

## Introduction

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THE CLEAN AIR ACT of 1970 (CAA) is broadly understood as a pivotal moment in the history of U.S. environmental policy, entailing a radical shift away from an earlier common law regime that was operated piecemeal by local and state governments. The CAA superceded these decentralized approaches with federal, uniform, and proactive law. But most importantly, it is thought to embody a shift in priorities away from an earlier deference to industrial concerns toward a new and uncompromising commitment to the protection of public health.

The act's absolutist reputation rests primarily on the ambitiousness of the promise it encodes in a central provision mandating the promulgation of primary ambient air-quality standards.<sup>1</sup> In setting these standards, the act requires the EPA to establish maximum permitted levels of regulated pollutants no higher than what the protection of public health against pollution-induced disease demands. These standards exemplify a broader category of regulatory interventions based on scientific assessment of hazards from pollution exposure, frequently termed "risk-based" or "health-based" standards. In addition, the CAA employs a secondary regulatory framework that sets standards based on the feasibility of pollution mitigation, termed "technology standards." Whereas technology standards are inherently based on feasibility and cost, these considerations may not be taken into account in setting risk standards.

Terms for technology standards include "Best Available Technology" (BAT), "Best Practicable Means" (BPM), "Maximum Achievable Control Technology" (MACT), and many others. All of these approaches employ the similar core logic of setting standards with reference to the pollution reduction capabilities of specific technological means. The standards can take the form of a requirement to install particular pollution-control devices or employ other mitigation measures (prescriptive standards). More commonly, however, these standards impose a percentage reduction in emission that is known to be achievable through technological measures of demonstrated feasibility (performance standards).<sup>2</sup> In the latter case, sources are free to employ alternative means, as long as they afford pollution reduction at least equal to the level of effectiveness that can be achieved by the technology serving as the basis for the standard.

I argue that technology and risk standards represent the current incarnation of alternative responses to the regulatory dilemma posed by air pollution since the beginning of industrialization. By the mid-nineteenth

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century, the forerunners of the two current regulatory approaches had become institutionalized. In Germany, standard-setting was guided by technological feasibility and was implemented through proactive licensing processes conducted by administrative agencies within a civil law framework. Under English common law, the organizing principle of air pollution regulation was the amelioration of proven harms within a reactive system that depended upon judicial resolution of nuisance disputes. By contrast to the German approach, English common law in principle imposed an absolute duty to eliminate injury from pollution (“absolute liability” in legal parlance). As such, technology and risk standards are planted in the different legal traditions of the civil law and the common law respectively.

In place of the predominant risk-based standards within the CAA, technology standards are the European instrument of choice.<sup>3</sup> This book argues that the continuity between risk standards and nuisance law, or conversely, the incompatibility of technology standards with common law principles, is key to the divergent evolution of the European and American regimes. Differences in styles of implementation follow from the two regimes’ core standard-setting rationales, as well. American air pollution regulation accords a much greater role to scientific proof of harm, quantitative risk assessment, and frequent judicial oversight than do the corresponding European processes.

The limited inroads made by technology standards into the U.S. air quality regime have drawn sharp political and scholarly criticism on two grounds: their purported economic inefficiency,<sup>4</sup> and a more profound challenge that they pose to the democratic legitimacy of these standards.<sup>5</sup> The resonance of this latter normative charge in American political discourse is perhaps best reflected in the frequent substitution of the term “command and control”—a term with distinct military, and even authoritarian connotations—for the more neutral “technology standards.”<sup>6</sup>

The logic that underpins this democratic critique is not self-evident. In this book I argue that current skepticism regarding the democratic legitimacy of technology standards stems from a long tradition in America of resisting civil-law-inspired reforms as potentially despotic. Since the early days of the United States, such reform proposals were encumbered by their association with the absolutist continental state. By the end of the nineteenth century, against increased efforts by progressives to implement continental-modeled social legislation, opponents turned to the claim that common law strictures delimited the scope of the police power in America as a matter of constitutional law. This conflict came to a head at the turn of the twentieth century, in what has come to be known as the *Lochner* era. Under the predominant view, the question was resolved with the New Deal, settling both the constitutionality and the legitimacy of the adminis-

trative state. Democratic critiques of technology standards suggest that late-nineteenth-century divisions on the congruence between continental models of administration and American political values remain with us today. Furthermore, I argue that these common law ideas are of crucial import in understanding why American and continental approaches to environmental regulation evolved along separate tracks.

