank Fischer, *Deliberative Policy Analysis as Practical Reason: Integrating Empirical and Normative Arguments*, in HANDBOOK OF PUBLIC POLICY ANALYSIS: THEORY, POLITICS, AND METHODS 223, 224–25 (Frank Fischer et al. eds., 2007).

422. *Id.* at 227, 231–32.

423. SMITH & LARIMER, *supra* note 369, at 122.

424. *Id.* at 121.

425. *Id.* at 122.

426. *Id.*

427. *Id.* at 122–23.

428. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 13.

429. *Id.* at 14.

430. SMITH & LARIMER, *supra* note 369, at 122–23.

431. FRANK FISCHER, DEMOCRACY AND EXPERTISE: REORIENTING POLICY INQUIRY 121–22 (2009) [hereinafter FISCHER, DEMOCRACY AND EXPERTISE]; *see also* GIANDOMENICO MAJONE, EVIDENCE, ARGUMENT AND PERSUASION IN THE POLICY PROCESS 6–7 (1989).

432. FISCHER, DEMOCRACY AND EXPERTISE, *supra* note 431, at 122–23 (describing the “policy analyst qua craftsperson” as one who “works with technical tools, data, concepts, and theories to

as it is a logical one.⁴³³

Central to the postpositivist approach is the importance of the public. By “dispel[ling] the mystique” of bureaucratic decisionmaking, policymakers can empower the public to participate in policy through consensus-based processes such as participatory policy analysis.⁴³⁴ These processes give citizens the ability not only to create policy, but also to “make intelligent choices” about their own actions.⁴³⁵ Beyond the virtues of empowerment, some postpositivists contend that public participation is necessary for good policy.⁴³⁶ When technical expertise is no longer the source of policy knowledge, knowledge is instead produced through deliberation among experts and citizens with different perspectives. Without the public’s involvement, the knowledge to form consensus is absent.

B. *The Approaches to Risk Regulation*

A very similar debate is found in risk scholarship. Rationalist risk scholars contend that risk regulation is inefficient and ineffective because it is driven by the public’s irrational perception of risk.⁴³⁷ These critics argue for regulatory reforms that would impose a rationalist scheme, promising a reduction in risk and more transparent governance.⁴³⁸ Meanwhile, democratic risk scholars support a more protective approach that reflects public values, and question the effects of regulatory reforms on safety and on democratic governance.⁴³⁹

To rationalist risk scholars, the fundamental policy question in environmental, health, and safety regulation is the level at which a risk is acceptable—How safe is safe enough?⁴⁴⁰ The policy answer, informed by risk science and welfare economics, is dependent on the probability of the harm and the social utility of the hazardous activity.⁴⁴¹ Many hazardous activities pose acceptable risks because the actual likelihood of death or injury is low, and there are countervailing benefits to social welfare.⁴⁴² The purpose of regulation is to systematically reduce the unacceptable risks, prioritizing the ones that can be

structure evidence and arguments that support particular conclusions”).

433. *Id.* at 123.

434. FISCHER, REFRAMING PUBLIC POLICY, *supra* note 371, at 15–16 (“The goal is to provide access and explanation of data to all parties, to empower the public to understand analyses, and to promote serious public discussions.”).

435. *Id.* at 15.

436. *Id.* at 16.

437. *See, e.g.*, BREYER, *supra* note 32, at 33–39; Graham, *Risk Not Reduced*, *supra* note 205, at 394–98.

438. Christopher C. DeMuth & Douglas H. Ginsburg, *Rationalism in Regulation*, 108 MICH. L. REV. 877, 901 (2010) (reviewing REVESZ & LIVERMORE, *supra* note 17).

439. *See* Steve Rayner & Robin Cantor, *How Fair Is Safe Enough? The Cultural Approach to Societal Technology Choice*, 7 RISK ANALYSIS 3, 3–4 (1987).

440. *See, e.g.*, Chauncey Starr, *Social Benefit Versus Technological Risk*, 165 SCIENCE 1232, 1233 (1969) [hereinafter Starr, *Social Benefit*] (describing a risk-benefit analysis that would “give a rough answer to the seemingly simple question ‘How safe is safe enough?’”).

441. *See, e.g., id.*

442. *Id.*

reduced at the least cost, until the risks are safe enough.⁴⁴³ At this level, the risks are acceptable to society because the cost of risk reduction is no longer justified by the benefits to human health, safety, and the environment.⁴⁴⁴

Rationalist risk scholars view risk as pervasive; there are innumerable sources of potential harm to humans and the environment.⁴⁴⁵ Yet the very ubiquity of risk makes it ordinary.⁴⁴⁶ To rationalists, risk presents an ongoing condition to be managed, rather than an apocalyptic event to be feared.⁴⁴⁷ Each person “live[s] in a perpetual state of risk management, continually accepting and rejecting risks,” such as whether to fasten a seatbelt before driving.⁴⁴⁸ But individuals also have distorted perceptions of risk that do not accord with the “real” or actual risk.⁴⁴⁹ Scientists have the expertise to analyze data and determine the “reality of what may or may not occur” by transforming the potential for harm into a mathematical probability.⁴⁵⁰

The most outspoken rationalist risk scholars subscribe to the comprehensive rationality model; they view regulation as an analytic decision problem with an objectively correct policy answer.⁴⁵¹ In this technocratic vision of policymaking, each decision element—the decisionmaker, the decisionmaking process, and the decisionmaking criteria—must be rational to ensure that the answer is rational.⁴⁵² The rational decisionmaker is a neutral and objective policy expert.⁴⁵³ This policy expert ranks risks based on assessments of the quantitative risks of activities.⁴⁵⁴ Beginning with the highest priority, the expert engages in a rational decisionmaking process to identify the universe of policy options and examine the potential costs and benefits of each of the options.⁴⁵⁵ The analytical process is comprehensive in scope, taking into account not only the direct costs of regulation but also the “risk-risk tradeoffs”; that is, the ways in which reducing one risk can increase another.⁴⁵⁶ The policy expert then bases the decision on the

443. *Id.*

444. Herman B. Leonard & Richard J. Zeckhauser, *Cost-Benefit Analysis Applied to Risks: Its Philosophy and Legitimacy*, in *VALUES AT RISK* 31, 33 (Douglas MacLean ed., 1986); see also DeMuth & Ginsburg, *supra* note 438, at 879–80.

