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Footing the Bill for Natural Gas Leaks: Why States Should Limit Cost Recovery of Lost and Unaccounted for Gas

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FOOTING THE BILL FOR NATURAL GAS LEAKS: WHY STATES SHOULD LIMIT COST RECOVERY OF LOST AND UNACCOUNTED FOR GAS

Abstract: State statutes prohibit unjust or unreasonable natural gas utility rates. Public Utility Commissions (“PUCs”) administer these state laws and permit gas distribution companies to recover natural gas commodity costs related to lost and unaccounted for gas from customers through “purchased gas adjustment clauses.” In most of those states, PUCs permit “total recovery” of all lost and unaccounted for gas costs via these clauses using periodic rate adjustments. A small number of PUCs have reformed purchase gas adjustment clauses in order to incentivize gas distribution companies to reduce lost and unaccounted for gas. This Note advocates for all state public utility commissions regulating natural gas distribution companies to reform purchased gas adjustment clause design in order to incentivize local gas distribution companies to reduce lost and unaccounted for gas. This Note also argues that the method used by the New York State Public Service Commission, limiting gas cost recovery to the historical average of actual lost gas, most closely aligns with the statutory purposes underlying laws that prohibit unjust and unreasonable rates, while avoiding Constitutional takings concerns.

INTRODUCTION

In the winter of 2015, 69-year-old John Skelly froze to death in his home just outside of Detroit, Michigan.¹ Prior to his death, the local natural gas utility company terminated his service because of an unpaid bill.² Mr. Skelly’s death is just one incident highlighting the difficulties facing low-income individuals in the United States, where the percentage of lower-income households has increased from twenty-five percent of total households in 1971 to twenty-nine percent of total households in 2015.³ Many of

¹ Katrease Stafford, *State Asks: Why Did Hazel Park Veteran Freeze to Death?*, DET. FREE PRESS (Feb. 12, 2015), <http://www.freep.com/story/news/local/michigan/oakland/2015/02/12/vietnam-veteran-hypothermia-shutoff/23327507> [<https://perma.cc/9H2G-MSWR>].

² *Id.*

³ PEW RESEARCH CTR., *THE AMERICAN MIDDLE CLASS IS LOSING GROUND: NO LONGER THE MAJORITY AND FALLING BEHIND FINANCIALLY*, at 8 (2015), http://www.pewsocialtrends.org/files/2015/12/2015-12-09_middle-class_FINAL-report.pdf [<https://perma.cc/BVD9-F556>]. The report defines lower income households as those making less than sixty-seven percent of the median U.S. income. *Id.* at 6. Modern political dialogue in the United States increasingly addresses income inequality as income and wealth have decreased for the working class while increasing sig-

these lower-income consumers face difficulty paying their utility bills, with one study finding that sixty-nine percent of American adults who borrow using payday loans did so in order to cover a regular expense, like a utility bill.⁴ Meanwhile, state regulators allow natural gas distribution companies to charge consumers for billions of dollars in gas purchased by the company but lost before being sold to end-use consumers.⁵ For example, Massachusetts ratepayers alone paid at least \$640 million between 2000 and 2011 for lost and unaccounted for gas.⁶ Gas lost through leaks also contributes to climate change and may pose public safety hazards.⁷

This Note argues that state public utility commissions should regulate natural gas rates in a manner that provides the gas company with an incentive to reduce lost and unaccounted for gas.⁸ It further argues that constitutional constraints do not prohibit rate reforms providing this incentive.⁹ Part I explains lost and unaccounted for gas, provides a background on rate regulation of natural gas distribution companies, and discusses how the cost of lost and unaccounted for gas is recovered from ratepayers in the current regulatory scheme.¹⁰ Part II discusses how courts and state public utility commissions interpret statutory provisions requiring that natural gas rates be “just and reasonable” and non-confiscatory.¹¹ Part III argues that the rate mechanisms that gas distribution companies use to recover lost and unaccounted for gas from consumers in the majority of states should be re-

nificantly for the wealthiest Americans. See Jonathan B. Baker & Steven C. Salop, *Antitrust, Competition Policy, and Inequality*, 104 GEO. L.J. ONLINE 1, 1–2 (2015), <https://georgetownlawjournal.org/articles/164/antitrust-competition-policy-inequality/pdf> [<https://perma.cc/MT8D-8TBP>] (explaining wealth and income gaps).

⁴ See PEW RESEARCH CTR., *PAYDAY LENDING IN AMERICA: WHO BORROWS, WHERE THEY BORROW, AND WHY*, at 4–5 (2012), http://www.pewtrusts.org/~media/legacy/uploadedfiles/pcs_assets/2012/pewpaydaylendingreportpdf.pdf [<https://perma.cc/839T-U86E>] (discussing reasons why borrowers use ultra-high interest payday loans). Payday loans are short-term loans for small amounts of money typically ranging from \$100 to \$500, for such high interest rates as 391%. *Id.* at 6.

⁵ See DEMOCRATIC STAFF OF HOUSE NAT. RES. COMM., *AMERICA PAYS FOR GAS LEAKS: NATURAL GAS PIPELINE LEAKS COST CONSUMERS BILLIONS 7* (2013), http://www.markey.senate.gov/documents/markey_lost_gas_report.pdf [<https://perma.cc/55XR-XDJB>] (presenting the amount of lost and unaccounted for gas, associated total cost, and cost per customer for Massachusetts gas operators); see also ICF INT’L, *LOST AND UNACCOUNTED FOR GAS 37* (2014), <http://www.mass.gov/eea/docs/dpu/gas/icf-lauf-report.pdf> [<https://perma.cc/3LYE-5UZI>] (discussing the impact of lost and unaccounted for gas on ratepayers).

⁶ DEMOCRATIC STAFF OF HOUSE NAT. RES. COMM., *supra* note 5, at 7.

⁷ See *id.* at 1 (summarizing global warming and public safety concerns); PA. PUB. UTIL. COMM’N, *UNACCOUNTED-FOR-GAS IN THE COMMONWEALTH OF PENNSYLVANIA 11–12* (2012), http://www.puc.state.pa.us/transport/gassafe/pdf/UFG_Report_Feb2012.pdf [<https://perma.cc/9TNN-DRJU>] (discussing greenhouse gas and public safety concerns regarding lost and unaccounted for gas).

⁸ See *infra* notes 168–183 and accompanying text.

⁹ See *infra* notes 184–195 and accompanying text.

¹⁰ See *infra* notes 14–105 and accompanying text.

¹¹ See *infra* notes 106–164 and accompanying text.

formed in order to further the purposes of statutes requiring rates to be “just and reasonable.”¹² Finally, Part III also argues that the Constitution does not pose a barrier to well-designed reforms.¹³

I. RATE REGULATION OF NATURAL GAS DISTRIBUTION COMPANIES AND THE DEVELOPMENT OF REGULATORY TREATMENT OF LOST AND UNACCOUNTED FOR GAS

Lost and unaccounted for gas poses problems for consumers and society and causes gas distribution companies to incur associated cost.¹⁴ Only natural gas distribution companies may reduce lost and unaccounted for gas.¹⁵ State retail rate regulators, however, permit these companies to periodically adjust their retail rates in order to recover all of the cost of lost and unaccounted for gas.¹⁶ Section A describes lost and unaccounted for gas and outlines the associated concerns over gas leaks and climate change.¹⁷ Section B provides a background on rate regulation of natural gas distribution companies.¹⁸ Finally, Section C discusses how lost and unaccounted for gas is recovered from ratepayers within the current regulatory scheme.¹⁹

A. Aging Infrastructure and Its Risks: Lost and Unaccounted for Gas and Public Policy Concerns Regarding Gas Leaks

Lost and unaccounted for gas is defined as the difference between the total gas purchased by a gas distribution company and the quantity of gas it sells to customers or that it measured at customer meters.²⁰ Numerous factors

¹² See *infra* notes 168–183 and accompanying text.

¹³ See *infra* notes 184–195 and accompanying text.

¹⁴ See DEMOCRATIC STAFF OF HOUSE NAT. RES. COMM., *supra* note 5, at 1 (summarizing the impact of gas leaks and other lost and unaccounted for natural gas on American consumers); see also PA. PUB. UTIL. COMM’N, *supra* note 7, at 11–12 (discussing the public safety and climate change impacts of lost and unaccounted for gas).

¹⁵ See Kenneth W. Costello, *Lost and Unaccounted-for Gas: Challenges for Public Utility Regulators*, 29 UTIL. POL’Y 17, 19 (2014) (noting that utility companies have some control over this issue).

¹⁶ See 220 MASS. CODE REGS. 6.06 (2016) (setting forth the formula for gas adjustment factors in Massachusetts generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers); KEN COSTELLO, NAT’L REGULATORY RESEARCH INST., *LOST AND UNACCOUNTED-FOR GAS: PRACTICES OF STATE UTILITY COMMISSIONS 55–58* (2013) [hereinafter NRRI REPORT] (providing that nearly all of forty-one state public utility commissions responding to a 2013 survey acknowledged that the lost and unaccounted for gas costs under their jurisdiction flowed through their purchased gas adjustment clauses).

¹⁷ See *infra* notes 20–48 and accompanying text.

¹⁸ See *infra* notes 50–72 and accompanying text.

¹⁹ See *infra* notes 73–105 and accompanying text.

²⁰ ICF INT’L, *supra* note 5, at 1; Costello, *supra* note 15, at 17–18. Lost and unaccounted for gas is made up of two components: (1) lost gas, or gas that finds its way out of the distribution system between the point where it enters the company’s system and the point where it reaches a custom-

may contribute to lost and unaccounted for gas.²¹ Gas distribution companies have the power to exercise some amount of control over the causes of lost and unaccounted for gas, such as repairing leaks or ensuring that meters are as accurate as possible.²²

Gas leaks and lost and unaccounted for gas have recently gained the attention of legislators, environmental advocates, and newspaper reporters.²³ In 2014, Connecticut Governor Dan Malloy signed into law a statute requiring the Connecticut Public Utilities Regulatory Authority (“PURA”) to provide an annual report to the Connecticut Legislature including information about the percentage of lost and unaccounted for gas by regulated gas distribution companies and information about the number of leaks and their causes on each distribution company system.²⁴

er’s meter, and (2) unaccounted for gas that does not escape the distribution system but is not measured by a customer’s meter. Costello, *supra* note 15, at 18. The natural gas industry is divided into three separate segments: (1) producers that pump natural gas from original underground sources; (2) transporters that bring gas by pipe or otherwise from those points of production to distribution companies; and (3) distributors, or distribution companies, that use pipelines to carry gas to end users. 1-1 WILLIAM A. MOGEL, REGULATION OF THE GAS INDUSTRY § 1.01 (2016).

²¹ See N.Y. DEP’T OF PUB. SERV., STAFF WHITE PAPER ON LOST AND UNACCOUNTED FOR (LAUF) GAS 16–21, <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B0413ECDD-C194-46DE-8B04-AFDB3FBBE404%7D> [<https://perma.cc/VSJ8-QVP6>] (noting causes such as meter issues and error, meter reading issues, therm billing, leaks, and theft of service). Most of these causes can be broken down into gas that is lost, usually through leaks, or gas that is otherwise unaccounted for because of issues with metering equipment, theft of service, or other causes. *Id.*

²² See Costello, *supra* note 15, at 19 (noting the different ways gas distribution companies can affect this change).

²³ See, e.g., H.B. 4164, 188th Gen. Court (Mass. 2014) (setting forth mandatory repair timelines for leaks and reporting requirements for lost and unaccounted for gas and leaks); H.B. 5410, Gen. Assemb., Feb. Sess. (Conn. 2014) (requiring similar reporting requirements for gas distribution companies); SHANNA CLEVELAND, CONSERVATION LAW FOUND., INTO THIN AIR: HOW LEAKING GAS INFRASTRUCTURE IS HARMING OUR ENVIRONMENT AND WASTING A VALUABLE RESOURCE, at 1, 16 (2012), http://www.naturalgaswatch.org/wp-content/uploads/2012/11/CSF_fugitive_emissions_report.pdf [<https://perma.cc/7BKD-6DEL>] (advocating for limiting cost recovery for lost and unaccounted for gas); DEMOCRATIC STAFF OF HOUSE NAT. RES. COMM., *supra* note 5, at 1 (reporting the impact of gas leaks and other lost and unaccounted for gas on American consumers); David Abel, *Project Reveals 20,000 Leaks in Mass. Gas Lines*, BOS. GLOBE (Aug. 21, 2015), <https://www.bostonglobe.com/metro/2015/08/20/new-law-casts-light-state-natural-gas-leaks/qJJPcJrZITc5ai0JeHNOqO/story.html> [<https://perma.cc/P5A3-GFX5>] (elaborating on the extent of gas leaks in Massachusetts).

²⁴ See Conn. H.B. 5410 (providing reporting requirements for lost and unaccounted for gas and leaks). In 2014, PURA initiated an administrative proceeding to form the basis of an administrative record for the first report that was issued in April 2015. See CONN. PUB. UTILS. REGULATORY AUTH., PURA REPORT TO THE GENERAL ASSEMBLY CONCERNING LOST AND UNACCOUNTED FOR GAS, No. 14-07-16, at 1 (Apr. 29, 2015), 2015 WL 3509388. PURA reported that the five-year average lost and unaccounted for gas figures for Connecticut natural gas distribution companies ranged from 0.84% to 1.54%. *Id.* at 2. The figures are derived from PURA administrative interrogatories that the regulated companies answered. *Id.*

Also in 2014, Massachusetts Governor Deval Patrick signed into law a statute codifying a uniform classification system of natural gas distribution company system leaks based on the public safety threat of the leak.²⁵ The statute requires gas distribution companies to annually report to the Massachusetts Department of Public Utilities (“DPU”) the location and repair dates of every leak on the system.²⁶ Furthermore, the statute requires the DPU to provide the Legislature with an annual report on gas leaks in the natural gas system.²⁷ DPU’s report on calendar year 2014’s leak information found that the gas distribution companies and municipal gas system operators reported a total of 40,425 leaks.²⁸ At the end of 2014, there were 20,733 unrepaired leaks still on the system.²⁹

Additionally, in 2016, President Barack Obama signed into law the Protecting Our Infrastructure of Pipelines and Enhancing Safety (“PIPES”) Act.³⁰

²⁵ See Mass. H.B. 4164 (setting forth mandatory repair timelines for leaks and reporting requirements for lost and unaccounted for gas and leaks); see also MASS. GEN. LAWS ANN. ch. 164, § 144 (West 2016) (setting forth the uniform gas leak classification system in the Massachusetts statutory code). Leaks are classified as Grade 1, 2, or 3. MASS. GEN. LAWS ANN. ch. 164, § 144. Grade 1 leaks pose immediate threats to public safety and require immediate repair. See *id.* (stating the same). Grade 2 leaks are not immediately hazardous but must be repaired within a reasonable timeframe to prevent future public safety threats. *Id.* Under the Massachusetts statute, Grade 2 leaks must be repaired within twelve months of the date that the leak was detected, and a gas distribution company must reevaluate the leak within six months of when it was detected. *Id.* Grade 3 leaks are not hazardous and expected to remain nonhazardous. *Id.* A Grade 3 leak is not required to be repaired as long as the leak remains non-hazardous, but the gas distribution company must reevaluate the leak at least once annually. *Id.*

²⁶ MASS. GEN. LAWS ANN. ch. 164, § 144(e).