For the purpose of this discussion, the relevant distinction between the common-law and civil-law traditions is their alternative conceptions of the scope of the state's regulatory authority under the police power. The common law tradition limits that power to interventions whose means are closely tailored to legitimate governmental ends, and accords judges a final say on this fit. Under this view, the traditional parameters of nuisance law circumscribe the regulatory authority of the state itself. By contrast, the civil law tradition, working from assumptions of absolute legislative sovereignty, imposes no similar means-ends rationality constraints.

Means-ends tailoring in the context of air pollution implies the crafting of regulations that are both necessary and sufficient to protect against harm. The purported beneficial outcome of this formula is the avoidance of imposition of sacrifice on neighbors through underregulation, or on firms through overregulation. Like their nuisance-based predecessors, risk standards accord with this commitment for close tailoring of regulation by promising complete protection against all scientifically proven risk. By contrast, since technology standards are based on the feasibility of mitigation, they implicitly acknowledge the likelihood that some pollution that is harmful but infeasible to mitigate may well go unabated. At the same time, by hinging intervention on feasibility rather than scientific proof of harm, they similarly allow for the possibility that mitigation costs beyond those strictly required for public health may be imposed on firms.

Risk standards formally eschew explicit balancing of interests in favor of precisely tailored intervention. Nevertheless, in practice both risk and technology-based systems engage in processes of balancing economic versus environmental interests, though they differ in the method and explicitness with which they carry out this unavoidable function. Risk standards resemble nuisance law in their mechanism for balancing interests. Rather than injecting these considerations at the stage of crafting a remedy, they implicitly balance as part of the process of establishing a legal injury or the existence of risk to begin with. This approach differs from technology-based mechanisms in two principal ways. First, by strictly circumscribing legally recognized harms, it tends to hide the sacrifice it imposes in the form of unremedied negative impacts. Second, it shifts the decision-making authority ultimately empowered to exercise discretion away from agencies and toward courts. Risk-based standards, much like nuisance law, make judges final arbiters of the adequacy of the proof of harm on

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which the agency based its intervention. Technology standards are subject to judicial review as well, but in their review judges look only to the practicability of the prescribed means; the legality of regulation does not hinge on the (judicially assessed) nexus between means and ends.

This book argues that contemporary critiques of the democratic legitimacy of technology standards accord with the longstanding common law tenet that, absent judicial oversight, governments inherently tend to abuse their power. This idea, deeply rooted in the American legal tradition, has exerted a powerful influence over the development of U.S. environmental regulation. The book points to the imprint of this common law ideology in the behavior and rhetoric of agencies, courts, and interest groups on both the business and environmental side. This is not to argue for any manner of deterministic causal connection between common law ideologies and the regulatory patterns I identify, or to suggest that raw political power is not at play. Across the junctures that I analyze, politics, money, and other influences mattered to regulatory outcomes. But since the beginning of industrialization, powerful interests lined up on both sides of the issue. Unlike advocates of technology interventions, however, opponents could appeal to deeply seated notions regarding the unreasonableness of such means-based regulatory approaches. As such, the common-law-inspired ground rules of the contemporary American policy debate encumber advocates of technology-based regulation with greater political burdens, while they lend rhetorical traction to the arguments of opponents of such intervention. The resulting uphill battle may sometimes be won, as the presence of some technology standards within the Clean Air Act (and other environmental statutes) suggests. Notwithstanding these instances, risk-based standards have won the day in U.S. air quality regulation.