445. BREYER, *supra* note 32, at 3; Graham, *Risk Not Reduced*, *supra* note 205, at 388.

446. Graham, *Legislative Approaches*, *supra* note 283, at 14.

447. See *id.* at 18.

448. Graham, *Risk Not Reduced*, *supra* note 205, at 388; Gary W. Johnson, *Recognizing Risks and Paying for Risk Reduction*, 2 *RISK* 189, 189 (1991).

449. Chauncey Starr, *Introductory Remarks*, in *SOCIETAL RISK ASSESSMENT: HOW SAFE IS SAFE ENOUGH?* 2, 4 (Richard C. Schwing and Walter A. Albers eds., 1980).

450. *Id.*

451. Starr, *Social Benefit*, *supra* note 440, at 1233.

452. See *id.* at 1233–34.

453. Cf. Graham, *Saving Lives*, *supra* note 17, at 449 (arguing that policy analysts in the Office of Management and Budget are not biased as their “dedication to exploring opportunities for cost reduction appears to compensate for a natural preregulation bias among staff at the regulatory agencies”).

454. See Starr, *Social Benefit*, *supra* note 440, at 1233–34.

455. Diver, *supra* note 60, at 396.

456. See Graham, *Legislative Approaches*, *supra* note 283, at 48–49; Starr, *Social Benefit*, *supra*

rational decisionmaking criterion of providing the greatest net benefits to society.⁴⁵⁷ Other approaches are viewed suspiciously as “an expedient vehicle for the achievement of other political objectives.”⁴⁵⁸

Democratic risk scholars consider the fundamental policy question to be whether a given risk accords with society’s values on the environment, public health, and safety: How fair is safe enough?⁴⁵⁹ The policy answer depends not only on the quantitative probability of the risk, but on the nature of the harm itself.⁴⁶⁰ It also depends on whether those who bear the risk will receive the benefits of it, and whether affected individuals have consented to the risk.⁴⁶¹ The purpose of regulation is to reduce the risks that society has deemed to be most significant, until the risks are “safe enough” to be fair.⁴⁶² A fair result may not be the elimination of risk at all costs, but the costs of risk reduction are subordinate to the ultimate goal of fairness.⁴⁶³

Democratic risk scholars view risk as more than a quantitative probability of harm: it includes features such as the catastrophic nature of the consequences, the equity of distribution, and the affected public’s knowledge and consent.⁴⁶⁴ Because of attributes such as catastrophic harm and involuntary exposure, members of the public cannot “manage” risks from modern industrial activities in the same way they manage everyday risks such as driving.⁴⁶⁵ A layperson’s perception of risk takes into account these attributes and is as “real” as an expert’s calculated risk.⁴⁶⁶ Thus, a decision to treat risks of the same mathematical probability differently can be rational.⁴⁶⁷

Democratic risk scholars view regulation as a political process of resolving social conflicts about values.⁴⁶⁸ In this process-based vision of policymaking, the decisionmaker is a facilitator among groups who hold different values and an advocate for those who are affected by risk decisions but are not able to participate.⁴⁶⁹ The decisionmaking process is open and participatory; the goal is

note 440, at 1235–37.

457. Diver, *supra* note 60, at 396.

458. Richard B. Belzer, *Is Reducing Risk the Real Objective of Risk Management?*, in *WORST THINGS FIRST? THE DEBATE OVER RISK-BASED NATIONAL ENVIRONMENTAL PRIORITIES* 167, 168 (Adam M. Finkel & Dominic Golding eds., 1994).

459. Rayner & Cantor, *supra* note 439, at 3.

460. *Id.*

461. *Id.*

462. *See id.* at 5.

463. *See id.*

464. Baruch Fischhoff et al., *Defining Risk*, 17 *POL’Y SCI.* 123, 124–25 (1984); Paul Slovic et al., *Facts Versus Fears: Understanding Perceived Risk*, in *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* 463, 463–64 (Daniel Kahneman et al. eds., 1982).

465. *See* Fischhoff et al., *supra* note 464, at 127–28.

466. *See* Slovic et al., *supra* note 464, at 464–65.

467. *See* Baruch Fischhoff, *Acceptable Risk: A Conceptual Proposal*, 5 *RISK* 1, 7 (1994).

468. K. S. SCHRADER-FRECHETTE, *RISK AND RATIONALITY: PHILOSOPHICAL FOUNDATIONS FOR POPULIST REFORMS* 89 (1991); Kristin S. Schrader-Frechette, *Perceived Risks Versus Actual Risks: Managing Hazards Through Negotiation*, 1 *RISK* 341, 354, 356–57 (1990).

469. SCHRADER-FRECHETTE, *supra* note 468, at 362–63.

to involve as many stakeholders and gather as much information as possible.⁴⁷⁰ While risk experts remain an important source of information, their expertise informs the larger process instead of serving as the exclusive basis of the decision.⁴⁷¹ In this view, the criteria for a decision are tied to the decisionmaking process itself.⁴⁷² If the process to obtain consent and the basis for liability are acceptable to risk bearers, and if the institutions that manage and regulate risk are trustworthy, then the result of the process is likely to be acceptable.⁴⁷³

C. *The Pipeline Safety Framework*

The Accountable Pipeline Safety and Partnership Act (APPA),⁴⁷⁴ revolutionized the statutory decisionmaking framework for regulation of pipeline risks. In enacting the APPA, the 104th Congress transformed a statute that provided the Agency with little direction on how to make the best policy decisions into one designed to answer “How safe is safe enough?” The reforms incorporated all three elements of the risk rationalist model: a rational decisionmaking process, a rational decisionmaker, and substantively rational decisions.

First, the APPA transformed an undefined decisionmaking process into one that promotes rational analysis. Prior to 1996, the Pipeline Safety Act (PSA) did not specify a process for making decisions.⁴⁷⁵ Under the amended PSA, however, PHMSA must conduct a “risk assessment” and “reasonably” identify or estimate the costs and benefits of most proposed safety standards.⁴⁷⁶ The “risk assessment” includes more than a calculation of risk—it is a template for policy analysis. PHMSA must identify the “regulatory and nonregulatory options” it considered and provide “the reasons for the selection of the proposed standard in lieu of the other options identified,” and “a brief explanation of the reasons” each of the other options were not selected.⁴⁷⁷ The Agency must also disclose the “technical data or other information” on which its policy analysis and standard are based.⁴⁷⁸

Second, the APPA transformed the existing process of technical review into one intended to oversee the objective rationality of the decisionmaker. Prior to 1996, the technical committees, composed of industry, public, and governmental representatives, prepared a report on the technical practicality and

470. Fischhoff et al., *supra* note 464, at 137.

471. *See id.*

472. *Id.*

473. *See* Rayner & Cantor, *supra* note 439, at 8.

474. Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104–304, 110 Stat. 3793 (codified as amended in scattered sections of 49 U.S.C.).

475. *Compare id.* (establishing a decisionmaking process based on certain criteria), with 49 U.S.C. §§ 60101–25 (1995) (providing no decisionmaking process)

476. 49 U.S.C. § 60102(b)(2)–(3) (2012) (applying risk assessment mandate to general safety standards as well as other standards under specific sections of the PSA).

477. *Id.* § 60102(b)(3)(A), (C).

478. *Id.* § 60102(b)(3)(D).

reasonableness of each proposed standard.⁴⁷⁹ The APPA, however, expanded the technical committees' mandates and memberships to provide more oversight of PHMSA's decisionmaking.⁴⁸⁰ Under the revised PSA, the committees must also report on the cost-effectiveness of the standard, extending their mandate to economic feasibility.⁴⁸¹ In addition, the committees must conduct a "peer review" of each risk assessment, including the merit of the data and methods, and make recommendations.⁴⁸² In turn, PHMSA must provide a written response to "significant" comments and alternatives, and may choose to revise its analysis or standard.⁴⁸³ The APPA also directed PHMSA to consider the comments and recommendations of the committees in setting safety standards.⁴⁸⁴ Each committee is required to include two experts in risk assessment and cost-benefit analysis.⁴⁸⁵

Third, the APPA transformed the substantive basis of the regulatory program from feasibility to rationality. The PSA authorizes PHMSA to set "practicable" safety standards that will meet the need for safety and environmental protection.⁴⁸⁶ Prior to 1996, the PSA directed PHMSA to consider the appropriateness of the standard to the type of pipeline, the reasonableness of the standard, and the extent to which the standard would contribute to public safety and protect the environment.⁴⁸⁷ In the only case to interpret these criteria, the court declared that "public safety, and not cost, [is] the predominant concern" in setting standards.⁴⁸⁸ Under the amended PSA, however, PHMSA can propose or adopt a safety standard "only upon a reasoned determination that the benefits of the intended standard justify its costs."⁴⁸⁹ This criterion applies to all standards issued under the PSA, even those that are exempted from the other reform provisions, unless "otherwise required by statute."⁴⁹⁰ In addition, the APPA directed PHMSA to consider the costs and

479. 49 U.S.C. § 60115(b)(3), (c)(2) (1995) (requiring the "appropriate committee" to "prepare a report on the technical feasibility, reasonableness, and practicability of the proposed standard").

480. Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104-304, §4(b), 110 Stat. 3793, 3794 (codified as amended in scattered sections of 49 U.S.C.).

481. 49 U.S.C. § 60115(c)(2) (2012).

482. *Id.* § 60102(b)(4)(A)-(B).

483. *Id.* § 60102(b)(4)(C)(ii).

484. Accountable Pipeline Safety and Partnership Act of 1996 § 4(b).

485. 49 U.S.C. § 60102(b)(3)(B). At the same time, the APPA shifted the balance of the committees to include equal numbers of industry and public members by replacing a public representative with an industry one. Accountable Pipeline Safety and Partnership Act of 1996 § 10(b)(3)-(4).

486. 49 U.S.C. § 60102(b)(1).

487. 49 U.S.C. § 60102(b)(2)-(4) (1995).

488. *IBEW, Local 1245 v. Skinner*, 913 F.2d 1454, 1457-60 (9th Cir. 1990) (stating that Congress intended to "avoid the promulgation of unreasonable rules not supported by a demonstrated need in the industry," and that uncertainty in the cost-benefit analysis did not make a rule unreasonable, but noting that "[t]his is not to say that some costs, properly demonstrated, might not be too great considering their marginal contribution to safety").

489. 49 U.S.C. § 60102(b)(5) (2012).

490. *Id.* § 60102(b)(5)-(6) (applying substantive decision criterion to standards "under this

benefits of a policy while removing consideration of the impact of a standard on public safety and the environment.⁴⁹¹ Taken together, these reforms make rationalism the primary substantive standard unless Congress specifically provides otherwise.⁴⁹²

The APPA not only significantly altered the decisionmaking framework under the PSA, it also codified and extended the executive's rationalist requirements for agencies such as PHMSA. Both President Reagan's and President Clinton's executive orders directed agencies to analyze the costs and benefits of each "significant" or "major" proposed rule, and to submit the rule and analysis to the Office of Management and Budget (OMB) for its review.⁴⁹³ The APPA applied a cost-benefit analysis requirement and a form of rationalist review to most rules issued by PHMSA, regardless of the economic effect of the regulation.⁴⁹⁴ The executive orders directed or encouraged agencies to use substantive rationalist criteria for rules,⁴⁹⁵ but the criteria could not be enforced,⁴⁹⁶ and PHMSA was ultimately bound by the PSA.⁴⁹⁷ The APPA, however, codified the substantive cost-benefit standard in President Clinton's order, and made it mandatory for safety rules unless otherwise specified.⁴⁹⁸ As a result, the rationalist standard was enforceable through judicial review of a PHMSA regulation.⁴⁹⁹

The extreme deregulatory elements from the initial bills, such as overly prescriptive analytical requirements and multiple stringent rationalist criteria,

Chapter" unless "otherwise required by statute," and providing an exception to the risk assessment requirement when the rule is a product of negotiated rulemaking or other rulemaking "that receives no significant adverse comment within 60 days of notice in the Federal Register," when "three-fourths of the members [of the relevant technical advisory committee] voting concur," or when no notice or public participation is required under the Administrative Procedure Act).

491. Compare 49 U.S.C. § 60102(b)(4) (1995), with Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104-304, §4(b), 110 Stat. 3793, 3794 (codified as amended in scattered sections of 49 U.S.C.).

492. See 49 U.S.C. § 60102(b)(5) (2012) (stating that decision criterion applies "[e]xcept where otherwise required by statute").

493. Exec. Order No. 12,866 §§ 3(f), 6(a)(3)(B)-(C), 3 C.F.R. 638 (1994), *reprinted as amended in* 5 U.S.C. § 601 (2012) (requiring cost-benefit analysis for "significant" rules that "[h]ave an annual effect on the economy of \$100 million or more" or meet other tests); Exec. Order No. 12,291 §§ (1)(b), (3), 3 C.F.R. 127 (1982) (requiring cost-benefit analysis for "major" rules that "[h]ave an annual effect on the economy of \$100 million or more" or meet other tests).