²⁷ See Mass. H.B. 4164 (setting forth mandatory repair timelines for leaks and reporting requirements for lost and unaccounted for gas and leaks).

²⁸ MASS. DEP’T OF PUB. UTILS., REPORT TO THE LEGISLATURE ON THE PREVALENCE OF NATURAL GAS LEAKS IN THE NATURAL GAS SYSTEM, 15-GLR-01, at 27 (Sept. 18, 2015). The 40,425 leaks reported are broken down into 9,855 Grade 1 leaks, 9,039 Grade 2 leaks, and 21,713 Grade 3 leaks. *Id.*

²⁹ *Id.* These 20,773 leaks are broken down into 86 Grade 1 leaks, 1,230 Grade 2 leaks, and 19,459 Grade 3 leaks. *Id.* The report estimated that this represents 1,658,102 Mcf of lost gas due to leakage and 40,470.82 MT of methane emissions in 2014. *Id.* The reason that these two numbers differ is that many leaks, especially those that are most dangerous, are repaired as they are discovered. *Id.* at 27–28. The Connecticut report also analyzed the number of gas leaks throughout Connecticut. CONN. PUB. UTILS. REGULATORY AUTH., *supra* note 24, at 8–10. Prior to mandatory detailed leak reporting requirements, some independent researchers used equipment to survey methane leaks in the streets of major cities and published their findings. See Robert B. Jackson et al., *Natural Gas Pipeline Leaks Across Washington, DC*, 48 ENVTL. SCI. & TECH. 2051, 2051–58 (2014) (identifying and mapping locations and intensity of 5,893 leaks over 1,500 measured road miles of Washington, D.C., by driving the streets and collecting data using sensory equipment); Nathan G. Phillips et al., *Mapping Urban Pipeline Leaks: Methane Leaks Across Boston*, 173 ENVTL. POLLUTION 1, 1–4 (2013) (identifying and mapping locations and intensity of 3,356 methane leaks in the City of Boston, Massachusetts, by driving the streets and collecting data using sensory equipment).

³⁰ PIPES Act of 2016, Pub. L. No. 114-183, 130 Stat. 514. The Pipeline and Hazardous Materials Safety Administration (“PHMSA”) is responsible for regulating pipelines and their operators

The PIPES Act contains a provision requiring the Pipeline and Hazardous Materials Safety Administration (“PHMSA”) to review state policies encouraging natural gas distribution companies to repair or replace pipelines with leaks, including leak repair timelines and limits on cost recovery from rate-payers.³¹ After reviewing state policies, PHMSA must issue a report to Congress that must include recommendations on federal or state policies based on its policy review.³² The PIPES Act authorized PHMSA to implement regulations based on the recommendations that it includes in its report.³³

Gas lost through leaks poses environmental policy concerns because of its potential climate change impact.³⁴ Gas that leaks out of pipes is primarily methane gas, a potent greenhouse gas.³⁵ Although methane’s lifetime in the atmosphere is much shorter than carbon dioxide, methane is significantly more efficient at trapping heat than carbon dioxide.³⁶ The impact of methane on climate change is more than twenty-five times greater than carbon dioxide over a one hundred year period, pound for pound.³⁷ One report prepared for U.S. Senator Edward Markey of Massachusetts noted that gas distribution companies released 69 billion cubic feet of natural gas into the atmosphere in 2011, which matches the yearly gas needs of the state of Maine or the carbon dioxide emissions of six million automobiles.³⁸

to ensure their safety and security. *See generally* 49 U.S.C. §§ 60101–60141 (2016). According to the Senate Committee report, the primary purpose of the PIPES Act is to reauthorize various pipeline safety programs administered by PHMSA. S. REP. NO. 114-209, at 1 (2016).

³¹ PIPES Act of 2016 § 30(a).

³² *Id.* § 30(b).

³³ *Id.* § 30(c). The Act contains additional provisions requiring PHMSA to study the metrics used in calculating lost and unaccounted for gas. *Id.* § 29. PHMSA must analyze discrepancies in lost and unaccounted for gas reporting standards, analyze whether alternatives could improve lost and unaccounted for gas reporting, describe potential safety issues associated with lost and unaccounted for gas, and assess whether alternative reporting and metrics may increase safety and provide ratepayer savings. *Id.* § 29(b). The Act also authorizes PHMSA to promulgate regulations that implement any improved lost and unaccounted for gas reporting metrics recommended as part of its study. *Id.* § 29(c).

³⁴ *See* CLEVELAND, *supra* note 23, at 12 (describing how gas leaks have climate change implications).

³⁵ *Id.*

³⁶ *See* Howard A. Latin, *Climate Change Mitigation and Decarbonization*, 25 VILL. ENVTL. L.J. 1, 34 (2014) (comparing methane to carbon dioxide); *Overview of Greenhouse Gases*, EPA, <http://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html> [<https://perma.cc/4ZFF-6HHH>] (noting differences between methane and carbon dioxide); *see also* Nat’l Ctrs. for Envtl. Info., *Greenhouse Gases*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <http://www.ncdc.noaa.gov/monitoring-references/faq/greenhouse-gases.php> [<https://perma.cc/NT5D-BBKR>] (discussing methane’s ability to absorb heat).

³⁷ *See Overview of Greenhouse Gases*, *supra* note 36

³⁸ DEMOCRATIC STAFF OF HOUSE NAT. RES. COMM., *supra* note 5, at 1. In addition to its climate change impacts as a greenhouse gas, methane is a volatile organic compound that reacts with nitrogen oxide in the atmosphere in order to create tropospheric ozone that adversely affects human health, increasing chronic respiratory and cardiovascular conditions, and is associated with

In addition to environmental and consumer concerns, gas leaks have drawn public attention for public safety reasons, especially since a large gas explosion in San Bruno, California.³⁹ In September 2010, a Pacific Gas and Electric Company-owned large-diameter natural gas transmission pipeline ruptured in San Bruno, California.⁴⁰ Fire and explosion resulted from the gas that escaped from the pipeline, causing eight deaths, fifty-eight injuries, thirty-eight destroyed homes, and seventy damaged homes.⁴¹

In 2012, the Pennsylvania PUC staff issued a report advocating a regulatory approach for lost and unaccounted for gas, associating lost and unaccounted for gas with leaks.⁴² Although lost gas typically escapes to the atmosphere without causing a threat, gas lost through leaks may migrate underground and concentrate in dangerous levels.⁴³ The report correlates leaks with

higher likelihood of premature mortalities. J. Jason West et al., *Global Health Benefits of Mitigating Ozone Pollution with Methane Emission Controls*, 103 PROC. NAT'L ACAD. SCI. 3988, 3988–93 (2006).

³⁹ See CAL. PUB. UTIL. COMM'N, CONSUMER PROTECTION & SAFETY DIVISION, INCIDENT INVESTIGATION REPORT: SEPTEMBER 9, 2010 PG&E PIPELINE RUPTURE IN SAN BRUNO, CALIFORNIA, 1 (Jan 12, 2012), http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Safety/Natural_Gas_Pipeline/News/AgendaStaffReportreOIIPGESanBrunoExplosion.pdf; Letter from Stephen F. Lynch, Congressman, 8th District, Massachusetts, to Norman C. Bay, Chairman, Federal Energy Regulatory Commission (Nov. 2, 2016), <http://lynch.house.gov/sites/lynch.house.gov/files/SFL%20Letter%20to%20FERC%20Chairman%20Bay%2C%20November%202%2C%202016.pdf> [<https://perma.cc/6PPR-TBDH>] (urging FERC Chair to delay permitting and construction of certain gas pipeline projects in light of an Alabama pipeline explosion); Press Release, United States Congressman Stephen Lynch, Lynch Calls on FERC to Halt Pipeline Projects in West Roxbury and Weymouth Following Pipeline Explosions (Nov. 2, 2016), <https://lynch.house.gov/press-release/lynch-calls-ferc-halt-pipeline-projects-west-roxbury-and-weymouth-following-pipeline> [<https://perma.cc/TM4A-JCH4>] (noting that Lynch asked FERC to halt permitting of certain pipeline projects because of the explosion and another gas leak incident); Rebecca Bowe & Lisa Pickoff-White, *Five Years After Deadly San Bruno Explosion: Are We Safer?*, KQED NEWS (Sept. 8, 2015), <https://ww2.kqed.org/news/2015/09/08/five-years-after-deadly-san-bruno-explosion-are-we-safer/> [<https://perma.cc/RJJ9-ZGPA>] (discussing efforts to find leaks in pipes to prevent accidents after the San Bruno explosion). See generally *Pipeline Safety Since San Bruno and Other Incidents: Hearing Before the S. Subcomm. on Surface Transp. and Merch. Marine Infrastructure, Safety, and Sec. of the S. Comm. on Commerce, Sci., and Transp.*, 112th Cong. (2011) (discussing efforts at addressing public safety in pipelines since the San Bruno incident and efforts to address gas leaks).

⁴⁰ CAL. PUB. UTIL. COMM'N, *supra* note 39, at 1.

⁴¹ *Id.* Although the San Bruno incident resulted from a leak on a transmission pipeline, this Note focuses on regulation of natural gas distribution pipelines that generally are smaller in diameter and therefore less likely for a leak or incident to result in the same quantity of damage as the San Bruno incident. See Pipeline Safety: Public Meeting on Integrity Management of Gas Distribution Pipelines, 70 Fed. Reg. 50,438, 50,439 (Aug. 26, 2005) (explaining differences between transmission and distribution gas pipeline systems).

⁴² See PA. PUB. UTIL. COMM'N, *supra* note 7, at 11, 13–14 (discussing safety issues that may exist when a gas system operates with high levels of lost and unaccounted for gas and recommending regulatory action to limit lost and unaccounted for gas recovery). The report noted that high percentages of lost and unaccounted for gas might pose a safety threat. *Id.* at 11.

⁴³ *Id.* at 11.

lost and unaccounted for gas and concludes that reducing leaks would reduce lost and unaccounted for gas.⁴⁴

Since the San Bruno explosion, gas leaks have been responsible for other tragedies.⁴⁵ On January 18, 2011, natural gas migrating from a ruptured pipe in Philadelphia entered the basement of a nearby property where it encountered an ignition source.⁴⁶ Police had received a call reporting a strong gas odor earlier in the evening, and numerous Philadelphia Gas Works employees were on site responding when the explosion occurred.⁴⁷ One of these employees was killed and five others were injured.⁴⁸ In 2013, the Pennsylvania PUC approved a settlement between Philadelphia Gas Works and Commission investigators that required the natural gas distribution company to pay a \$500,000 fine as a result of this gas leak-related explosion.⁴⁹

B. Overview of Natural Gas Distribution Company Rate Regulation and the Rise of the Purchased Gas Adjustment Clause

The natural gas industry is divided into three separate segments: (1) producers that pump natural gas from original underground sources; (2) transporters that bring gas by pipe or otherwise from those points of production to distribution companies; and (3) distributors, or distribution compa-

⁴⁴ *Id.*

⁴⁵ *See, e.g.*, Pa. Pub. Util. Comm'n v. Phila. Gas Works, C-2011-2278312, slip op. at 12 (Pa. P.U.C. July 16, 2013) (describing a Philadelphia explosion caused by a natural gas leak).

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.* The explosion destroyed a building that contained two apartments and a chiropractor's office. *Id.* Some surrounding properties and vehicles were also damaged. *Id.* Punctured gas distribution lines can also cause dangerous gas leaks. *E.g.*, MASS. DEP'T OF PUB. UTILS. PIPELINE ENG'G & SAFETY DIV., INCIDENT REPORT 13 (2014), <http://www.mass.gov/eea/docs/dpu/pipeline/incident-reports/9-18-14-springfield.pdf> [<https://perma.cc/6DKN-BRM2>]. For further illustration, in November 2012, the gas distribution company in Springfield, Massachusetts received a phone call from a property manager reporting a gas odor. *Id.* at 4. A worker in the building claimed that she had smelled gas inside the building for four months. Derek Anderson et al., *Gas Explosion Levels Springfield Strip Club*, BOS. GLOBE (Nov. 24, 2012), <https://www.bostonglobe.com/metro/2012/11/24/springfield-explosion-injures-least-levels-strip-club/SX7MmBHvdfEPUbkpyCgG6L/story.html> [<https://perma.cc/EKB4-TUSC>]. The company employee who came to investigate the call punctured the gas service line when he attempted to conduct a test of the service. MASS. DEP'T OF PUB. UTILS. PIPELINE ENG'G AND SAFETY DIV., *supra* note 48, at 13. Although numerous steps were taken to deal with the ensuing leak, slightly over an hour later, the building exploded, injuring numerous people. *See id.* at 8, 13 (reporting that the incident injured seventeen people). At the time, one newspaper article reported that the incident caused eighteen injuries. Anderson et al., *supra* note 48.