It may be argued that the predominance of risk standards in U.S. environmental regulation needs no legal-ideological explanation; many analysts would choose to highlight the purported economic inefficiency of the technology-based alternative. Departing from the prevailing view, this book contends that standards that begin with the question of what is feasible—as opposed to a determination of the exact level of mitigation that is necessary and sufficient to protect health—more forthrightly acknowledge and cope with the realities of both scientific uncertainty and the impossibility of elimination of all risk from pollution exposure. I seek to contribute a historical perspective to this debate, which has largely centered around present-day empirical and (more commonly) theoretical analysis.

The historical evidence presented in this book establishes, over centuries, the repeated failure of harm-tailored air pollution interventions (whether nuisance- or risk-based) to spur deployment of available and feasible mitigation technologies. From this foundation, the book offers two interrelated arguments: the first pertains to reforms needed in domes-

tic pollution policy to further environmental protection goals; and the second identifies distinctive characteristics of American regulatory governance that distinguish the United States as the quintessential “common law state.”

In this connection it is important to highlight relevant differences and similarities between the evolution of the common law tradition in the United States and England. As will be subsequently discussed, the impact of the common law ideologies can be discerned in historical and contemporary patterns of air pollution regulation in Britain as well as in the United States. Nevertheless, there likewise exist important differences between the evolution and impact of the common law in the British and the American cases. Most importantly, England lacks a written constitution and the institution of constitutional judicial review. Instead its common law tradition made room for both parliamentary sovereignty and an unwritten constitutional tradition of limitations on the scope of political power. This difference partially accounts for why a technology-based air pollution regime successfully developed in late-nineteenth-century England, under the Alkali Act, but not in the United States. Any proposal for a technology-based statutory regime in the United States akin to the English Alkali Act would have come against *Lochner*-era limitations on the scope of the police power. By contrast, in England there could be no constitutional impediments to this manner of reform and hence fewer footholds for opponents of this manner of legislation.

In the resilience of nuisance law principles within American air pollution regulation, the book finds evidence of the continuing hold of common law ideologies on the contemporary American administrative state. These ideologies are evident in the Supreme Court’s takings jurisprudence<sup>7</sup> as well as its recent lines of decisions on legislative record review.<sup>8</sup> But well beyond their embodiment in Supreme Court doctrine, American doubts about the fit between democracy and the administrative state pervade policy-making at all governmental levels.

The following chapters interweave three themes: the continuities between contemporary American air pollution policy and nuisance law, the environmental and distributive consequences of the ostensibly absolutist commitments of nuisance / risk law, and the common law roots of American conceptions of technology standards as undemocratic instruments of “command and control.”

Chapter 1 compares the statutory mandates and styles of implementation of contemporary air pollution regimes in the United States and Germany. The chapter contrasts the German regime’s pervasive reliance on partial but uniform technology-based standards with the Clean Air Act’s far more ambitious, but ultimately fictitious, commitment to the complete elimination of risk from air pollution.

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Chapter 2 finds in contemporary critiques of the democracy of technology standards an expression of centuries-old beliefs in the irrationality, and hence illegitimacy, of regulatory processes that begin from assessments of feasibility rather than judgments on proper regulatory goals. The chapter focuses on the role of this assumption in the Supreme Court's reasoning in *Lochner v. New York* (1905) and—seventy-five years later—in its decision to invalidate a technology-based benzene rule issued by the Occupational Safety and Health Administration.