494. Accountable Pipeline Safety and Partnership Act of 1996 § 4(b) (applying requirements to general safety standards and standards required under most of the specific sections of the PSA).

495. Exec. Order No. 12,866 § 1(b) (stating that agencies "should adhere to . . . [rationalist] principles, to the extent permitted by law and where applicable"); Exec. Order No. 12,291 § 2 (requiring agencies to adhere to general rationalist requirements "to the extent permitted by law").

496. Exec. Order No. 12,866 § 10 (providing that the order "does not create any right or benefit, substantive or procedural, enforceable at law"); Exec. Order No. 12,291 § 9 (same).

497. See Exec. Order No. 12,866 § 9; Exec. Order No. 12,291 §§ 2, 3(d)(4)-(5).

498. See Accountable Pipeline Safety and Partnership Act of 1996 § 4(b) (applying to standards "under this Chapter" unless "otherwise required by statute"); Exec. Order No. 12,866 § 1(b)(6).

499. 49 U.S.C. § 60119 (2012) (providing for judicial review of regulations in U.S. Circuit Courts of Appeals).

were not in the final version.⁵⁰⁰ By the time the Senate passed Senate Bill 1505, the only remains of the prescriptive analyses were the term “risk assessment” and the calculation of “reasonably identifiable or estimated” costs and benefits.⁵⁰¹ Criteria such as cost-effectiveness and flexibility had also disappeared.⁵⁰² Still, the APPA displayed the marks of a powerful industry that lobbied for less regulation and more influence.⁵⁰³ This was particularly apparent in the “peer review” requirement; it empowered a committee of stakeholders, whose composition had been changed to favor the industry⁵⁰⁴ but bore little resemblance to traditional expert review. It was also apparent in the exemptions to the decision process for rules with little to no opposition, which treated rationalism as an accountability mechanism rather than as a method of decisionmaking.⁵⁰⁵

Yet, ultimately, the APPA comes closest of all the products of the Contract with America to realizing the technocratic vision of rationalism. The combination of procedural and substantive rationalist reform is unique. Unlike the generic reform laws passed by the 104th Congress—the Unfunded Mandates Reform Act⁵⁰⁶ and the Small Business Regulatory Enforcement Fairness Act⁵⁰⁷—the APPA does not rely solely on analytical or procedural requirements to ensure rationality. Even the contemporaneous, similar reforms to the Safe Drinking Water Act did not require rational risk regulation.⁵⁰⁸ The amendments contained very prescriptive analytical requirements and required the Environmental Protection Agency (EPA) to make a determination “as to whether the benefits of the [drinking water standard] justify, or do not justify, the costs.”⁵⁰⁹ But the EPA was given the discretion to choose whether to set the

500. Compare H.R. 1187, 104th Cong. (1995), and H.R. 1323, 104th Cong. (1995), with Accountable Pipeline Safety and Partnership Act of 1996.

501. See Accountable Pipeline Safety and Partnership Act of 1996 § 4(b).

502. *Id.*

503. See, e.g., *id.* §§ 4(d)–(e), 5–9 (removing more stringent regulatory requirements and adding a risk management demonstration project).

504. *Id.* §§ 4(b), 10.

505. *Id.* § 4(b) (providing an exception when the rule is a product of negotiated rulemaking or other rulemaking “that receives no significant adverse comment within 60 days of notice in the Federal Register,” when “three-fourths of the members [of the relevant technical advisory committee] voting concur,” or when no notice or public participation is required under the Administrative Procedure Act).

506. Unfunded Mandates Reform Act of 1995, Pub. L. No. 104–4, §§ 202, 205, 109 Stat. 48, 64, 66 (codified as amended in scattered sections of 2 U.S.C.) (requiring a cost-benefit analysis for regulations that are likely to result in annual expenditures by the private sector of \$100 million or more, and requiring the agency to publish an explanation of why the least costly, most cost-effective or least burdensome alternative was not adopted).

507. Small Business Regulatory Enforcement Fairness Act of 1996, Pub. L. No. 104–121, 110 Stat. 847 (codified at 5 U.S.C. §§ 601–12) (amending the Regulatory Flexibility Act and providing for judicial review of certain agency decisions involving regulatory flexibility analyses).

508. Safe Drinking Water Act Amendments of 1996, Pub. L. 104–182, 110 Stat. 1613 (codified as amended at 42 U.S.C. § 300g-1); see also John F. Cooney, *Regulatory Reform in the 104th Congress*, 22 ADMIN. & REG. L. NEWS 14, 14 (1997).

509. Safe Drinking Water Act Amendments of 1996, 42 U.S.C. § 300g-1(b)(4)(C) (2012).

drinking water standard using this criterion.⁵¹⁰

The PSA remains unique in its rationalist approach. Other environmental, health, and safety statutes require agencies to consider costs through open-ended balancing tests, technology standards, or feasibility requirements.⁵¹¹ Courts have read a requirement to consider costs into broad statutory provisions⁵¹² and deferred to agencies that conduct a cost-benefit analysis in setting standards.⁵¹³ But no other statute besides the PSA contains an explicit—and mandatory—cost-benefit decisionmaking standard that generally governs the regulation of risk.⁵¹⁴

IV. ASSESSING THE RESULTS

Over the past twenty years, the reforms put in place by the 104th Congress have governed PHMSA's regulation of risk.⁵¹⁵ The rationalist framework has not produced the comprehensively rational decisionmaking process that risk rationalists predicted; instead, the Agency has adopted a cautious, incremental approach and shifted decisionmaking to the industry. While the reforms have led PHMSA to choose less costly safety standards, there do not appear to be substantial efficiency gains. And rather than promote democratic governance and transparency, the reforms have discouraged public involvement in policymaking. Frustrated by the slow pace of regulation, Congress has continued to intervene and set policy priorities for the Agency. The result is a dysfunctional regulatory system that is far from the rationalist ideal.

A. *The Predictions*

Rationalist risk scholars promised that by shielding agencies from the irrational demands of the public, regulatory reform would improve the economic

510. *Id.* § 300g-1(b)(6)(A) (providing that the EPA “may, after notice and opportunity for public comment, promulgate a maximum contaminant level for the contaminant that maximizes health risk reduction benefits at a cost that is justified by the benefits” (emphasis added)).