⁴⁹ Pa. Pub. Util. Comm'n, C-2011-2278312, slip op. at 30–32. Philadelphia Gas Works is owned by the City of Philadelphia and is not a privately owned gas distribution company. *Id.* at 22.

nies, that use local pipelines to carry gas to end-users.⁵⁰ The Natural Gas Act authorizes the Federal Energy Regulatory Commission (“FERC”) to regulate the rates charged for the transportation of natural gas and associated terms and conditions of service by certain gas companies subject to the jurisdiction of the Commission.⁵¹ FERC’s jurisdiction is limited to (1) “the transportation of natural gas in interstate commerce,” (2) “the sale in interstate commerce of natural gas for resale,” and (3) “natural-gas companies engaged in such transportation or sale”⁵² The U.S. Supreme Court has interpreted the Natural Gas Act in a manner that provides states with exclusive regulatory jurisdiction over intrastate commercial gas activity and local distribution.⁵³

For much of the Twentieth Century, state public utility commissions fixed a single rate that local gas distribution companies could charge their retail customers.⁵⁴ This rate was designed to recover the costs of the company’s capital investments in the distribution infrastructure, the prudent operating costs of running the company, a reasonable profit, and the wholesale costs of the gas purchased to serve customers.⁵⁵ Therefore, if the wholesale price of gas changed, a local distribution company had to apply to the public utility commission for an increase or decrease in the general rate it charged its customers and potentially undergo a lengthy investigation of all of the company’s other costs before the change could take effect.⁵⁶ Regulatory lag is a product of the process just described.⁵⁷ It is the interval between changes in costs and corresponding changes in rates after review and

⁵⁰ MOGEL, *supra* note 20. In this section, this Note discusses distributor or distribution company-purchased gas adjustment clauses, not for producers or transporters. *See infra* notes 54–72 and accompanying text (discussing distribution company-purchased gas adjustment clauses).

⁵¹ *See* 15 U.S.C. § 717d(a) (1938) (stating the same); *Oneok, Inc. v. Learjet, Inc.*, 135 S. Ct. 1591, 1596 (2015) (summarizing FERC’s jurisdiction over natural gas companies under the Natural Gas Act).

⁵² 15 U.S.C. § 717(b) (2005); *Oneok*, 135 S. Ct. at 1596 (quoting § 717(b) and interpreting the provision as a limit on jurisdiction).

⁵³ *See, e.g.*, *Nw. Cent. Pipeline Corp. v. State Corp. Comm’n of Kan.*, 489 U.S. 493, 507 (1989) (citing 15 U.S.C. § 717(b) and noting the extent of state jurisdiction). According to the Natural Gas Act, federal jurisdiction does not extend “to the local distribution of natural gas or to the facilities used for such distribution” 15 U.S.C. § 717(b).

⁵⁴ *See, e.g.*, *State ex rel. Midwest Gas Users’ Ass’n v. Pub. Serv. Comm’n of the State of Mo.*, 976 S.W.2d 470, 474 (Mo. Ct. App. 1998) (discussing the history of the recovery of costs associated with wholesale gas from the customers of local gas distribution companies in Missouri).

⁵⁵ *See id.* (explaining how, until the early 1960s, a single retail rate recovered all of the local gas distribution company’s costs from its customers, including the cost of wholesale gas purchases).

⁵⁶ *See id.* (discussing the history of the recovery of costs associated with wholesale gas from the customers of local gas distribution companies).

⁵⁷ *See* Richard J. Pierce, *Reconsidering the Roles of Regulation and Competition in the Natural Gas Industry*, 97 HARV. L. REV. 345, 360 (1983) (describing regulatory lag).

approval by a PUC.⁵⁸ Regulatory lag encourages utilities to keep costs down because, even though costs have increased, the company's rates cannot be increased until the state completes the associated review and approves the changes.⁵⁹

In the mid-Twentieth Century, state PUCs, such as the New York Public Service Commission, began to authorize local gas distribution companies to maintain purchased gas adjustment clauses as part of the rates the Commission approved.⁶⁰ These provisions permitted companies to raise or lower the portion of the rates reflecting the cost of purchased gas without requiring the filing or approval of new rate schedules.⁶¹ The Commission would allow the adjustment directly tied to an increase or decrease of the natural gas commodity costs contracted for or purchased by the company.⁶²

That purchased gas is a cost beyond control of the company or the state was a key factor for a PUC initially permitting purchased gas adjustment clauses.⁶³ The cost of purchased gas is generally beyond control of the company or the state because market forces outside the control of the company largely drive cost.⁶⁴ Therefore, the regulatory lag benefits that may be

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ See, e.g., *Brooklyn Borough Gas Co. et al.*, 100 Pub. Util. Rep. (PUR) 271, 307 (N.Y. Pub. Serv. Comm'n 1953) (approving a purchased gas adjustment clause).

⁶¹ See *id.* at 277 (describing the purchased gas adjustment clause proposed in the proceeding); Joe H. Foy, *Cost Adjustment in Utility Rate Cases*, 13 VAND. L. REV. 663, 663 (1960) (describing adjustment clauses generally).

⁶² *Brooklyn Borough Gas Co.*, 100 Pub. Util. Rep. (PUR) at 277 (describing the adjustment clauses applied for and approved as applying to costs outside of the companies' control). The New York State Public Service Commission, for example, first authorized local gas distribution companies to maintain a "purchased gas adjustment" in 1953. *Id.* at 307.

⁶³ See e.g., *id.* at 291–92 (expressing concern regarding each company's ability to absorb a twenty percent increase in gas commodity cost that is outside of each company's control). In 1953, in *Brooklyn Borough Gas Co.*, the New York distribution companies asked the Public Service Commission for an adjustment clause because they were concerned about the twenty percent increase in the price of gas that they purchased from their supplier, conditionally approved by the Federal Power Commission. *Id.* at 274–75. The New York distribution companies would have had to purchase gas from their supplier at the price approved by the Federal Power Commission, but their retail rates were set by the state. See *id.* (describing a proceeding occurring before the Federal Power Commission where a supplier's rate increase was being considered); see also *Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953, 970 (1986) (holding that once a federal rate regulator sets a supplier's rate, a state retail rate regulator may not exercise its authority to prevent the retail company from passing the federally approved supply costs along to retail consumers).

⁶⁴ See *In re Bay State Gas Co.*, D.T.E. 01-09 et seq., 3 (Jan. 31, 2001) (Mass. Dep't of Telecomm. and Energy) (explaining how gas commodity prices are determined and summarizing the history of federal regulation and deregulation of gas producer prices); Marshall A. Leaffer, *Automatic Fuel Adjustment Clauses: Time for a Hearing*, 30 CASE W. RES. L. REV. 228, 236 (1980) (noting that the intent of adjustment clauses are to pass along costs beyond a regulated utility company's control). *But see* Leaffer, *supra* note, at 234 (arguing that fuel adjustment clauses for vertically integrated electric companies reduce incentive for companies to procure the lowest cost fuel supply).

achieved by limiting the company's ability to increase prices to reflect these costs are limited.⁶⁵

Most state PUCs originally refused to allow electric or gas companies to adopt fuel adjustment clauses like New York's purchased gas adjustment clause.⁶⁶ By the late 1950s, however, rapid changes in natural gas commodity prices accelerated state PUCs' acceptance of gas adjustment clauses.⁶⁷ Purchased gas adjustment clauses are currently permitted in every state in the United States.⁶⁸ These clauses reflect real-time information regarding natural gas supply, encouraging consumers to conserve in times of shortage and allowing them, not the company, to reap benefits when gas supply costs fall.⁶⁹ Without gas adjustment clauses, utility companies would be forced to

⁶⁵ See *In re Bay State Gas Co.*, *supra* note 64 (explaining the derivation of gas commodity prices); Pierce, *supra* note 57, at 360 (describing regulatory lag).

⁶⁶ Foy, *supra* note 61, at 663. Commissions offered numerous reasons for denying these adjustment clauses, including a concern that the clause would reduce the incentive of utility management to make sure that fuel is inexpensively purchased. *Id.* at 664. By 1917, however, Illinois and New Hampshire permitted coal adjustment clauses in the rate schedules of electricity companies. *Id.*

⁶⁷ *Id.* at 665. Before the Second World War, companies supplying customers with gas for heating or cooking fuel in the populous northeast used manufactured gas. MOGEL, *supra* note 20, § 1.07. Manufactured gas is similar to natural gas, but instead of being pumped from wells, it can be made at any location from coal, oil, wood, or other organic material. Alexandra B. Klass, *The Electric Grid at a Crossroads: A Regional Approach to Siting Transmission Lines*, 48 U.C. DAVIS L. REV. 1895, 1903–04 (2015). Natural gas offered numerous benefits over manufactured gas, such as being a more efficient and environmentally friendly gas. *Id.* at 1904–05. During the Second World War, the United States built long-distance pipelines between the southeast United States and the northeast United States to transport natural gas, permitting widespread distribution of that commodity instead of manufactured gas over local gas distribution systems. Foy, *supra* note 61, at 665. In 1948, these long-distance pipelines allowed Philadelphia to become the first major eastern city to convert from manufactured gas to natural gas. Klass, *supra* note, at 1907. Between 1950 and 1956, many long-distance interstate pipelines permitted the movement of cheap natural gas from the Southeast to the Northeast. *Id.* As demand grew outside the Southwest, however, supply did not keep pace, triggering frequent price increases in the commodity cost of natural gas entering local gas distribution systems for sale to retail customers. Foy, *supra* note 61, at 665–66. The weighted average price paid to producers for gas purchased in the field by ten major pipeline companies increased from 4.16 cents per thousand cubic feet of natural gas in 1948 to 11.92 cents per thousand cubic feet of natural gas in 1957. *Id.* at 666.

⁶⁸ *Purchased Gas Adjustments*, AM. GAS ASS'N, <https://www.aga.org/purchased-gas-adjustments> [https://perma.cc/5REQ-7E86].

⁶⁹ See, e.g., 220 MASS. CODE REGS. 6.06 (2016) (setting forth the formula for gas adjustment factors in Massachusetts generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers); *The Provision of Basic Gas Supply Service Pursuant to the Electric Discount and Energy Competition Act*, N.J.S.A. 48:3-49, No. GX01050304 (N.J. Bd. of Regulatory Comm'rs) (Jan. 6, 2003) (explaining the basis of rate adjustments under the Basic Gas Supply Service); *Brooklyn Borough Gas Co.*, 100 Pub. Util. Rep. (PUR) at 297–300 (describing approved cost adjustment factors and factor of adjustment applied); Leaffer, *supra* note 64, at 239–40 (describing generally fuel adjustment clause formulas in all states for vertically integrated electric companies); Foy, *supra* note 61, at 663 (describing adjustment clauses generally).

continue to repeatedly apply for comprehensive rate increases, with the formal hearings, trial-type processes, and delays associated therewith.⁷⁰ Rate proceedings are long, resource-intensive, and expensive adjudicatory proceedings.⁷¹ When changes to a rate can be tied directly to changes in a discrete operating expense, adjustment clauses may be appropriate regulatory policy in order to ensure adherence to the statutory mandate of just and reasonable rates.⁷²

C. Rate Recovery of Lost and Unaccounted for Gas

Most states allow for utilities to recover all costs of lost and unaccounted for gas from customers under their gas adjustment clause mechanisms, whereas two states have adopted alternative approaches.⁷³ Subsection 1 of this section reviews the total recovery approach that occurs in the majority of states.⁷⁴ Subsection 2 then reviews the alternative steps New York has taken to limit natural gas distribution companies' cost recovery for lost and unaccounted for gas, hereafter called the historical averaging approach.⁷⁵ Finally, Subsection 3 reviews a command and control style approach to capping lost and unaccounted for gas recovery.⁷⁶

⁷⁰ See Foy, *supra* note 61, at 663 (stating the same and discussing factors that can contribute to complexity in rate proceedings).

⁷¹ See *id.* (arguing that cost adjustment mechanisms in utility rates are beneficial and in the public interest because they simplify the ratemaking process and cost).

⁷² See *id.* at 663, 674. Generally, state statutes require gas distribution company rates to be "just and reasonable." See e.g., KY. REV. STAT. ANN. § 278.030 (West 2009) (requiring "just and reasonable" rates); N.Y. PUB. SERV. LAW § 72 (McKinney 2016) (authorizing the New York Public Service Commission to set "just and reasonable prices"); 66 PA. STAT. AND CONS. STAT. ANN. § 1308(c) (West 1984) (providing the public utility commission with the authority to set "just and reasonable" utility company rates); W. VA. CODE ANN. § 24-2-3(a) (West 2016) (providing the West Virginia Public Utility Commission authority to "fix reasonable rates"); Bay State Gas Co. v. Dep't of Pub. Util., 947 N.E.2d 1077, 1085 (Mass. 2011) (interpreting Massachusetts statute requiring the Massachusetts Department of Public Utilities to investigate the propriety of gas distribution company's rate increase to require said Department to find that the rates are "just and reasonable").

⁷³ See NRRI REPORT, *supra* note 16, at 55–58 (providing that nearly all of forty-one state public utility commissions responding to a 2013 survey acknowledged that the lost and unaccounted for gas costs under their jurisdiction flowed through the purchased gas adjustment clauses); see also 220 MASS. CODE REGS. 6.06 (2016) (setting forth the formula for gas adjustment factors in Massachusetts generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers).

⁷⁴ See *infra* notes 77–84 and accompanying text.

⁷⁵ See *infra* notes 85–96 and accompanying text.

⁷⁶ See *infra* notes 97–105 and accompanying text.

1. The Total Recovery Approach

In most states, PUCs approve gas adjustment clause formulas designed to adjust local gas distribution company retail rates semi-annually to pass along the cost of all lost and unaccounted for gas to the company's retail customers.⁷⁷ Most gas adjustment clauses utilize formulas that the PUCs have approved or set forth.⁷⁸ These formulas provide that a company may recover the total cost of the gas purchased by the company through sales to customers.⁷⁹ If, for example, a company purchased 120 units of gas for \$120 and sold only 100 units to customers, it would charge each customer \$1.20 per unit of gas, whereby 20 cents of such charge would reflect recovery of the cost of lost and unaccounted for gas.⁸⁰ These formulas permit a company to adjust its rates multiple times throughout the year, ensuring that all of the costs associated with the company's gas purchases are recovered from customers.⁸¹ Therefore, using purchased gas adjustment clauses, companies recover not just the cost of the gas that they sold to retail customers but also all of its lost and unaccounted for gas.⁸² Nearly all of forty-one state PUCs responding to a 2013 survey acknowledged that the lost and unaccounted for gas costs for natural gas distribution companies under their jurisdiction flowed through their purchased gas adjustment clauses.⁸³ An overwhelming number of those commissions responded to the survey acknowledging that

⁷⁷ See, e.g., 220 MASS. CODE REGS. 6.06 (setting forth the formula for gas adjustment factors in Massachusetts generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers). For example, under the Massachusetts adjustment clause regulations, the company's rates charged to customers are adjusted biannually to recover the cost of purchased gas from its customers. See *id.* (setting forth the purchased gas adjustment clause formula to be used in Massachusetts). Lost and unaccounted for gas is defined as the difference between the total gas purchased by a gas distribution company and the quantity of gas measured at customer meters representing the gas that is lost through leaks. ICF INT'L, *supra* note 5, at 1-1; Costello, *supra* note 15, at 17-18.