The ostensible commitment of the 1970 Clean Air Act to eliminate all harm from pollution recalls the absolute liability doctrines that nuisance law has brought to air pollution since preindustrial times. Chapter 3 follows the evolution of this body of English doctrine, and how and why demands for scientific proof that the pollution caused particular disease (as opposed to “mere” discomfort or aesthetic annoyance) entered the common law. I argue that absolute liability was a rule directed at the separation of incompatible land uses in a preindustrial era during which such separation was feasible and preferable to incremental mitigation. Separation of pollution sources was no longer a feasible solution in the dense cities spawned by industrialization. But the absolute liability rule continued to serve the interests of landowners who sought to protect their estates and farmlands against encroaching industrialization. The result was a common law regime that adhered in principle to an absolute liability rule, but tended, in practice, to exclude urban pollution from the realm of legally cognizable injuries entitled to such complete protection. This feat was accomplished by raising the evidentiary thresholds placed before plaintiffs in industrial areas by requiring proof of a link between air pollution from specific sources and particular diseases. Without such scientific proof, the symptoms and concerns associated with industrial fumes were dismissed as “trifling inconveniences” of the type to which residents of industrial areas implicitly consent by dint of their very presence in these locales. Rather than acknowledging the pollution sacrifices that it imposed, this regime defined them away as a matter of law. A primary outcome of this legal fiction was a systematic failure to implement available, albeit incremental, means of pollution mitigation. By 1863, this failure prompted Parliament to create a supplementary technology-based administrative regime geared at the control of noxious vapors, under the Alkali Act. The United States, however, imported only the common-law-based side of this bifurcated regime.

As chapter 4 argues, tensions evident throughout the nineteenth century between “continental-police” and “common law” visions of the emergent American administrative state came to a head during the constitutional crisis of the *Lochner* era. But the view that a continental-styled focus on available means cut against American understandings of liberty

both predated and outlived the *Lochner* court. The chapter recounts the various doctrinal steps leading to *Lochner* in order to trace how and why understandings of the constitutionality of regulatory interference in the market came to depend on judicial assessments of the adequacy of legislatures' proffered proof of the "nexus" between regulatory means and constitutionally legitimate ends.

Returning to air pollution, chapter 5 relies on analysis of nineteenth- and twentieth-century landmark decisions from Pennsylvania to examine whether and when the American nuisance regime spurred deployment of available pollution reduction means. The chapter finds that for the most part, judges looked to the locale's surrounding conditions, rather than the feasibility of mitigation, in deciding on the liability of defendants and the appropriateness of injunctions. An important but apparently rare exception was the emergence around the turn of the nineteenth century of quasi-administrative Best Available Technology (BAT) injunctions that, while adhering to the absolutist shell of nuisance law, were geared at the implementation of partial pollution reductions, even in industrial locales.

By the early twentieth century, a portion of the air pollution problem—the control of industrial smoke—had been delegated to administrative, rather than strictly judicial, control. This move in principle enabled pursuit of incremental implementation of pollution mitigation measures and public goals beyond balancing the interests of plaintiffs and defendants. Chapter 6 explores the history of smoke regulation in the contexts of the United States and England (where it was not covered by the Alkali Act). Both countries avoided a technology-based regime of the type that Germany had applied to smoke since the mid-nineteenth century, and thereby limited their effective capacity for smoke abatement.

Chapters 7 and 8 move from visible smoke to invisible fumes, examining the regime governing contemporary responses to localized air pollution, or "odors." The "odor" terminology conveys subjective connotations of purely aesthetic annoyance to the problem of localized fumes. Chapter 7 examines the assumptions and consequences that follow from this problem definition. As the chapter shows, this problem definition played an important role in the EPA's 1980 decision to leave the regulation of localized pollution of this sort to the common-law-framed public nuisance regime. This decision came notwithstanding the agency's own failure to control the air toxics that are often at the center of "odor" pollution disputes. The consequences of this decision for the regulation of foundry fumes are the subject of chapter 8.

Building on this historical and empirical foundation, chapter 9 argues for reforms that, following the European model, would forgo the tailoring of interventions to proven levels of harm, in favor of a requirement that the extent of pollution reduction be pegged to technological and economic

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feasibility and be imposed predictably across all firms in an industrial category. Basing interventions on feasibility rather than mitigation of proven harms implicitly acknowledges the possibility of both underregulation and overregulation, relative to pollution's health risks. Yet history teaches the systematic impossibility of the kind of precise tailoring of interventions that air pollution regulation in the common law tradition demands. In the regulation of air pollutants and other dangerous chemicals, the search for perfection has been the enemy of the good.