511. See generally SHAPIRO & GLICKSMAN, *supra* note 14.

512. *Michigan v. EPA*, 135 S. Ct. 2699, 2711 (2015) (interpreting the phrase “such regulation is appropriate and necessary” to require consideration of costs but not a formal cost-benefit analysis (quoting 42 U.S.C. § 7412(n)(1)(A) (2012))).

513. *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 226 (2009) (holding that the EPA permissibly relied on cost-benefit analysis in setting standards).

514. SHAPIRO & GLICKSMAN, *supra* note 14, at 44. The author conducted a word search of the U.S. Code using the terms “cost/s benefit.” While some statutes reference costs and benefits, there is no similar cost-benefit justification standard. The closest standard was in identical technology exceptions in two statutes that regulate offshore activities. Both were enacted prior to 1996. See 43 U.S.C. § 1347(b) (2012) (requiring best available technologies “except where . . . the incremental benefits are clearly insufficient to justify the incremental costs of utilizing such technologies”); 30 U.S.C. § 1419 (2012) (similar).

515. Congress has reauthorized the program every four years and added requirements, but it has not amended the rationalist provisions. Compare Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104-304, § 4(b)(2)–(3), 110 Stat. 3793, 3794 (codified as amended in scattered sections of 49 U.S.C.), with 49 U.S.C. § 60102(b) (2012).

efficiency of regulation and lead to more democratic governance.⁵¹⁶ Scholars predicted that reform would improve efficiency by saving more lives and better protecting human health and the environment, while at the same time minimizing costs.⁵¹⁷ Reform would improve democratic governance by limiting the influence of the regulated industry and providing the public with better information.⁵¹⁸ This would create a virtuous circle in which objective agency decisions would increase the public's trust in government, the public would cease lobbying Congress to adopt irrational policies, and Congress would defer to agency expertise.⁵¹⁹

In contrast, democratic risk scholars contended that neither of the promised benefits would appear. The reforms would actually increase risks to human health and the environment.⁵²⁰ The "comprehensive analytical rationality" required by the reforms would be so burdensome that the agency would fail to regulate even when the benefits would have been greater than the costs.⁵²¹ In addition, the process would result in more, not less, special-interest lobbying at the expense of the general public since it would reward those stakeholders who had the resources to hire technical experts.⁵²² The reforms' heavy reliance on detailed information about risk and costs would create perverse incentives for regulated entities not to collect information and would also encourage strategic behavior by regulated entities in releasing information.⁵²³

Democratic risk scholars also warned that the reforms would have the opposite effect on the political process from the outcome expected by rationalists.⁵²⁴ As the agency continually failed to regulate and special interests grew more influential, members of Congress would trust the agency less.⁵²⁵ This would lead Congress to exert more control by either making policy decisions itself or specifying the decisionmaking process in more detail.⁵²⁶ Far from creating a virtuous circle, regulatory reform that was designed to remove risk decisions from politics and place them in the hands of experts would instead result in more political interference.⁵²⁷

516. SUNSTEIN, COST-BENEFIT STATE, *supra* note 17, at 9; Graham, *Saving Lives*, *supra* note 17, at 411-12.

517. Adler & Posner, *supra* note 51, at, 175; Graham, *Saving Lives*, *supra* note 17, at 400.

518. SUNSTEIN, COST-BENEFIT STATE, *supra* note 17, at 9.

519. See BREYER, *supra* note 32, at 73, 78.

520. See, e.g., Applegate, *supra* note 12, at 282 (discussing the risks associated with toxic substances and the lack of knowledge as to their precise effects).

521. *Id.* at 296-97.

522. Donald T. Hornstein, *Paradigms, Process, and Politics: Risk and Regulatory Design, in WORST THINGS FIRST? THE DEBATE OVER RISK-BASED NATIONAL ENVIRONMENTAL PRIORITIES*, *supra* note 458, at 147, 151, 154-55.

523. *Id.*; see also Mary L. Lyndon, *Information Economics and Chemical Toxicity: Designing Laws to Produce and Use Data*, 87 MICH. L. REV. 1795, 1797-98 (1989).

524. Hornstein, *supra* note 522, at 157.

525. *Id.*

526. *Id.*

527. See *id.*

B. The Outcome

PHMSA's rationalist regulatory framework took form in a 1999 document, "A Collaborative Framework for Office of Pipeline Safety Cost-Benefit Analyses."⁵²⁸ Prepared by a government-industry working group, the framework translated the broad outlines of the statutory requirements into comprehensive rationalist policy analysis. In the framework, policymaking is depicted through a process flowchart.⁵²⁹ The Agency identifies and defines the target problem; identifies all available alternatives, including nonregulatory ones; performs an initial screening of alternatives; defines the baseline and scope of analysis; and conducts an analysis of incremental costs and benefits of the alternatives.⁵³⁰ Using data that is sourced collaboratively, the Agency employs sophisticated analytical tools to quantify costs and benefits whenever possible.⁵³¹

The working group expected that this analysis would produce better decisionmaking and more efficient policy, including clearer policy priorities and regulations that would "solve actual problems."⁵³² It also recognized the importance of identifying factors such as equitable distribution of costs and benefits and the potential for irreversible or unintended consequences.⁵³³ Its vision of rationalist analysis went beyond the model of expert policymaking, however, to explicitly embrace the potential for better democratic governance.⁵³⁴ The group believed that the process of analyzing costs and benefits would form the basis of "interaction among stakeholders representing the government, industry, environmental and safety constituencies, and the public."⁵³⁵ Through these interactions, the analysis would inform stakeholders, make discussions more effective, reduce conflict, and increase mutual understanding.⁵³⁶

The framework stopped short of explaining how the analysis should inform the statutory requirement that the benefits justify the costs.⁵³⁷ But an example appended to the framework demonstrated the difficulties the Agency would face in justifying its regulations.⁵³⁸ The group chose a policy problem that PHMSA and the industry had been considering for several years at the behest of Congress: the lack of standardized information on the location and characteristics of the nation's transmission pipeline network.⁵³⁹ Using the

528. JOINT OPS STAKEHOLDER WORKGROUP, FINAL REPORT: A COLLABORATIVE FRAMEWORK FOR OFFICE OF PIPELINE SAFETY COST-BENEFIT ANALYSES (1999).

529. *Id.* at 6.

530. *Id.* at 6–29.

531. *Id.* at 4–5.

532. *Id.* at 3.