⁷⁸ See, e.g., 220 MASS. CODE REGS. 6.06 (setting forth the formula for gas adjustment factors in Massachusetts generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers); *The Provision of Basic Gas Supply Service*, *supra* note 69 (explaining the basis of rate adjustments under the Basic Gas Supply Service); *Brooklyn Borough Gas Co.*, 100 Pub. Util. Rep. (PUR) at 297-300 (describing approved cost adjustment factors and factor of adjustment applied); Leaffer, *supra* note 64, at 239-40 (describing generally fuel adjustment clause formulas in all states for vertically integrated electric companies).

⁷⁹ See 220 MASS. CODE REGS. 6.06 (Massachusetts's purchased gas adjustment clause formula).

⁸⁰ See *id.* (Massachusetts's purchased gas adjustment clause formula).

⁸¹ See *id.* (noting that the purchased gas adjustment formula is applied to adjust gas rates semi-annually).

⁸² See *id.* (Massachusetts's purchased gas adjustment clause formula).

⁸³ See NRRI REPORT, *supra* note 16, at 55-58 (providing the results of a survey of all state commissions on the matter).

their jurisdictional companies had no incentive to reduce lost and unaccounted for gas.⁸⁴

2. The Historical Averaging Approach

Before 1990, New York followed the majority's Total Recovery Approach allowing local gas distribution companies to recover the entire amount that they spent on gas from their customers through gas adjustment clauses, regardless of the amount of gas that was lost and unaccounted for.⁸⁵ New York gas distribution companies calculated their purchased gas adjustment clauses billed to each customer by dividing the total gas purchased by the company by the amount sold to consumers.⁸⁶ In 1990, the New York Public Service Commission approved modifications to its regulations regarding gas cost adjustment clauses.⁸⁷ The new regulations included a factor of adjustment for New York Gas Cost Adjustment Clauses to account for lost and unaccounted for gas.⁸⁸ This provision incentivizes local gas distribution companies to reduce lost and unaccounted for gas.⁸⁹

After implementing the historical averaging approach in 1990, the percentage of lost or unaccounted for gas that can be recovered from customers is a fixed percentage of gas sales.⁹⁰ If actual lost and unaccounted for gas is greater than the amount allowed by the factor of adjustment, therefore, a company must absorb the cost.⁹¹ If a company's actual lost and unaccounted for gas is less than the amount it is allowed to recover from customers by the

⁸⁴ See *id.* at 58–62 (providing the responses of forty-one state commissions).

⁸⁵ N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 5.

⁸⁶ See, e.g., *Brooklyn Borough Gas Co.*, 100 Pub. Util. Rep. (PUR) at 281–82 (describing the purchased gas adjustment formula approved by the Commission); see also 220 MASS. CODE REGS. 6.06 (setting forth the formula for gas adjustment factors in Massachusetts as similar to those factors that existed in New York prior to the 1990 modifications). In other words, if the company purchased 120 units of gas for \$120 and sold 100 units to customers, it would charge each customer \$1.20 per unit of gas, whereby 20 cents for each unit of gas paid for by customers recover gas that has been lost and unaccounted for. See, e.g., *Brooklyn Borough Gas Co.*, 100 Pub. Util. Rep. (PUR) at 281–82 (describing the purchased gas adjustment formula approved by the Commission); see also 220 MASS. CODE REGS. 6.06 (setting forth the formula for gas adjustment factors in Massachusetts as similar to that that existed in New York prior to the 1990 modifications).

⁸⁷ N.Y. PUB. SERV. COMM'N, Resolution by the Commission, Case 21,656, Proceeding on Motion of the Commission as to Rules Governing the Construction and Filing of Schedules and Contracts Relating to Rates and Service of Electric, Gas, Steam, Telegraph, Telephone, and Water-Works Corporations and Municipalities 1 (Sept. 18, 1990).

⁸⁸ *Id.* at 8.

⁸⁹ N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6.

⁹⁰ *Id.* This can be contrasted with other states where all lost and unaccounted for gas cost is recovered from customers regardless of the quantity of lost and unaccounted for gas. See, e.g., 220 MASS. CODE REGS. 6.06 (setting forth the formula for gas adjustment factors in Massachusetts generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers).

⁹¹ N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6.

factor of adjustment, the company would retain the additional revenue.⁹² Generally, New York has set the factor of adjustment based on the historical average of actual multi-year average lost and unaccounted for gas during the time in which the company's rates were examined as part of a full rate proceeding.⁹³ This method has successfully lowered lost and unaccounted for gas and the associated impact on ratepayers.⁹⁴ The result has been lesser amounts of lost and unaccounted for gas since the historical averaging approach was adopted, and a correspondingly lower factor of adjustment, because the company sees immediate rewards for plugging leaks and fixing meters.⁹⁵ The New York Department of Public Service has translated this reduction in lost and unaccounted for gas into an annual gas savings of \$48 million for consumers in the state.⁹⁶

3. The Command and Control Approach

Pennsylvania also restricts the amount of lost and unaccounted for gas that gas distribution companies may recover from their ratepayers within a gas adjustment clause.⁹⁷ In February 2012, the Pennsylvania PUC issued a report studying lost and unaccounted for gas in Pennsylvania and recommending that the Commission set target levels of lost and unaccounted for gas or metrics for distribution system losses.⁹⁸ Unlike the historical averaging approach, the command and control approach establishes annual targets for percentages of lost and unaccounted for gas that decrease until reaching three percent, where it remains for subsequent years.⁹⁹ The regulation provides that each gas distribution company, beginning with the first gas adjustment clause filing after August 11, 2014, may only recover a prescribed amount according to a table.¹⁰⁰ In the first year under this table, only five percent of lost and

⁹² *Id.*

⁹³ *Id.* at 6–7.

⁹⁴ *See id.* at 6 (describing how the historical averaging approach saved New York gas consumers millions of dollars); *see also* CLEVELAND, *supra* note 23, at 16 (noting a lower amount of lost gas in New York as compared to Massachusetts).

⁹⁵ *See* N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6 (noting how New York's historical averaging approach incentivizes companies to reduce lost and unaccounted for gas and has resulted in consumers paying less through the purchased gas adjustment clause).

⁹⁶ *Id.*

⁹⁷ *See* 52 PA. CODE § 59.111(c) (2013) (requiring each natural gas distribution company to reduce lost and unaccounted for gas beginning after August 11, 2014).

⁹⁸ PA. PUB. UTIL. COMM'N, *supra* note 7, at 13–14. The report noted the public safety benefits and climate change benefits as two reasons for instituting the changes. *Id.* at 11–12.

⁹⁹ 52 PA. CODE § 59.111(c). In the final rulemaking order establishing the regulations, the Commission established rebuttable command and control capped recovery approach citing as statutory authority its duty to ensure “just and reasonable” rates. PA. PUB. UTIL. COMM'N, PA. BULL. NO. 32, ESTABLISHING A UNIFORM DEFINITION AND METRICS FOR UNACCOUNTED-FOR GAS 4586 (2013), http://www.pabulletin.com/secure/data/vol43/43-32/43_32_rr.pdf [https://perma.cc/9K5E-XXCA].

¹⁰⁰ 52 PA. CODE § 59.111(c).

unaccounted for gas may be recovered from ratepayers.¹⁰¹ This permitted percentage drops by half a percent each year until reaching three percent in year five.¹⁰² The targets are rebuttable; the company can recover a greater amount of lost or unaccounted for gas costs if it can demonstrate good cause to the Commission to overcome the presumptive limitation.¹⁰³

In 2015, Massachusetts legislators introduced a bill that would more aggressively limit natural gas distribution companies from recovering the cost of lost and unaccounted for gas above certain designated maximum amounts, similar to the command and control approach.¹⁰⁴ The bill would limit the amount of lost and unaccounted for gas costs that companies may recover from ratepayers to one percent for distribution system volumes in the first year after the bill's passage, and such limit would decrease each year until reaching zero six years after the bill's passage.¹⁰⁵

II. STATUTORY AND CONSTITUTIONAL CONTEXT

States commissions regulate gas distribution companies as public utilities with relative uniformity.¹⁰⁶ These commissions regulate the rates these companies charge their retail customers, and generally, state statutes require that rates be “just and reasonable.”¹⁰⁷ The U.S. Supreme Court has followed

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.* Additionally, unlike New York, the targets established in the Pennsylvania regulation simply create a rebuttable presumption that the amount of lost and unaccounted for gas is excessive. *Id.* § 59.111(c)(3). If a gas company exceeds the regulatory target, a gas company may demonstrate that its level of lost and unaccounted for gas is warranted. *Id.* Although the regulation is ambiguous as to whether this means the company may recover the actual lost and unaccounted for gas above the target if it can show that its amount of lost and unaccounted for gas is warranted, such an outcome is likely the intent. *See id.* (creating a rebuttable presumption that prescribed percentages of lost and unaccounted for gas may be permitted from ratepayers).

¹⁰⁴ *See* H.B. 2870, 189th Gen. Court, 6 (Mass. 2015). H.B. 2870 was referred to the Joint Committee on Telecommunications, Utilities, and Energy, received a public hearing on November 17, 2015, and was reported for further study on April 7, 2016. H.B. 2870, 189th Gen. Court, 6 (Mass. 2015), <https://malegislature.gov/Bills/189/H2870> [<https://perma.cc/7RJV-NJM2>].

¹⁰⁵ *See* H.B. 2870, 189th Gen. Court, 6–7 (Mass. 2015).

¹⁰⁶ *See* MOGEL, *supra* note 20, at 1A-15 § 15.05 (explaining that all utility companies have a legal duty to provide service at certain universal standards).

¹⁰⁷ *See, e.g.*, KY. REV. STAT. ANN. § 278.030 (West 2009) (requiring “just and reasonable” rates); N.Y. PUB. SERV. LAW § 72 (McKinney 2016) (authorizing the New York Public Service Commission to set “just and reasonable prices”); 66 PA. STAT. AND CONS. STAT. ANN. § 1308(c) (West 1984) (providing the public utility commission with the authority to set “just and reasonable” utility company rates); W. VA. CODE ANN. § 24-2-3(a) (West 2016) (providing the West Virginia Public Utility Commission authority to “fix reasonable rates”); *Bay State Gas Co. v. Dep’t of Pub. Utils.*, 947 N.E.2d 1077, 1085 (Mass. 2011) (interpreting Massachusetts statute requiring the Massachusetts Department of Public Utilities to investigate the propriety of gas distribution company rate increases to require said Department to find that the rates are “just and reasonable”).

the guiding principle that the U.S. Constitution protects utility companies from being limited to charging rates that are so low as to be confiscatory.¹⁰⁸ According to the Court, if the utility company does not receive sufficient compensation, the State has violated the Fifth and Fourteenth Amendments to the Constitution by setting confiscatory rates that constitute a taking without adequate compensation.¹⁰⁹ Section A of this Part discusses the state law under which PUCs regulate natural gas distribution companies.¹¹⁰ Section B discusses the limits on rate regulation imposed by the Fifth and Fourteenth Amendments of the United States Constitution.¹¹¹

A. Controlling Monopoly: Examining the Utility Regulatory Statutory Scheme

Where policymakers consider an industry to be a “natural monopoly,” government may regulate the monopolist firm’s profit and rates.¹¹² Subsection 1 of this section describes the statutory scheme for controlling and setting rates, administered by state PUCs, that states impose on utility companies such as natural gas distribution companies.¹¹³ Subsection 2 then describes

¹⁰⁸ *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989); *see also Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm’n of W. Va.*, 262 U.S. 679, 690 (1923) (noting that it is well established that a state public utility commission cannot regulate prices in a manner that rises to the level of confiscatory).

¹⁰⁹ *Duquesne Light*, 488 U.S. at 308. Interestingly, Congress has withdrawn jurisdiction from federal district courts regarding any challenge to a rate-setting order of a public utility commission. *See* 28 U.S.C. § 1342 (2012) (prohibiting federal district courts from exercising equitable remedies against rate orders of state public utility commissions if there is an adequate state judicial review process).

¹¹⁰ *See infra* notes 112–146 and accompanying text.

¹¹¹ *See infra* notes 147–164 and accompanying text.

¹¹² *See* STEPHEN BREYER, REGULATION AND ITS REFORM 15 (1982) (discussing economic regulation); CHARLES F. PHILLIPS, JR., REGULATION OF PUBLIC UTILITIES: THEORY AND PRACTICE 50 (3d ed. 1993) (discussing reasons that policymakers find economic regulation necessary); Christina Bohannon & Herbert Hovenkamp, *IP and Antitrust: Reformation and Harm*, 51 B.C. L. REV. 905, 925 (2010) (comparing retail electricity with groceries to explain why regulators control prices for natural monopolies but not for competitive firms); David B. Spence & Robert Prentice, *The Transformation of American Energy Markets and the Problem of Market Power*, 53 B.C. L. REV. 131, 134 (2012) (describing how policymakers traditionally considered many aspects of electric and gas markets to be natural monopolies and thus the regulators controlled rates, terms, and conditions of service); Laura Kaplan, *One Merger, Two Agencies: Dual Review in the Breakdown of the AT&T-Mobile Merger and a Proposal for Reform*, 53 B.C. L. REV. 1571, 1581–82 (2012) (discussing the initial history of telecommunications regulation as the product of natural monopoly). A “natural monopoly” exists where the costs of doing business would be significantly greater if more than one competing firm served a group of customers. BREYER, *supra*, at 15; *see also Otter Tail Power Co. v. United States*, 410 U.S. 366, 369 (1973) (noting that where towns could support only one electricity distribution system, each town was a “natural monopoly market” for retail electricity sales).

¹¹³ *See infra* notes 115–140 and accompanying text.

new statutory directives imposed on state public utility commissions in some states in response to climate change.¹¹⁴

1. Ensuring “Just and Reasonable” Rates

State PUCs regulate the rates that natural gas distribution companies charge their customers, and generally, state statutes require that rates be “just and reasonable.”¹¹⁵ Decisions setting rates are reviewable by state courts.¹¹⁶ Reviewing courts provide state PUCs with broad discretion to ensure just and reasonable rates under the applicable regulatory statutes.¹¹⁷

Although commissions are provided considerable deference, rate regulation is generally justified when competition cannot exist or is ineffective, and in those circumstances, regulation is designed to achieve the results that would have been produced by effective competition, if feasible.¹¹⁸ In a competitive market, market forces fix prices, generally beyond the control

¹¹⁴ See *infra* notes 141–146 and accompanying text.

¹¹⁵ See, e.g., KY. REV. STAT. ANN. § 278.030 (requiring “just and reasonable” rates); N.Y. PUB. SERV. LAW § 72 (authorizing the New York Public Service Commission to set “just and reasonable prices”); 66 PA. STAT. AND CONS. STAT. ANN. § 1308(c) (providing the public utility commission with the authority to set “just and reasonable” utility company rates); W. VA. CODE ANN. § 24-2-3 (providing the West Virginia Public Utility Commission authority to “fix reasonable rates”); *Bay State Gas Co.*, 947 N.E.2d at 1085 (interpreting Massachusetts statute requiring the Massachusetts Department of Public utilities to investigate the propriety of gas distribution company rate increases to require said Department to find that the rates are “just and reasonable”).

¹¹⁶ See, e.g., MASS. GEN. LAWS ANN. ch. 25, § 5 (West 2016) (explaining appeal process in Massachusetts).

¹¹⁷ See, e.g., *In re Kauai Elec. Div. of Citizens Utils. Co.*, 590 P.2d 524, 534 (Haw. 1978) (noting that statutory language provided the state commission with broad discretion); *Bos. Edison Co. v. Dep’t of Pub. Utils.*, 375 N.E.2d 305, 313 (Mass. 1978) (providing for broad discretion); *Ohio Consumers’ Counsel v. Pub. Utils. Comm’n*, 926 N.E.2d 261, 268 (Ohio 2010) (stating that commissions receive broad discretion when setting rates).

¹¹⁸ See *City of Chi. v. Fed. Power Comm’n*, 385 F.2d 629, 636 (D.C. Cir. 1967) (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it was subject to competition); *State Pub. Utils. Comm’n ex rel. City of Springfield v. Springfield Gas & Elec. Co.*, 125 N.E. 891, 896 (Ill. 1919) (explaining that rate regulation occurs because certain firms are natural monopolies and rate setting might come close to providing a rate that firms might charge if competition in the industry were possible); *State ex rel. Sprint Mo., Inc. v. Pub. Serv. Comm’n of State*, 165 S.W.3d 160, 161–62 (Mo. 2005) (explaining that the purpose of certain rate regulation is to emulate the results of competition where competition cannot exist); R.I. PUB. UTILS. COMM’N, VERIZON-RHODE ISLAND’S SUCCESSOR ALTERNATIVE REGULATION PLAN, 3692, at 22–23 (Mar. 17, 2006), 2006 WL 789486 (explaining that regulators should regulate industry in a manner that would result in similar rates, terms and conditions that would occur if the firm were subject to “effective competition”); Harold Leventhal, *Vitality of the Comparable Earnings Standard for Regulation of Utilities in a Growth Economy*, 74 YALE L.J. 989, 990 (1965) (stating the same); Leonard D. White, *The Origin of Utility Commissions in Massachusetts*, 29 J. POL. ECON. 177, 196 (1921) (noting that a major factor behind legislation providing for state supervision of gas companies in Massachusetts was driven by popular belief that monopoly power resulted in monopoly prices and excessive profits at consumer expense).

of the company.¹¹⁹ Whereas a firm in a competitive market cannot increase prices, a firm that increases its efficiency may be able to increase profits by lowering its costs.¹²⁰ A firm that has lowered its costs may attempt to increase profits further by offering lower prices, thereby gaining market share but ultimately lowering the market price if enough competitors have made similar cost reductions.¹²¹ Competing firms that were unable to lower costs will realize lower profits or will be unable to continue participating in the market at the lower market price.¹²² Therefore, competition provides at least two incentives to increase efficiency and lower costs: efficiency as the primary path to increased profits and efficiency out of fear that a failure to keep up with competitors' efficiency gains will lower market prices to below the firm's costs.¹²³

Traditionally, state PUCs have held rates for monopolistic firms to be "just and reasonable" when they were established using cost-of-service ratemaking.¹²⁴ Under cost-of-service ratemaking, the regulator determines a company's revenue requirement by selecting a test year, adding up the company's costs of doing business during that test year and adding a reasonable profit to those costs.¹²⁵ The regulator then sets a price so that the firm's projected revenue matches the revenue requirement.¹²⁶ When price assures recovery of any costs, the firm has little incentive, which would be available in a competitive environment, to be more efficient or to adopt cost-saving devices, because any savings from decreased costs flow to consumers.¹²⁷

In order to meet the statutory purpose of emulating the results of competition, regulators have relied on "rate-setting lag" to incentivize efficiency gains.¹²⁸ If the set prices remain in effect for numerous years, the regulated

¹¹⁹ See PHILLIPS, JR., *supra* note 112, at 61–62, 65–68 (discussing perfect competition and workable competition); CLAIR WILCOX, PUBLIC POLICIES TOWARD BUSINESS 10–11 (4th ed. 1971) (discussing market prices in a competitive market economy); *see also* Am. Tobacco Co. v. United States, 328 U.S. 781, 811 (1946) (noting that a firm is monopolistic when it can increase prices).

¹²⁰ See BREYER, *supra* note 112, at 47 (discussing incentives in a competitive market).

¹²¹ *See id.* (describing how a firm subject to competition faces different efficiency incentives than a regulated monopoly).

¹²² *See id.* (explaining why firms in a competitive market are likely to behave efficiently).

¹²³ *See id.* (noting the reasons why a competitive firm reduces its costs).

¹²⁴ *See id.* at 36 (noting that natural monopolies are regulated using a cost of service ratemaking model).

¹²⁵ *Id.* at 36–37.

¹²⁶ *Id.*

¹²⁷ *Id.* at 47. Inflated costs that result from a rate regulated monopoly's ability to pass along its prudently incurred costs to consumers in its rates results from what is sometimes called "gold-plating," a metaphor of a telephone monopolist using gold wire where copper wire would have sufficed. STUART MINOR BENJAMIN & JAMES B. SPETA, TELECOMMUNICATIONS LAW AND POLICY 219 (4th ed. 2015).

¹²⁸ BREYER, *supra* note 112, at 48.

firm has an incentive to reduce costs or increase sales and to keep the additional profits earned until the next comprehensive adjustment of rates, where those increased efficiencies may be shared with consumers.¹²⁹

Where commissions moved away from traditional ratemaking to set “just and reasonable” rates, commissions have attempted to replace traditional ratemaking with alternative ratemaking approaches that the commissions believe are more likely to provide a monopolistic firm with similar incentives as a firm subject to effective competition.¹³⁰ For example, throughout the 1990s, many states and the Federal Communications Commission transitioned from traditional regulation to “price cap” regulation for telecommunications services in order to achieve “just and reasonable” rates.¹³¹ Price cap regula-

¹²⁹ BENJAMIN & SPETA, *supra* note 127, at 219; BREYER, *supra* note 112, at 48.

¹³⁰ See *In re Policy & Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. 6786, 6787 (1990) (replacing traditional regulation with price cap regulation for interstate telephone local exchange carriers); *In re New England Tel. & Tel. Co.*, 162 Pub. Util. Rep. (PUR) 4th 38, 44 (Me. P.U.C. 1995) (replacing traditional regulation with price cap regulation for Maine local and intrastate telephone services); *Telephone Regulatory Methods*, 157 Pub. Util. Rep. (PUR) 4th 465, 471 (Va. State Corp. Comm’n 1994) (replacing traditional regulation with price cap regulation for Virginia local and intrastate telephone services); Gregory J. Vogt, *Cap-Sized: How the Promise of the Price Cap Voyage to Competition Was Lost in a Sea of Good Intentions*, 51 FED. COMM. L.J. 349, 384 (1999) (explaining how the FCC’s goal in replacing traditional regulation with price cap regulation was to more accurately emulate competition).

¹³¹ See, e.g., 47 U.S.C. § 201(b) (2012) (requiring “just and reasonable” rates); *Policy & Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. at 6787, 6801 (noting that the commission’s design of a price cap system adequately balances competing goals of benefits from increased productivity promised by the price cap program’s creation of new incentives for local telephone exchange carriers and assuring just and reasonable rates and continued availability of quality services); *S. Cent. Bell Tel. Co.*, 164 Pub. Util. Rep. (PUR) 4th 324, 345 (Ala. Pub. Serv. Comm’n 1995) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in Alabama); *New England Tel. & Tel. Co.*, 162 Pub. Util. Rep. (PUR) 4th at 44 (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in Maine); *BellSouth Telecomm., Inc.*, 168 Pub. Util. Rep. (PUR) 4th 438, 470 (N.C. Utils. Comm’n 1996) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in North Carolina); *BellSouth*, 169 Pub. Util. Rep. (PUR) 4th 144, 158 (S.C. Pub. Serv. Comm’n 1996) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in South Carolina); *Telephone Regulatory Methods*, 157 Pub. Util. Rep. (PUR) 4th at 471 (transitioning to price cap regulation from traditional regulation for intrastate telecommunication services in Virginia); Vogt, *supra* note 130, at 384 (explaining that many state regulators adopted some version of a price cap regulation for telecommunications carriers in the 1980s and 1990s). Although these regulators were implementing their statutory mandates of ensuring just and reasonable rates, many state legislatures provided statutory permission or requirements for state public utility commissions to adopt price cap regimes. See e.g., 1993 Me. P.L. 1689, 1689 (permitting the Maine Public Utilities Commission to adopt an alternative regarding rate regulation methodology). In 1999, in *Office of People’s Counsel v. Maryland Public Service Commission*, the Court of Appeals of Maryland considered the impact of traditional statutory “just and reasonable” requirements that coexist with statutory provisions permitting price cap or alternative regulation. 733 A.2d 996, 998–99 (Md. 1999). In 1995, the Maryland Legislature passed a statute permitting the state’s public utility commission to regulate telephone companies using alternative means. *Id.* at 1000 (citing Maryland Code Article 78, § 69(e) (repealed)). The Maryland code still required “just and reasonable” rates. See *id.* (cit-

tion created an incentive-based system that rewards companies for being more productive and efficient, where ratepayers share efficiency gains.¹³² Price caps discourage regulated companies from asking for cost-based rate increases by setting a rate designed to last for a considerable time period, but permitting the company to raise its prices at the rate of inflation decreased by some amount because the regulators expect the firm to increase productivity.¹³³ Price cap regulation gives utility companies an ability to make their own decisions about how to use resources in managing their businesses without close regulatory oversight, and if a utility company can find ways to lower costs, it may keep some or all of the supplemental revenue as profit.¹³⁴

In addition to attempting to emulate firm behavior in a competitive market, state PUCs often consider other public policy objectives when establishing “just and reasonable” rates.¹³⁵ Sometimes commissions set rates that achieve these policy objectives even when doing so requires the firm to operate under conditions that are dissimilar to a firm operating in a competitive market.¹³⁶ For example, in 2007, the New York Public Service Commission moved away from price cap regulation and implemented a “decoupling” form of traditional regulation.¹³⁷ Under decoupling, the regulator sets

ing Maryland Code Article 73 § 68(a)). Unlike many other states, however, the Maryland code specifically defined “just and reasonable” to imply rate of return regulation. *Id.* (citing Maryland Code Article 73 § 69(a)). After the 1995 statute took effect, the state’s commission issued its price cap orders establishing a telephone rate using price cap regulation. *Id.* The Court ultimately held that the requirement of section 68(a) that the commission has the authority to determine just and reasonable rates continues to apply whereas the specific definition based on rate of return regulation set forth in section 69(a) does not apply when rates are set using an alternative form of regulation. *Id.* at 1008.

¹³² See *Policy & Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. at 6787 (describing the objectives of a price cap regulation regime).

¹³³ See W. KIP VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 386 (2d ed. 1995) (describing price cap regulation).

¹³⁴ See FRED BOSSELMAN ET AL., *ENERGY, ECONOMICS AND THE ENVIRONMENT: CASES AND MATERIALS* 150 (2d ed. 2006) (explaining the benefits and drawbacks of price cap regulation).

¹³⁵ See, e.g., MASS. DEP’T OF PUB. UTILS., *RATE STRUCTURES THAT WILL PROMOTE EFFICIENT DEPLOYMENT OF DEMAND RESOURCES*, Order No. 07-50-A, at 8–9 (July 16, 2008), 2008 WL 2937826 (noting that an alternative ratemaking scheme may be necessary in order to ensure that disincentives from effective energy efficiency and demand response programs are eliminated); N.Y. PUB. SERV. COMM’N, CASE 03-E-0640, *ORDER REQUIRING PROPOSALS FOR REVENUE DECOUPLING MECHANISMS*, at 2–3 (Apr. 20, 2007) (noting that existing rate structures may disincentivize electric companies from promoting energy efficiency programs and renewable energy and requiring a new rate structure to eliminate that disincentive).

¹³⁶ See, e.g., MASS. DEP’T OF PUB. UTILS., *supra* note 135, at 48 (describing the implications of a newly ordered business model as eliminating the link between growth in sales and growth in revenue); N.Y. PUB. SERV. COMM’N, *supra* note 135, at 3 (describing the aspects of rate design being reformed).