533. *Id.*

534. *Id.* at 1.

535. *Id.*

536. *Id.*

537. *Id.* at 33 (cautioning that the analysis "should never be the sole criterion for decisionmaking" and that the quantitative results should not be interpreted "too literally").

538. *See id.* app. A, at A-1 (titled "Illustrative Cost-Benefit Analysis of Pipeline Mapping").

539. *Id.* at A-6.

framework, the working group evaluated two policy alternatives to create a national pipeline mapping system: (1) a mandatory requirement to submit digitized data on the location, age, material, diameter, and valves of each pipeline; or (2) a “voluntary” initiative that would give the industry the choice between submitting digitized data on the location of each pipeline or paper maps that met certain criteria.⁵⁴⁰ Even though PHMSA and the industry worked collaboratively on the example, critical data on costs and benefits was missing.⁵⁴¹ The resulting analysis overestimated the costs of compliance and failed to quantify the benefits except by limited hypotheses, thus appearing to support the less costly voluntary initiative.⁵⁴²

As presaged by the mapping example, PHMSA has found it difficult to defend the benefits of reducing low-probability, high-consequence risks.⁵⁴³ Faced with the challenge of justifying policy decisions with inadequate information, PHMSA has embraced two strategies: incrementalism and private regulation. Instead of following the comprehensive process in the framework to find the “best” policy with the greatest net benefits, PHMSA “satisfices” by seeking policies that are politically feasible—that is, acceptable to industry and government stakeholders. In this form of policymaking, rationalist analysis is not a device to inform expert decisionmaking as much as it is a form of negotiation to work out political conflicts. This explains why PHMSA has not followed the framework and analyzed alternatives when the economic costs of a chosen policy are “minimal,” but has conducted extensive analyses for policies that are more controversial.⁵⁴⁴

540. *Id.* at A-1. After Congress directed PHMSA to issue rules that would establish criteria for pipeline operators to identify pipelines in highly populated and environmentally sensitive areas in 1992, PHMSA formed a joint industry-government Mapping Quality Action Team (MQAT) to consider the best means of creating a mapping system. *Id.* at A-5 (referring to the Pipeline Safety Act of 1992, Pub. L. No. 102-508, 106 Stat. 3289).

541. *See id.* at A-27 to -28.

542. *See id.* at A-12 to -28 (acknowledging that the costs of the voluntary alternative were overstated because the group did not have data on the baseline cost of electronic systems that pipeline operators would have installed without regulation; the costs of the mandate were unknown but estimated to be three times the voluntary alternative; and the benefits could not be quantified except by hypothesizing data for three sample categories); *see also id.* at A-5 (noting that the MQAT had chosen the voluntary approach).

543. Even in more recent, extensive analyses to be reviewed by the OMB, PHMSA has not been able to quantify many public health, environmental, and socioeconomic impacts, such as the long-term health impacts of spills or the improved public confidence in pipeline operations. *See, e.g.,* ECONOMETRICA, PRELIMINARY REGULATORY IMPACT ANALYSIS: PIPELINE SAFETY: SAFETY OF HAZARDOUS LIQUID PIPELINES NOTICE OF PROPOSED RULEMAKING 30-33 (2015); U.S. DEP’T OF TRANSP., PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., PRELIMINARY REGULATORY ASSESSMENT IMPACT ANALYSIS: SAFETY OF GAS TRANSMISSION AND GATHERING PIPELINES 125 (2016) [hereinafter PRELIMINARY RIA: SAFETY OF GAS PIPELINES].

544. *Compare* Pipeline Safety: Incorporation by Reference of Industry Standard on Leak Detection, 63 Fed. Reg. 36,373, 36,375 (July 6, 1998) (codified at 49 C.F.R. pt. 195) (stating that PHMSA “believes that the cost of this regulation will be minimal and that a regulatory evaluation is not necessary”), *with* PRELIMINARY RIA: SAFETY OF GAS PIPELINES, *supra* note 543 (analyzing costs and benefits of controversial rule in 182-page document).

Of the sixty-one safety standards the Agency has issued since the reforms were enacted, approximately half were standards that imposed little cost on the industry or provided cost savings through relaxed requirements or more flexibility.⁵⁴⁵ The Agency has relied heavily on the industry's technical standards, which by nature take an incremental approach to safety.⁵⁴⁶ For more controversial policies, often prescribed by Congress, the collaborative collection of information envisioned in the framework has given way to contestation over compliance costs and asserted benefits.⁵⁴⁷ PHMSA has negotiated these policies by adopting consensus standards established by standard-setting organizations and agreeing to substantive recommendations of the technical committees.⁵⁴⁸ Perhaps because the policies are the product of consensus, the Agency rarely refers to the rationalist requirements when it issues final rules, even as the notices quote the same substantive language in the executive order.⁵⁴⁹ As none of PHMSA's rules have been challenged in court since 1996, at least as measured by available judicial opinions, the Agency's compliance with the regulatory reforms has never been subject to judicial review and evaluation.⁵⁵⁰

PHMSA has also delegated risk regulation to the industry through integrity management policies that require each pipeline operator to identify and manage the risks to the integrity of its pipelines in "high consequence" areas where an

545. For a list of PHMSA rules, see *Rulemaking Documents*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://www.phmsa.dot.gov/regulations-fr/rulemaking> [perma: <http://perma.cc/P5JV-KYWC>] (last visited Feb. 18, 2018).

546. See, e.g., Pipeline Safety: Periodic Updates of Regulatory References to Technical Standards and Miscellaneous Edits, 75 Fed. Reg. 48,593, 48,594 (Aug. 11, 2010) (codified at 49 C.F.R. pts. 192, 193, 195) (incorporating forty new editions of standards by reference).

547. See, e.g., Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 68 Fed. Reg. 69,778, 69,810–14 (Dec. 15, 2003) (codified at 49 C.F.R. pt. 192) (responding to industry comments on cost-benefit analysis).

548. See, e.g., *id.* at 69,779–82 (summarizing technical committee's recommendations and Agency's acceptance of the recommendations); Terry Boss et al., *The Benefits of Consensus Standards: A Pipeline Case Study* 5–6 (Int'l Pipeline Conf., Working Paper No. IPC04-0166, 2004) (stating that industry standard saved the industry \$4.2 billion in compliance costs). PHMSA also experimented with using negotiated rulemaking shortly after the reforms were passed. See Pipeline Safety: Qualification of Pipeline Personnel, 64 Fed. Reg. 46,853, 46,854–55 (Aug. 27, 1999) (codified at 49 C.F.R. pts. 192, 195) (describing negotiated rulemaking process).