¹³⁷ N.Y. PUB. SERV. COMM’N, *supra* note 135, at 2–3.

the company's total revenue requirement in a full rate proceeding and provides for annual increases or decreases to the per kilowatt rates based upon actual sales volumes, so that the company does not increase its total revenue by increasing electric sales, and will not lose revenue if it decreases total sales.¹³⁸ This approach may provide incentives that are dissimilar to those that a firm in a competitive market may face.¹³⁹ Instead, the rate structure is designed to remove the disincentives in the traditional approach to the utility company's promotion of energy efficiency, which is intended to reduce sales volumes.¹⁴⁰

2. Acknowledging and Accounting for the Energy Sector's Climate Change Impacts: Examining New State Climate Change Statutes

Some statutes require PUCs to consider the impacts of their decisions on climate change.¹⁴¹ For example, the Massachusetts Global Warming Solutions Act ("GWSA") requires all Massachusetts agencies conducting adjudications to take foreseeable impacts of global warming into account when making administrative decisions.¹⁴² The Massachusetts DPU has determined that this statute applies to its administrative decisions, at least where the decision may impact the state's greenhouse gas reduction mandates.¹⁴³

The DPU has used the GWSA to encourage regulated utility companies to change behavior in a manner that helps achieve the state's greenhouse gas emissions reduction requirements.¹⁴⁴ It used the GWSA provision to approve a settlement agreement between two companies desiring to

¹³⁸ See *id.* at 8 (explaining how decoupling functions); see also MASS. DEP'T OF PUB. UTILS., *supra* note 135, at 48 (describing decoupling).

¹³⁹ See N.Y. PUB. SERV. COMM'N, *supra* note 135, at 7–8 (describing how decoupling is designed to remove the link between utility sales and revenues).

¹⁴⁰ *Id.* The "decoupled" rate structure still provides the company with incentives to earn additional revenue between rate cases by lowering its costs of doing business because the company is still entitled to collect its total revenue requirement from customers. See *id.* at 8 (describing how revenue decoupling functions).

¹⁴¹ See, e.g., MASS. GEN. LAWS ANN. ch. 30, § 61 (West 2016) (requiring state administrative agencies to consider relevant impacts of global warming when making administrative decisions).

¹⁴² *Id.*

¹⁴³ See MASS. DEP'T OF PUB. UTILS., JOINT PETITION FOR APPROVAL OF MERGER BETWEEN NSTAR & NORTHEAST UTILITIES, Order No. 10-170, at 25–26 (Mar. 10, 2011), 2011 WL 1111829 (interlocutory order on standard of review) (applying statute in an administrative proceeding).

¹⁴⁴ See, e.g., MASS. DEP'T OF PUB. UTILS., JOINT PETITION FOR APPROVAL OF MERGER BETWEEN NSTAR & NORTHEAST UTILITIES, Order No. 10-170-B, at 80 (Apr. 4, 2012), 2012 WL 1484182 (concluding that elements of a merger-settlement agreement promoting energy efficiency, renewable energy, and electric vehicles are factors in favor of the merger because of the statute's application); see also *id.* at 77 (explaining that the statute requires the Department of Public Utilities to consider climate change impacts as part of the standard of review for considering approval of merging utility companies).

merge but needing the approval of the DPU and numerous intervenors, including the Massachusetts Attorney General and the state's Energy Policy Office.¹⁴⁵ The DPU found that provisions in the settlement agreement requiring the merged company to procure contracts for solar energy, to establish electric vehicle charging infrastructure, and to increase their energy efficiency savings targets provided "net benefits for ratepayers" in light of the GWSA provisions.¹⁴⁶

B. Preventing the Regulator from Going Too Far: Examining the Constitutional Constraints on Rate Regulation

The Fifth Amendment to the U.S. Constitution provides that "private property [shall not] be taken for public use, without just compensation."¹⁴⁷ The Fourteenth Amendment to the U.S. Constitution applies the Fifth Amendment to the States.¹⁴⁸ If the government physically possesses or occupies private property, the Supreme Court has held that to be a taking under the Fifth Amendment.¹⁴⁹ Even when not physically possessing or occupying private property, the Supreme Court has held that the Federal Government or the States violate the Fifth Amendment when they "in substance and effect" deprive a company of the use of its capital by inhibiting a company from charging reasonable rates for the use of its invested capital.¹⁵⁰

The Court has made numerous decisions determining the limits of State and Federal authority to regulate rates before constituting a taking under the Fifth Amendment of the Constitution.¹⁵¹ In 1935, in *West Ohio Gas Co. v. Public Utilities Commission of Ohio*, the Court considered an appeal of an order by the Ohio Public Utility Commission that fixed the retail rates

¹⁴⁵ See *id.* at 80 (finding that elements of a merger settlement agreement providing increased support for energy efficiency and renewable energy favored approval of the settlement agreement).

¹⁴⁶ *Id.* at 83.

¹⁴⁷ U.S. CONST. amend. V.

¹⁴⁸ See U.S. CONST. amend. XIV (stating that no State may "deprive any person of life, liberty, or property, without due process of law"); *Kelo v. City of New London, Conn.*, 545 U.S. 469, 472 n.1 (2005) (noting that the Fifth Amendment governs state actions because of the Fourteenth Amendment); *Fallbrook Irrigation Dist. v. Bradley*, 164 U.S. 112, 158 (1896) (applying Fifth Amendment takings clause jurisprudence to States through the Fourteenth Amendment).

¹⁴⁹ See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 427 (1982) (holding that takings occur when real property is physically occupied).

¹⁵⁰ *Smyth v. Ames*, 169 U.S. 466, 523 (1898), *rev'd on other grounds by Fed. Power Comm'n v. Nat. Gas Pipeline Co. of Am.*, 315 U.S. 575 (1942).

¹⁵¹ See *Duquesne Light*, 488 U.S. at 315 (holding that a Pennsylvania statute prohibiting rate regulators from considering certain costs to establish an electric rate did not violate the takings clause); *Fed. Power Comm'n*, 315 U.S. at 598 (upholding an order of the Federal Power Commission under the Natural Gas Act as not violating the takings clause); *W. Ohio Gas Co. v. Pub. Utils. Comm'n of Ohio*, 294 U.S. 63, 67 (1935) (concluding that the Ohio PUC set a gas company's rates beneath a constitutionally permissible level).

of a gas distribution company.¹⁵² After considering numerous issues including the Commission's restriction on the amount of lost and unaccounted for gas that the Company was authorized to recover from its customers, the Court held that the Commission unconstitutionally set the company's rates too low in violation of the Fourteenth Amendment.¹⁵³ During the ratemaking proceeding before the Commission, the company had reported its average lost and unaccounted for gas at nine percent per year, but the Commission designed the company's rates in a manner that only permitted the company to earn revenue to cover seven percent lost and unaccounted for gas.¹⁵⁴ Although the Commission agreed that the actual lost and unaccounted for gas during the test year was nine percent, the Commission believed that the company could achieve less than seven percent lost and unaccounted for gas if it managed its system better.¹⁵⁵ After reviewing the record before the Commission, the Court found that the record lacked anything demonstrating the Commission's determination that poor management led to a level of lost and unaccounted for gas as high as nine percent.¹⁵⁶ The Court, therefore, held that the Commission's decision to eliminate the two percent lost gas from the company's revenue requirement was arbitrary and unconstitutional.¹⁵⁷ The Court defined its inquiry in rate cases appealed to the Supreme Court as whether "in the totality of the consequences" the state commission's action permits the regulated company to earn enough revenue from customers so as not to be confiscatory.¹⁵⁸

Despite *West Ohio Gas* being a *Lochner*-era decision, utility company ratemaking has been subject to Supreme Court review for confiscatory takings in the post-*Lochner* era.¹⁵⁹ In 1989, in *Duquesne Light Co. v. Barasch*,

¹⁵² *W. Ohio Gas Co.*, 294 U.S. at 67.

¹⁵³ *Id.* at 67, 75. The Court referred to lost and unaccounted for gas as "unaccounted for gas" and defined the term as "gas lost as a result of leakage, condensation, expansion, or contraction." *Id.* at 67. The Court noted that even the most well-operated natural gas distribution companies may not be able to avoid at least some degree of lost or unaccounted for gas. *Id.*

¹⁵⁴ *Id.* at 67–68.

¹⁵⁵ *Id.* at 68.

¹⁵⁶ *Id.* Although the Court agreed with the Commission that costs incurred by the company because of negligence or waste should not be recovered from customers, the Court noted that the state commission must establish a company's waste or negligence through some kind of evidentiary record. *Id.*

¹⁵⁷ *Id.* The Court held that the removal of this cost of business among others that the Commission removed in this case resulted in a net reduction in the revenue the Company was authorized to recover from customers in rates in a manner that was unconstitutionally low for a gas distribution company. *Id.* at 75.

¹⁵⁸ *Id.* at 70. Additionally, that level of revenue must be obtained "with suitable opportunity through evidence and argument." *Id.*

¹⁵⁹ See *Duquesne Light*, 488 U.S. at 315 (upholding a state statute limiting recovery of certain costs in rates as constitutional); *Fed. Power Comm'n*, 315 U.S. at 591 (upholding a rate order of the Federal Power Commission as not violating the takings clause). In 1905, in *Lochner v. New*

the Court reaffirmed that the Constitution protects utility companies from being limited to a charge for their property serving the public that is so low and unjust as to be confiscatory.¹⁶⁰ If a rate does not afford sufficient compensation, the State is deemed to take the use of the utility's property, that is, its capital, without paying just compensation and therefore violates the Fifth and Fourteenth Amendments.¹⁶¹ The Court, however, clarified that the Constitution does not require courts to review specific costs incurred by the utility in order to set a rate.¹⁶² The Court refused to review the methodology of how the PUC established a rate to determine whether it was confiscatory in effect.¹⁶³ Using this reasoning, the Court held that a Pennsylvania statute proscribing a certain method of ratemaking would not necessarily result in a constitutionally impermissible rate.¹⁶⁴

York, the U.S. Supreme Court held that a New York labor statute limiting the amount of hours that certain employees could work violated the right to contract that the Court claimed was part of the individual's liberty protected by the Fourteenth Amendment of the United States Constitution. 198 U.S. 45, 64 (1905) (protecting the freedom to contract as a substantive due process right). Professor Cass Sunstein describes the *Lochner* Era as a time when the Supreme Court tried to establish areas where states or the federal government could not interfere through regulation. Cass R. Sunstein, *Naked Preferences and the Constitution*, 84 COLUM. L. REV. 1689, 1697 (1984). Where regulation looked like an attempt for one social class or a majority to use raw power to extract benefits from another minority class, regulation was impermissible. *See id.* (explaining the *Lochner* era). Because state regulation of public utility rates could be seen as an attempt by the beneficiaries of legislation, the ratepayers, to exercise political power to limit potential return on investment by utility companies and their investors, utility company ratemaking cases could be considered classic *Lochner* Era cases. *See, e.g., W. Ohio Gas Co.*, 294 U.S. at 77 (requiring increased gas rates for a gas company to protect the company's constitutional rights because the commission had set rates unconstitutionally low and at times based on findings unsupported by evidence); *see also West v. Chesapeake & Potomac Tel. Co. of Balt. City*, 295 U.S. 662, 679 (1935) (striking down a Maryland Commission order setting telephone company rates); *Columbus Gas & Fuel Co. v. Pub. Utils. Comm'n of Ohio*, 292 U.S. 398, 404–05 (1934) (striking down an Ohio Public Utilities Commission order setting the price to be charged for natural gas as taking away the company's property without due process of law). The *Lochner* Era is said to have ended in 1937 when the Supreme Court issued its opinion in *West Coast Hotel Co. v. Parrish* that explicitly overruled an earlier holding and upheld a state law establishing a minimum wage for women. 300 U.S. 379, 400 (1937); *see* GEOFFREY R. STONE ET AL., CONSTITUTIONAL LAW 754 (6th ed. 2009) (stating that many consider *West Coast Hotel* to have ended the *Lochner* era); Michael J. Phillips, *The Progressiveness of the Lochner Court*, 75 DENV. U. L. REV. 453, 457 (1998) (stating the same).

¹⁶⁰ 488 U.S. at 307.

¹⁶¹ *See id.* (describing the constitutional limits of rate regulation).

¹⁶² *See id.* at 313 (rejecting contentions that the Constitution requires the Court to review the Pennsylvania Public Utility Commission's failure, pursuant to state statutory requirements, to review and recover construction costs of unfinished nuclear generating facilities as a concern not of the scale necessary to raise constitutional concerns).

¹⁶³ *See id.* at 314 (refusing to review the methodology of a rate order provided that the outcome was constitutionally sufficient); *Fed. Power Comm'n v. Hope Nat. Gas Co.*, 320 U.S. 591, 602 (1944) (explaining that the Court looks only at the result of the rate order and not how an agency determined it to analyze if it is reasonable and does not result in a taking).

¹⁶⁴ *Duquesne Light*, 488 U.S. at 315. A Pennsylvania statute passed shortly before the controversy required the Pennsylvania PUC to set electricity rates in a manner that excluded recovery of

III. LET'S END THE RISK-FREE RIDE: IT IS TIME FOR PUBLIC UTILITY COMMISSIONS TO RE-IMPOSE RESTRICTIONS ON UNLIMITED RECOVERY OF LOST AND UNACCOUNTED FOR GAS THROUGH PURCHASED GAS ADJUSTMENT MECHANISMS

State PUCs should limit cost recovery of lost and unaccounted for gas because a cost recovery limit incentivizes natural gas distribution companies to control the causes of lost and unaccounted for gas when doing so is economic, lowering costs for consumers and providing environmental and public safety benefits.¹⁶⁵ Section A of this Part argues that the total recovery approach is inconsistent with the purposes of statutes enacted to ensure that natural gas rates are “just and reasonable.”¹⁶⁶ Section B argues that a capped approach would not be considered an unconstitutional regulatory taking.¹⁶⁷

A. Recovery of Unlimited Lost and Unaccounted for Gas Through Purchased Gas Adjustment Mechanisms is Consistent with Statutory Purposes Behind Rate Regulation

Because the total recovery method of cost recovery fails to provide the company with any incentive to reduce costs over which it exercises some control, state public utility commissions should reject the total recovery ap-

costs associated with each company's expenditures for electrical generating facilities that were planned but never built, even when those expenditures were not unreasonable when the company decided to make the expenditure. *See id.* at 301. The statute was passed after, in response to predictions to increased demand for electricity, a number of Pennsylvania utility companies entered a joint venture in the late 1960s to build seven nuclear generating units. *Id.* at 302. In 1980, the participating utilities canceled the plans for the construction of these plants, in part because of the impact of the Arab oil embargo and associated policies on electricity demand and because of the Three Mile Island nuclear accident. *Id.* At the time that these facilities' construction was cancelled, the construction costs that were spent on the cancelled plants were over \$34 million. *Id.*

In 1944, in *Federal Power Commission v. Hope Natural Gas Co.*, the U.S. Supreme Court clarified that rate-setting bodies are not bound to use a single formula in determining rates. 320 U.S. at 602. Instead, a Commission must ensure that the final rate, however a Commission decides to set that rate, is not so low as to provide the utility company a return on its investment that is so low to be confiscatory. *See id.* (noting that a rate is not confiscatory looking at the whole rate that the company charges, not because of aspects of the rate-making process).

¹⁶⁵ *See City of Chi. v. Fed. Power Comm'n*, 385 F.2d 629, 636 (D.C. Cir. 1967) (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it was subject to competition because competition incentivizes firms to reduce costs or face losing market share); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6 (discussing the benefits to New York gas ratepayers from limiting cost recovery of lost and unaccounted for gas); PA. PUB. UTIL. COMM'N, *supra* note 7, at 11–12 (discussing the public safety and climate change impacts of lost and unaccounted for gas); CLEVELAND, *supra* note 23, at 12 (discussing the climate change and public safety policy benefits of lost and unaccounted for gas recovery restrictions on fixing leaks).

¹⁶⁶ *See infra* notes 168–183 and accompanying text.

¹⁶⁷ *See infra* notes 184–195 and accompanying text.

proach.¹⁶⁸ Commissions design “just and reasonable” rates that provide companies similar incentives to a firm in a competitive environment.¹⁶⁹ Commissions also consider public policy goals in designing utility company rates to be “just and reasonable.”¹⁷⁰ The ability of gas companies in the majority of states to recover unlimited lost and unaccounted for gas in gas adjustment clauses (1) fails to provide efficiency incentives similar to those they would face if they were subject to competition, and (2) fails to address other public policy concerns.¹⁷¹ Accordingly, state commissions should adopt a capped approach using historical averaging, such as that in New York.¹⁷²

¹⁶⁸ See *City of Chi.*, 385 F.2d at 636 (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it was subject to competition and in competition firms have incentive to reduce costs or face losing market share); *State Pub. Utils. Comm’n ex rel. City of Springfield v. Springfield Gas & Elec. Co.*, 125 N.E. 891, 896 (Ill. 1919) (explaining that rate regulation occurs because certain firms are natural monopolies and rate setting might come close to providing a rate that firms might charge if competition in the industry was possible, and in competition firms charge prices approaching cost or face losing market share); *State ex rel. Sprint Mo., Inc. v. Pub. Serv. Comm’n of State*, 165 S.W.3d 160, 161–62 (Mo. 2005) (explaining that the purpose of certain rate regulation is to emulate the results of competition where competition cannot exist); R.I. PUB. UTILS. COMM’N, *supra* note 118 (explaining that regulators should regulate industry in a manner that would result in similar rates, terms and conditions that would occur if the firm was subject to “effective competition” and in competition firms have incentives to reduce costs or face losing market share); Leventhal, *supra* note 118, at 990 (explaining that regulators should regulate industry in a manner that would result in similar rates, terms, and conditions that would occur if the firm were subject to competition); N.Y. DEP’T OF PUB. SERV., *supra* note 21, at 6–7 (explaining how the total recovery approach functions in New York and provides the gas company with an incentive to reduce costs that are also eventually shared with ratepayers in the form of lower rates); PA. PUB. UTIL. COMM’N, *supra* note 99 (replacing the total recovery approach with a command and control approach as “just and reasonable”).

¹⁶⁹ See *City of Chi.*, 385 F.2d at 636 (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it were subject to competition); *Sprint Mo., Inc.*, 165 S.W.3d at 161–62 (explaining that the purpose of certain rate regulation is to emulate the results of competition where competition cannot exist); *Springfield Gas & Elec.*, 125 N.E. at 896 (explaining that rate regulation occurs because certain firms are natural monopolies and rate setting might come close to providing a rate that firms might charge if competition in the industry were possible); R.I. PUB. UTILS. COMM’N, *supra* note 118 (explaining that regulators should regulate industry in a manner that would result in similar rates, terms, and conditions that would occur if the firm were subject to “effective competition”); Leventhal, *supra* note 118, at 990 (stating the same).

¹⁷⁰ See, e.g., MASS. DEP’T OF PUB. UTILS., *supra* note 135 (concluding that gas and electric companies must redesign rates to reduce the disincentive toward demand resources and that such a decision is within the agency’s statutory authority); N.Y. PUB. SERV. COMM’N, *supra* note 135 (noting that existing rate structures may disincentivize electric companies from promoting energy efficiency programs and renewable energy and requiring a new rate structure to eliminate that disincentive). *But see* *Mass. Elec. Co. v. Dep’t of Pub. Utils.*, 643 N.E.2d 1029, 1033–34 (Mass. 1994) (noting that the Massachusetts Commission exceeded its statutory authority when it required electric company investment in more expensive electricity generation because it did not have delegated authority to consider the impact of pollution on society).

¹⁷¹ See CLEVELAND, *supra* note 23, at 12 (discussing the climate change and public safety policy benefits of lost and unaccounted for gas recovery restrictions on fixing leaks); Costello,

The historical averaging approach is consistent with the statutory purposes behind rate regulation because it provides the firm with incentives to reduce costs over which it has control.¹⁷³ Lost and unaccounted for gas is a cost over which the company exercises some degree of control, like the general cost of service.¹⁷⁴ If a gas distribution company was subject to effective competition, the company would repair all leaks and terminate unauthorized gas use to the extent doing so was an economically efficient use of the company's resources.¹⁷⁵ In a jurisdiction where complete recovery of lost and unaccounted for gas costs within the purchased gas adjustment factor is permitted, the company has no economic incentive to implement these

supra note 15, at 19 (noting that utilities exercise a "degree of control" over the causes of lost and unaccounted for gas); Foy, *supra* note 61, at 670 (noting that adjustment clauses like the purchased gas adjustment clause should only be applied to costs that the company cannot control because if it is applied to controllable costs, the clause might cause rates to increase as a lack of an incentive to control those underlying controllable costs will result in poor company cost management).

¹⁷² See N.Y. DEP'T OF PUB. SERV. COMM'N, *supra* note 87 (implementing the historical averaging approach in New York State).

¹⁷³ See *City of Chi.*, 385 F.2d at 636 (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it were subject to competition); *Sprint Mo., Inc.*, 165 S.W.3d at 161–62 (explaining that the purpose of certain rate regulation is to emulate the results of competition where competition cannot exist); *Springfield Gas & Elec.*, 125 N.E. at 896 (explaining that rate regulation occurs because certain firms are natural monopolies and rate setting might come close to providing a rate that firms might charge if competition in the industry was possible); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6–7 (explaining how the total recovery approach functions in New York and provides the gas company with an incentive to reduce costs that are also eventually shared with ratepayers in the form of lower rates); PA. PUB. UTIL. COMM'N, *supra* note 99 (replacing the total recovery approach with a command and control approach as "just and reasonable").

¹⁷⁴ See CONN. PUB. UTILS. REGULATORY AUTH., *supra* note 24, at 1 (finding the largest component contributing to lost and unaccounted for gas to be Low Pressure Metering and System Pressure for two natural gas distribution companies and measurement sources for a third distribution company); ICF INT'L, *supra* note 5, at 1-1 (noting numerous factors that lost and unaccounted for gas represents that a gas distribution company may be able to control); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 16–21 (describing factors that contribute to lost and unaccounted for gas as including meter issues and error, meter reading issues, Therm billing, leaks, and theft of service); Costello, *supra* note 15, at 19 (noting that utilities exercise a "degree of control" over the causes of lost and unaccounted for gas). For example, a company has an ability to repair leaks on its distribution pipelines and to terminate service at accounts where theft of service may be occurring. See MASS. DEP'T OF PUB. UTILS., *supra* note 28, at 43 (noting that there were many leaks on the gas distribution systems in 2014 and the companies are engaged in repair programs to fix those leaks); e.g., THE PEOPLES GAS LIGHT AND COKE CO., TERMS AND CONDITIONS OF SERVICE, ILL. C. C. No. 28, at 2, <http://www.peoplesgasdelivery.com/company/tariffs/terms.pdf> [<https://perma.cc/Z2TV-TT3T>] (providing in the tariff of a gas company terms and conditions permitting the company to terminate service at certain premises when gas is being used without a recorded account holder, demonstrating that the company has an ability to reduce unaccounted for gas from theft of service).

¹⁷⁵ See BREYER, *supra* note 112, at 49 (discussing incentives in a competitive market).

cost-saving actions.¹⁷⁶ In such cases, the environment, and public safety are also compromised.¹⁷⁷

Because this method of total cost recovery fails to provide the company with any incentive to reduce costs over which it exercises some control, state PUCs should reject this total recovery approach, and instead, commissions should adopt New York's historical averaging approach to lost and unaccounted for gas recovery.¹⁷⁸ Furthermore, subjecting gas distribution companies to rate-setting lag for lost and unaccounted for gas also incentivizes efforts to reduce lost and unaccounted for gas, consistent with state and federal regulation attempts to further incentivize rate regulated companies

¹⁷⁶ See, e.g., 220 MASS. CODE REGS. 6.06 (setting forth the formula for gas adjustment factors in a total recovery jurisdiction generally as the total volume of gas purchased by the company divided by the total amount of sales made by the company to its customers); NRRRI REPORT, *supra* note 16, at 58–62 (providing state commission responses regarding what incentive each state commission provides its regulated companies to reduce lost and unaccounted for gas); Foy, *supra* note 61, at 670 (noting that adjustment clauses like the purchased gas adjustment clause should only be applied to costs that the company cannot control because if it is applied to controllable costs, the clause might cause rates to increase as a lack of an incentive to control those underlying controllable costs will result in poor company management of those costs). Therefore, any minimal emulation of the competitive market that would be achieved by rate-setting lag associated with lost and unaccounted for gas would provide the company an ability to earn additional revenue by lowering lost and unaccounted for gas expense. See BREYER, *supra* note 112, at 48 (noting that regulated companies can earn more profit than permitted by regulators by lowering costs between rate cases). Additionally, a failure to address lost and unaccounted for gas expenses would result in decreased revenue. See *id.* (explaining how a regulated company may make less profit than permitted by regulators because of inflation if it cannot decrease cost).

¹⁷⁷ See PA. PUB. UTIL. COMM'N, *supra* note 7, at 11–12 (discussing the public safety and climate change impacts of lost and unaccounted for gas); BREYER, *supra* note 112, at 48 (discussing how rate-setting lag creates incentives to reduce cost similar to those that pressure competitive firms to lower costs); Foy, *supra* note 61, at 670 (noting that adjustment clauses like the purchased gas adjustment clause should only be applied to costs that the company cannot control because if it is applied to controllable costs, the clause might cause rates to increase as a lack of an incentive to control those underlying controllable costs will result in poor company management of those costs).

¹⁷⁸ See *City of Chi.*, 385 F.2d at 636 (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it were subject to competition because in competition firms have incentive to reduce costs or face losing market share); *Sprint Mo., Inc.*, 165 S.W.3d at 161–62 (explaining that the purpose of certain rate regulation is to emulate the results of competition where competition cannot exist); *Springfield Gas & Elec.*, 125 N.E. at 896 (explaining that rate regulation occurs because certain firms are natural monopolies and rate setting might come close to providing a rate that firms might charge if competition in the industry were possible and in competition firms charge prices approaching cost or face losing market share); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6–7 (explaining how the total recovery approach functions in New York and provides the gas company with an incentive to reduce costs that are also eventually shared with ratepayers in the form of lower rates); PA. PUB. UTIL. COMM'N, *supra* note 99 (replacing the total recovery approach with a command and control approach as “just and reasonable”); R.I. PUB. UTILS. COMM'N, *supra* note 118 (explaining that regulators should regulate industry in a manner that would result in similar rates, terms, and conditions that would occur if the firm were subject to “effective competition” and in competition firms have incentives to reduce costs or face losing market share); Leventhal, *supra* note 118, at 990 (stating the same).

to reduce cost of service in a manner more similar to a firm acting in a competitive market.¹⁷⁹

Additionally, state commissions should adopt a capped approach because it would achieve public policy goals of increased public safety and reduced greenhouse gas emissions.¹⁸⁰ Injecting such limitations, as well as rate-setting lag into the cost recovery of lost and unaccounted for gas may accomplish policy objectives of providing gas distribution companies with an additional incentive to reduce leaks that contribute to climate change and pose public safety risks.¹⁸¹ These limitations on the cost recovery of lost and unaccounted for gas may provide state regulators with the unique ability to simultaneously pursue policy goals of increased safety, decreased environmentally harmful emissions, while not sacrificing the aim of regulating a firm in a manner that emulates prices and incentives that the firm might

¹⁷⁹ See *In re Policy & Rules Concerning Rates for Dominant Carriers*, 5 FCC Rcd. 6786, 6787 (1990) (replacing traditional regulation with price cap regulation for interstate telephone local exchange carriers); *S. Cent. Bell Tel. Co.*, 164 Pub. Util. Rep. (PUR) 4th 324, 345 (Ala. Pub. Serv. Comm'n 1995) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in Alabama); *In re New England Tel. & Tel.*, 162 Pub. Util. Rep. (PUR) 4th 38, 44 (Me. P.U.C. 1995) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in Maine); *BellSouth Telecomm., Inc.*, 168 Pub. Util. Rep. (PUR) 4th 438, 470 (N.C. Utils. Comm'n. 1996) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in North Carolina); *BellSouth*, 169 Pub. Util. Rep. (PUR) 4th 144, 158 (S.C. Pub. Serv. Comm'n 1996) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in South Carolina); *Telephone Regulatory Methods*, 157 Pub. Util. Rep. (PUR) 4th 465, 471 (Va. State Corp. Comm'n 1994) (transitioning to price cap regulation from traditional regulation for intrastate telecommunications services in Virginia); Vogt, *supra* note 130, at 384 (explaining that many state regulators adopted some version of a price cap regulation for telecommunications carriers in the 1980s and 1990s).