549. See Pipeline Safety: Operator Qualification, Cost Recovery, Accident and Incident Notification, and Other Pipeline Safety Changes, 82 Fed. Reg. 7,972, 7,991 (Jan. 23, 2017) (codified at 49 C.F.R. pts. 190, 191, 192, 195, 199) (stating Executive Order No. 12,866 requires agencies to "make a reasoned determination that the benefits of the intended regulation justify its costs"); PHMSA, REGULATORY IMPACT ANALYSIS AND REGULATORY FLEXIBILITY ACT ANALYSIS: PIPELINE SAFETY: OPERATOR QUALIFICATION, COST RECOVERY, AND OTHER PIPELINE SAFETY CHANGES 3 (2017) (same).

550. The only PHMSA rule that has been challenged is a 1988 rule requiring drug testing of pipeline employees. See *IBEW, Local 1245 v. Skinner*, 913 F.2d 1454, 1460 (9th Cir. 1990) (holding that rule was not arbitrary and capricious); see also *Oil, Chem. & Atomic Workers v. Skinner*, 724 F. Supp. 1264, 1266 (N.D. Cal. 1989) (holding that challenge to same rules must be heard in U.S. Circuit Courts of Appeals); cf. *Five Flags Pipe Line Co. v. U.S. Dep't of Transp.*, Civ. A. No. 89–0119 JGP, 1992 WL 78773, at *6 (D.D.C. Apr. 1, 1992) (reviewing challenge to PHMSA's user fee schedule in part on grounds that the Agency failed to follow procedural rulemaking requirements).

incident could result in the most harm.⁵⁵¹ Built on the risk management program authorized by Congress in 1996,⁵⁵² these “management-based” programs in essence replace comprehensive rational policymaking. Operators are expected to “comprehensively evaluate the entire range of threats to each pipeline segment’s integrity by analyzing all available information about the pipeline segment and consequences of a failure,” “evaluate all defects” and prioritize them for repair, and choose preventative and mitigative measures to respond to the identified threats.⁵⁵³ PHMSA predicted that this process would result in the same rationalist outcomes: better decisionmaking about risk, more efficient risk reduction, and greater accountability to the public.⁵⁵⁴ While the cost-benefit analyses of the rules were controversial because of the costs of regular inspections, the industry supported the shift to private risk management.⁵⁵⁵ PHMSA has adopted a consensus-based standard for natural gas transmission programs.⁵⁵⁶

The effect of the reforms on efficiency cannot be precisely known without data on the social costs and benefits of policies over time—the very data that has been difficult for PHMSA to obtain.⁵⁵⁷ Yet the pipeline incident data does not reveal the kind of large increase in efficiency that risk rationalists argued was possible if agencies paid attention to costs and benefits. The trends over the last twenty years are mixed: deaths have decreased slightly, while injuries have fluctuated; less hazardous liquid has entered the environment, while property damage has risen, driven largely by two spikes in 2005 and 2010.⁵⁵⁸ The overall significant incident rate—the number of significant incidents per mile—has declined slowly.⁵⁵⁹ But integrity management programs, which should have increased efficiency by focusing efforts on the highest risk areas, are not the cause. The rate of spills from hazardous liquid pipelines in the prioritized areas

551. 49 C.F.R. §§ 192.901–951 (2016) (natural gas transmission pipelines); *id.* §§ 195.450, 195.452 (hazardous liquid pipelines). There is also an integrity management program for gas distribution pipelines, but it applies to all pipelines and does not require physical inspections. *Id.* §§ 192.1001–1015.

552. Accountable Pipeline Safety and Partnership Act of 1996, Pub. L. No. 104–304, § 5, 110 Stat. 3793, 3798 (codified as amended in scattered sections of 49 U.S.C.).

553. Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators with 500 or More Miles of Pipeline), 65 Fed. Reg. 75,378, 75,378 (Dec. 1, 2000) (codified at 49 C.F.R. pt. 195).

554. *Id.* at 75,403.

555. *See, e.g., id.* at 75,381; Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Gas Transmission Pipelines), 68 Fed. Reg. 69,778, 69,800–01 (Dec. 15, 2003) (codified at 49 C.F.R. pt. 192).

556. §§ 192.7, 192.901–951.

557. *See, e.g.,* JOINT OPS STAKEHOLDER WORKGROUP, *supra* note 528, app. A, at A-27 to -28.

558. *See National Pipeline Performance Measures*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://www.phmsa.dot.gov/data-and-statistics/phmsa-data-and-statistics> [perma: <http://perma.cc/ZS3M-7JU8>] (follow “Pipeline Data and Statistics” hyperlink, then follow “Pipeline Incident 20 Year Trends” hyperlink, then follow “Significant Incident 20 Year Trend” hyperlink) (last visited Feb. 18, 2018).

559. *Id.* *See supra* notes 65 and 102 for a definition of significant incident.

has remained flat or slightly increased from 2002, when the program went into effect, until 2016.⁵⁶⁰ Similarly, the rate of releases for natural gas transmission pipelines in those areas has been constant or increasing since the program began in 2005.⁵⁶¹

As predicted by democratic risk scholars, the reforms have had negative effects on democratic governance. While PHMSA has sought to involve the public in its policymaking and be transparent, the reforms have in practice shifted ever more power to the private sector. The use of standard-setting organizations to develop consensus standards has created a parallel private process for risk regulation. Cost-benefit analyses are technical documents negotiated between government and industry, not democratic platforms for information sharing or mutual understanding. Integrity management programs have not led to “greater accountability to the public,” as promised.⁵⁶² The programs have, if anything, consolidated the influence of the industry by giving operators broad discretion to manage risk. Maps of high-consequence areas and integrity management plans are not publicly available because of security concerns, making it difficult for the public to understand safety requirements and monitor the success of the programs.⁵⁶³

From the outside, the Agency’s response to the political reality of the reforms has been interpreted as intransigence and incompetence.⁵⁶⁴ PHMSA has been criticized for its “can’t-do” approach to regulation and its cozy relationship with industry.⁵⁶⁵ Ironically, the very reforms that were designed to insulate the

560. See *Hazardous Liquid Integrity Management: Performance Measure Reporting*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/iim/perfmeasures.htm> [perma: <http://perma.cc/B4FP-TWJ4>] (follow “HL IM reporting data” hyperlink) (last visited Feb. 18, 2018).

561. See *National Pipeline Performance Measures*, *supra* note 558 (follow “Pipeline Data and Statistics” hyperlink, then follow “National Pipeline Performance Measures” hyperlink, then follow “Gas Transmission (GT) Performance Measures” hyperlink, then follow “Onshore Significant Incident HCA” hyperlink); see also NAT’L TRANSP. SAFETY BD., NTSB/SS-15/01, SAFETY STUDY: INTEGRITY MANAGEMENT OF GAS TRANSMISSION PIPELINES IN HIGH CONSEQUENCE AREAS 65 (2015) (noting that “there is no evidence that the overall occurrence of gas transmission pipeline incidents in high consequence area pipelines has declined” and that certain incidents increased from 2010 to 2013).

562. See Pipeline Safety: Pipeline Integrity Management in High Consequence Areas (Hazardous Liquid Operators with 500 or More Miles of Pipeline), 65 Fed. Reg. 75,378, 75,403 (Dec. 1, 2000) (codified at 49 C.F.R. pt. 195).

563. By rule, maps of high-consequence areas are “generate[d], publish[ed], and update[d]” by the Office of Pipeline Safety, a division of the Department of Transportation. *Id.* However, after the terrorist attacks on September 11, 2001, the Department of Transportation reduced the public’s access to sensitive information on the country’s pipeline infrastructure, including restricting access to certain mapping information. See *Briefing: Addressing Pipeline Security*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://primis.phmsa.dot.gov/comm/pipelinesecurityissuesbrief.htm> [perma: <http://perma.cc/9RCC-WCXU>] (last visited Feb. 18, 2018).

564. See, e.g., Andrew Restuccia & Elana Schor, *Pipelines Blow Up and People Die*, POLITICO (Apr. 21, 2015, 5:43 AM, updated July 13, 2015, 6:46 PM), <http://www.politico.com/story/2015/04/the-little-pipeline-agency-that-couldnt-217227> [perma: <http://perma.cc/D3YG-7EWC>] (chronicling the criticisms of PHMSA).

565. *Id.*; Lena Groeger, *Pipelines Explained: How Safe Are America’s 2.5 Million Miles of Pipelines?*, PROPUBLICA (Nov. 15, 2012, 2:27 PM), <http://www.propublica.org/article/pipelines->

Agency from mandates based on public fear have in practice undermined the Agency's credibility with Congress and the broader public. Congress continues to direct PHMSA's agenda while berating the Agency for failing to move quickly enough.⁵⁶⁶ The 2011 Reauthorization Act, for example, contained forty-two requirements;⁵⁶⁷ in 2016, Congress added several more.⁵⁶⁸ In requiring PHMSA to regulate more stringently, there is little acknowledgment of the rationalist framework⁵⁶⁹: Congress sometimes adds provisions that are subject to the risk assessment requirement and sometimes does not, without explaining its reasons.⁵⁷⁰

CONCLUSION

This rationalist reform experiment should give pragmatic proponents of rationalism pause. Reforms that would seem to instill minimum principles of good decisionmaking have arguably created their own "vicious circle" of underregulation, caused by private strategic behavior and information asymmetry. A rationalist regulatory system is designed to gather extensive information about sources of risk and the benefits of specific policies to determine the most efficient result and to educate the public about regulatory decisions. Yet uncertainty about the benefits of regulation makes it difficult for regulators to justify information collection and respond to new risks. This difficulty increases the likelihood that regulators will devolve decisions about risk management to the private sector. In turn, this reliance on private risk management concentrates risk information and the costs of safety measures in the private sector. Without enough information, it becomes increasingly difficult for regulators to manage risk and for the public to participate in decisionmaking, which encourages policies that promote a greater concentration of risk information in the private sector. And the circle continues.

Simply removing the rationalist provisions may not be enough to alter this

explained-how-safe-are-americas-2.5-million-miles-of-pipelines [perma: <http://perma.cc/4L29-U52C>].

566. See, e.g., *Oversight of the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011 and Related Issues: Hearing on H.R. 2845 Before the H. Subcomm. on Energy & Power of the H. Comm. on Energy & Commerce*, 114th Cong. 2 (2015) [hereinafter *Oversight Hearing Before the Subcomm. on Energy & Power*] (statement of Rep. Ed Whitfield) (opening the hearing by declaring that "[i]t has been more than 3 years since the Pipeline Safety Act was enacted, and PHMSA's implementation has not been satisfactory").

567. Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, Pub. L. No. 112-90, 125 Stat. 1904; see also *PHMSA Progress Tracker*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., <http://www.phmsa.dot.gov/legislative-mandates/pipeline-safety-act/progress-tracker> [perma: <http://perma.cc/7KRT-YHAN>] (last visited Feb. 18, 2018) (as of the visited date, thirty of the mandates have been completed).

568. Protecting Our Infrastructure of Pipelines and Enhancing Safety Act of 2016, Pub. L. No. 114-183, 130 Stat. 514.

569. See, e.g., *Oversight Hearing Before the Subcomm. on Energy & Power*, *supra* note 566, at 6 (statement of Rep. Fred Upton) (declaring that the committee "insist[s] that new pipelines be built with state-of-the-art safety features").

570. See, e.g., H.R. REP. NO. 112-297, pt. 1, at 14 (2011) (describing provisions in 2011 Reauthorization Act but not referencing the rationalist requirements).

vicious circle, given the historical influence of the industry on regulation. Congress and PHMSA have tried rationalism; perhaps it is time to improve pipeline regulation by applying the lessons of postpositivist theory. While this Article cannot offer a detailed prescriptive policy, it is possible that a solution to the policy paradox lies in plain sight. The pipeline regulatory system already has a mechanism that includes some public participation: the technical committees. Currently, these committees empower stakeholders to challenge rules on economic grounds.⁵⁷¹ They could, however, be transformed into participative panels, in which members of the public engage in “informed reflection and dialogue”⁵⁷² with experts to seek consensus on “how fair is safe enough.”⁵⁷³ The panels would incentivize information sharing and channel the public’s concern about dread risks into a decisionmaking process about values. In this narrative of risk full of ironies, a mechanism to impose rationality on regulation could prove successful by engaging the “irrationalities” of the public.

571. 49 U.S.C. §§ 60102(b)(4), 60115(c)(2) (2012).

572. SMITH & LARIMER, *supra* note 369, at 121–22.

573. Rayner & Cantor, *supra* note 439, at 3.