¹⁸⁰ See MASS. DEP'T OF PUB. UTILS., *supra* note 135 (implementing decoupling to achieve Massachusetts energy and environmental public policy goals); N.Y. PUB. SERV. COMM'N, *supra* note 135 (implementing decoupling to achieve New York energy and environmental public policy goals); PA. PUB. UTIL. COMM'N, *supra* note 7, at 11–12 (discussing the public safety and climate change impacts of lost and unaccounted for gas).

¹⁸¹ See PA. PUB. UTIL. COMM'N, *supra* note 7, at 11–12 (discussing the public safety and climate change impacts of lost and unaccounted for gas); Latin, *supra* note 36, at 34 (comparing methane to carbon dioxide).

find if it existed in a competitive market.¹⁸² Therefore, state public utility commissions should adopt the historical averaging approach.¹⁸³

B. It's All Legal, Too: State Commissions Can Limit Lost and Unaccounted for Gas Recovery Without Implicating the Takings Clause

A command and control capped recovery approach is more likely to face Constitutional constraints than the capped recovery by historical averaging approach.¹⁸⁴ In *Duquesne Light Co.* and *Hope Natural Gas*, the Supreme Court provided that if a company has a reasonable opportunity to earn a reasonable return on invested capital from the total revenue stream, the rates set by a commission will not be deemed confiscatory nor violative of the Fifth and Fourteenth Amendments of the Constitution.¹⁸⁵ Unlike capped recovery by historical averaging that sets the recoverable cost of lost and unaccounted for gas based on the company's historical average quantity, the command and control capped recovery approach provides a prescribed schedule of decreasing permitted percentages of lost and unac-

¹⁸² See *City of Chi.*, 385 F.2d at 636 (explaining that the purpose of regulation is to ensure the type of service that would be provided and similar prices to what a firm would charge if it was subject to competition because in competition firms have incentive to reduce costs or face losing market share); *Sprint Mo, Inc.*, 165 S.W.3d at 161–62 (explaining that the purpose of certain rate regulation is to emulate the results of competition where competition cannot exist because in competition firms have incentives to reduce costs or face losing market share); PA. PUB. UTIL. COMM'N, *supra* note 7, at 11–12 (discussing the public safety and climate change impacts of lost and unaccounted for gas).

¹⁸³ See MASS. DEP'T OF PUB. UTILS., *supra* note 135 (requiring that companies file a decoupled rate plan with their next rate case filing because of the policy benefits of energy efficiency and distributed renewable generation filing even though decoupled rate plans insulate the company from revenue losses or gains from increased or decreased sales between rate cases); N.Y. PUB. SERV. COMM'N, *supra* note 135 (directing the electric and gas utilities to file proposals for decoupling mechanisms to encourage utility promotion of, and customer participation in, energy efficiency programs because the public benefits from energy efficiency programs, renewable energy, and distributed generation could be substantial despite the fact that decoupling mechanisms insulate the company from revenue losses or gains from increased or decreased sales between rate cases).

¹⁸⁴ See 52 PA. CODE § 59.111(c) (2013) (setting forth a command and control approach); *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 307 (1989) (explaining that a rate that is so low to be confiscatory is unconstitutional); *Fed. Power Comm'n v. Nat. Gas Pipeline Co.*, 315 U.S. 575, 585 (1942) (explaining that a rate can be so low that it violates the takings clause); *W. Ohio Gas Co. v. Pub. Utils. Comm'n of Ohio*, 294 U.S. 63, 75 (1935) (holding a gas company's rates set by the Ohio PUC to be so low that they were confiscatory and unconstitutional); H.B. 2870, 189th Gen. Court, 6–7 (Mass. 2015) (legislative bill proposing a command and control approach); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6–7 (explaining the total recovery approach).

¹⁸⁵ See *Duquesne Light*, 488 U.S. at 315 (holding that a state statute regarding electricity rate regulation did not violate the takings clause because there was no evidence that it resulted in an unconstitutionally low rate); *Fed. Power Comm'n v. Hope Nat. Gas Co.*, 320 U.S. 591, 605–06 (1944) (holding that a rate order of the Federal Power Commission did not set a rate so low to be unreasonable under the Natural Gas Act or unconstitutional).

counted for gas that can be recovered from ratepayers, regardless of what actual quantity of lost and unaccounted for gas may be a reasonable cost of doing business.¹⁸⁶

Similar to the construction costs that were prohibited from recovery in *Duquesne Light Co.*, the command and control capped recovery approach prohibits the recovery of one element of costs that may be reasonable from a utility company's ratepayers.¹⁸⁷ Provided that a commission sets the company's total revenue recoverable from customers as high enough to provide the company a reasonable ability to recover its cost in addition to a reasonable return, these provisions should survive Constitutional review because they would be limiting revenue above and beyond the Constitutional minimum.¹⁸⁸ Unlike capped recovery by historical averaging, however, which sets the rate based on actual costs, the command and control capped recovery approach sets arbitrary decreasing lost and unaccounted for gas limitations.¹⁸⁹ The bill filed in the Massachusetts Legislature would eventually

¹⁸⁶ See 52 PA. CODE § 59.111(c) (setting forth, by regulation, a schedule of decreasing permissible percentages of lost and unaccounted for gas for Pennsylvania gas distribution companies); H.B. 2870, 189th Gen. Court, 6–7 (Mass. 2015) (proposing in legislation a schedule of decreasing permissible percentages of lost and unaccounted for gas for Massachusetts gas distribution companies, culminating in zero permitted lost and unaccounted for gas); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6 (describing New York's capped approach by historical averaging).

¹⁸⁷ See 52 PA. CODE § 59.111(c) (statute limiting recovery of lost and unaccounted for gas using command and control approach); *Duquesne Light*, 488 U.S. at 303 (citing 66 PA. CONS. STAT. § 1315 (Supp.1988), which prohibited electric companies from recovering investments in unfinished and cancelled nuclear generating stations); H.B. 2870, 189th Gen. Court, 6–7 (Mass. 2015) (bill proposing limits on recovery of lost and unaccounted for gas using command and control approach). In *Duquesne Light Co.*, a Pennsylvania state statute prohibited the state public utility commission from permitting the electric companies from recovering from customers the costs associated with construction or expansion of a generation facility in electric company rate bases until the facility was complete, used, and useful. 488 U.S. at 303 (citing 66 PA. CONS. STAT. § 1315). Companies had spent tens of millions of dollars developing nuclear power plants before the development of these plants were cancelled for numerous reasons and the commission had determined that, notwithstanding the cancellation, the decision to invest in development was reasonable, suggesting that if not for the statute, these costs would be recoverable in rates. *Id.* at 302. The electric companies challenged the statute as violating the companies' rights under the Fifth and Fourteenth Amendments of the United States Constitution. *Id.* at 308. The companies argued that the Court's jurisprudence regarding confiscatory ratemaking required the Court to review how the commission calculated the company's rate and whether it should have excluded certain costs from that calculation. *Id.* at 313. Reaffirming its decision in *Hope Natural Gas*, the Court rejected the claims, noting that courts should not scrutinize whichever methodology or theory is used to set rates provided that the final rate is constitutionally permissible. *Id.* at 310.

¹⁸⁸ See *Duquesne Light*, 488 U.S. at 315 (holding that a state statute regarding electricity rate regulation did not violate the takings clause because there was no evidence that it resulted in an unconstitutionally low final rate of return on equity); *Hope Nat. Gas*, 320 U.S. at 602, 606 (explaining that the methodology for determining a rate is unimportant for the purposes of validity under the Natural Gas Act, and if a rate is valid under the Act, it is constitutionally permissible).

¹⁸⁹ See 52 PA. CODE § 59.111(c) (setting forth, by regulation, a schedule of decreasing permissible percentages of lost and unaccounted for gas for Pennsylvania gas distribution compa-

completely disallow recovery of any lost and unaccounted for gas expense.¹⁹⁰ Completely eliminating or arbitrarily limiting recovery of lost and unaccounted for gas costs, may result in rates below that constitutional minimum and therefore may be considered confiscatory.¹⁹¹

Duquesne Light Co. and *Hope Natural Gas* demonstrate why the Supreme Court's 1935 decision in *West Ohio Gas* does not pose an issue for gas adjustment clauses using a historical averaging approach that fixes the quantity of recoverable lost and unaccounted for gas such as in New York.¹⁹² Under the logic of *Hope Natural Gas* and *Duquesne Light Co.*, a Commission decision to establish a historical averaging recovery approach for lost and unaccounted for gas would not likely present a Constitutional problem even if, during certain years, a gas company under-recovered its lost and unaccounted for gas expense from its customers.¹⁹³ This would be a

nies); H.B. 2870, 189th Gen. Court, 6–7 (Mass. 2015) (proposing in legislation a schedule of decreasing permissible percentages of lost and unaccounted for gas for Massachusetts gas distribution companies, culminating in zero permitted lost and unaccounted for gas); N.Y. DEP'T OF PUB. SERV., *supra* note 21, at 6 (describing New York's capped approach by historical averaging).

¹⁹⁰ H.B. 2870, 189th Gen. Court, 7 (Mass. 2015) (providing the maximum allowable loss in year six and afterward as 0.00%). In 2012, Massachusetts gas distribution companies reported total lost and unaccounted for gas to the Department of Public Utilities at percentages as high as 4.55%. ICF INT'L, *supra* note 5, at 1–5.

¹⁹¹ See *Duquesne Light*, 488 U.S. at 307 (explaining that a rate that is too low to be confiscatory is unconstitutional); *Fed. Power Comm'n*, 315 U.S. at 585 (explaining that a rate that is so low that it is confiscatory is unconstitutional); *W. Ohio Gas*, 294 U.S. at 75 (holding that a gas company's rates set by the Ohio Public Utility Commission to be so low that they were confiscatory and unconstitutional). Command and control approaches like those found in the Massachusetts bill or Pennsylvania statute, by excluding the recovery of certain cost in a rate, may result in a rate providing the company with revenue lower than its reasonable operating costs and return and therefore violates the Fifth and Fourteenth Amendments of the United States Constitution. 52 PA. CODE § 59.111(c) (statute limiting lost and unaccounted for gas arbitrarily using command and control approach); *Duquesne Light*, 488 U.S. at 307; H.B. 2870, 189th Gen. Court, 6–7 (Mass. 2015) (bill proposing limits, followed by complete elimination of lost and unaccounted for gas recovery).

¹⁹² See *Duquesne Light*, 488 U.S. at 315 (holding that certain electric company rates are not confiscatory because the total rate established provided the firm with sufficient revenue to have an opportunity to earn a return); *Hope Nat. Gas*, 320 U.S. at 602 (explaining that a commission is free to use whichever methodology it chooses to set a sufficient rate); *W. Ohio Gas*, 294 U.S. at 67–68, 75 (concluding that Ohio Commission's finding of seven percent permissible lost and unaccounted for gas recovery in gas company rates despite company-reported average at nine percent to be denial of procedural due process rights because the Commission lacked evidence on the record of mismanagement and further concluding that approved rates were confiscatory). In *Duquesne Light*, the appealing electric companies did not allege that that the total effect of the rate order arrived at was unjust or unreasonable because it was confiscatory. 488 U.S. at 310–11. Instead, they argued that the Constitution required types of the Pennsylvania ratemaking process, determined in that case by state statute prohibiting recovery of the unfinished nuclear plants, to be examined one at a time. *Id.* at 313. The Court reaffirmed *Hope* and suggested that it's the impact of the rate that counts, not the method that produced it. *Id.*

¹⁹³ See *Duquesne Light*, 488 U.S. at 315 (holding that a Pennsylvania statute prohibiting electric companies from recovering millions of dollars in investments in cancelled nuclear plants from

constitutionally permissible result because *at the time the rate was set*, the rate was based on the actual historical lost gas costs, a factor over which the company has some degree of control, and therefore the set rate provides the company with *a reasonable opportunity* to recover its operating costs and earn a fair return on invested capital.¹⁹⁴ Provided that the company had an opportunity to earn a reasonable return from its total revenue stream, under-recovery in this one aspect would not likely present a Constitutional confiscation claim.¹⁹⁵

CONCLUSION

Lost and unaccounted for gas presents numerous issues: it costs gas consumers millions of dollars, it consists in part of gas leaks that contribute to climate change, and it poses public safety concerns. State public utility commissions can design natural gas distribution company rates in a manner that incentivizes the company to address all of these concerns, as demonstrated with New York's historical averaging approach. Commissions should design rates in this manner to further the purposes of statutes ensuring just and reasonable gas distribution company rates by ensuring that companies have both an incentive to reduce lost and unaccounted for gas volumes and the ability to recover reasonable costs with the opportunity to earn a reasonable overall return on invested capital. Additionally, Commissions can and should carefully design mechanisms, such as limitations based upon actual historical volumes, that are least likely to cause litigation regarding Constitutional takings.

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ratepayers did not violate the takings clause); *Hope Nat. Gas*, 320 U.S. at 602, 605 (explaining that it is not the methodology used but the final return rate that is important to determine whether a rate is unconstitutionally confiscatory).

¹⁹⁴ See *Duquesne Light*, 488 U.S. at 315 (holding that a ratemaking system that produces a rate generally based on historical cost and not shown to provide an unreasonable return on investment is constitutionally permissible); *Hope Nat. Gas*, 320 U.S. at 602, 605 (explaining that rates that provide a company with the opportunity to run successfully and appropriately compensate investors are adequate).

¹⁹⁵ See *Duquesne Light*, 488 U.S. at 315 (upholding a state statute limiting recovery of certain costs in rates as constitutional); *Hope Nat. Gas*, 320 U.S. at 602, 605 (noting that rates are valid under the Natural Gas Act and thus constitutionally permissible provided that, as a whole, they provide a company with the opportunity to run successfully and appropriately compensate investors); see also *Fitchburg Gas & Elec. Light Co. v. Dep't of Pub. Utils.*, 380 N.E. 2d 1304, 1308 (Mass. 1978) (explaining that the takings clause does not eliminate the possibility that a company will not earn a profit after a public utility commission fixes a reasonable rate).