

On Explaining the Development of 'Emissions Trading' in U.S. Air Pollution Regulation*

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Over the past decade the legal-administrative framework of United States air pollution regulation has changed from one based almost entirely on "command control" mechanisms to one allowing considerable use of "transferable pollution permits." This article traces the process of that change, suggests why it may be a very significant one, and proposes a social explanation for it. Perhaps its most important explanatory proposition is that market mechanism regulation may reflect the formation and rise of a new "regulatory culture" likely to affect the form and substance of regulation more generally.

I. INTRODUCTION

A. OUTLINE OF THE ARGUMENT

In this paper's attempt to explain the widespread adoption of "market mechanisms" (primarily transferable pollution rights) in U.S. air pollution regulation, I outline a somewhat novel analysis which may also have broader implications for the understanding of modern regulation. I argue that given the Clean Air Act's traditional structure of categorical emissions rules and detailed administrative procedures, the rise of market mechanisms is a significant development which may constitute a fundamental shift in modern social regulation. Second, I suggest that this extensive adoption of market mechanisms can be explained partly by the complex, overly detailed nature of prior Clean Air Act regulation, partly by the cost savings market mechanisms offer, and partly by the efforts of agencies to preserve their legitimacy in a period of recession and conservative public opinion trends. But these factors are not sufficient to explain the persistence of the market mechanisms movement in the face of substantial obstacles. I conclude that a key force in the process has been the development and spread of a particular form of *regulatory culture*. Promoted primarily by recent graduates of law and public policy programs, this culture emphasizes that: (1) while *science* is critical to understanding the impacts of regulatory policies it cannot form the basis for choosing the, (2) regulatory decisions are inherently and necessarily just *compromises* among contending interests, (3) the goal of the regulatory agency is thus a stable, predictable *framework* within which the pull and haul of interests can take place and through

which compromises can be implemented, and (4) the content and legitimacy of regulatory policies should be based as much as possible on the interests and compromises of *private parties*. The success of this orientation seems attributable in significant part to the inherent complexity of air pollution regulation, which limits effective discourse to a very small group of experts, and to the organizational location of the regulatory entrepreneurs promoting it. But it is simultaneously connected to larger ideological tendencies in American society.

Finally, I will venture that the market mechanism movement might be a desirable development for purposes of implementing agreed upon pollution control goals, but that it also raises two significant problems. First, it implies severe limits for the practice of politics, i.e., for the creation and articulation of collective values with which to choose social goals. Second, it may serve to obscure the distributional implications of policy choices. Before making these arguments, however, it is important to provide some background on market mechanisms, traditional regulation, and the Clean Air Act. (Readers familiar with this information may wish to go directly to Section II.)

B. THE CONCEPT OF MARKET MECHANISMS

Before proceeding I should define the term "market mechanisms." Although it may have a somewhat peculiar meaning in the U.S. regulatory context, commentators generally invoke two basic ideas with the term. The first is that the allocation of pollution control should be inversely related to its costs. Thus polluters for whom pollution control is cheap should reduce emissions greatly, and polluters for whom control is expensive should reduce them little or not at all. Accordingly then, as if a market allocated pollution, any given level of pollution control would be achieved at the lowest feasible total cost to society (as paid by polluters and reflected in the costs of the products and services they provide to society).

Second, no more pollution control should be carried out than that for which society is willing to pay. At some point the cost of additional pollution control will exceed the value of the amenities members of society are willing to give up for it, and at that point no more pollution control should occur. At that optimal point, no one would be willing to trade anything she has (or could get with the same amount of resources) to obtain any further pollution control. In the jargon, the marginal cost of increased pollution control would equal the marginal benefit. That is where the price of pollution control would hover until tastes changed, pollution control grew cheaper, or something else happened to alter either the cost or the value of pollution control.

The problem with this conception, of course, is that there is no good way of ascertaining that price. There is not, and cannot be, a market for pollution control. We cannot go to a store and buy pollution control the way we

can buy, say, hamburger. If I were to go to a polluter and pay for a reduction in emissions of ten pounds of sulfur dioxide per year, it would do me little good. Not only would I get little actual benefit from the reduction, but I would share it with a multitude of others who paid nothing for it. Moreover, any other polluter could increase emissions and wipe out the benefits for which I paid. To boot, pollution costs lives and years of lives, and, as we know, lives are very hard to value. Finally, of course, it is not at all clear that people should have to pay not to suffer pollution.

Nonetheless, even if it is not possible to use the market to decide how much pollution we should have, it does not follow that the market cannot be used to decide who should have the privilege of creating whatever level of pollution society will tolerate. American regulatory discourse has focused on two means of so using the market: emissions charges and marketable permits. *Emissions charges* would require polluters to pay a fixed price for every unit of pollution emitted. Assuming polluters are economically rational, they would only pay those emissions charges lower than the cost of pollution control; they would therefore reduce emissions until the unit cost of further reductions exceeded the unit tax. And, of course, controls would be concentrated among polluters for whom reductions are most extensive, thus minimizing the total social cost of pollution control.

Marketable Permits would seek the same end in a slightly different fashion. Instead of taxing all emissions, they would require all emissions to be covered by permits. Only a limited number of permits would be available. Therefore, those polluters for whom emissions controls are most expensive would buy up the permits while those for whom controls are least expensive would reduce emissions. Each form of market mechanism has intrinsic advantages and disadvantages, but we need not go into them here.¹ The important point is that neither form has been attempted in the United States, or, until recently, even seriously discussed in the policy arena. To understand why, and to understand the forms which have actually been attempted, it is necessary to place the market mechanism debate in historical context.

C. THE REGULATORY BACKDROP – TRADITIONAL ECONOMIC REGULATION

The idea of regulation as we use it today implies a social world divided into state and economy, a world in which the state “intervenes” in the economy to achieve certain goals which the economy is not achieving on its own. While the conception of separate economic and political spheres is less than two centuries old, the extensive use of state regulation in the United States is only about half that age. In the last third of the nineteenth century, after a long period of widely proclaimed laissez-faire policy, the relative incomes of farmers and many other laborers underwent a steady, long-term decline, while the fortunes of the railroads, grain interests, and later

oil and steel interests skyrocketed (e.g., Hughes, 1977; Reiter and Hughes, 1981). Not surprisingly, calls for regulation to “curb the abuses” of the free market grew louder and more widespread as the successive social waves of the Greenback, Granger, and Populist movements crested.

The social compromise that was sketched out by the turn of the century and became a veritable regulatory archetype during the New Deal was what is now often typified as “economic regulation.” It involved creating an expert agency to oversee a sector of the economy, e.g., the Interstate Commerce Commission (ICC) for heavy transportation, the Federal Power Commission (FPC) for energy, the Civil Aeronautics Board (CAB) for aviation, or the Federal Communications Commission (FCC) for radio and television.² To be sure, each had its particular problems and peculiar statutory structure, but they shared broad patterns of authority and assumptions. Most were to be independent agencies, subject to minimal legislative or executive interference. All were to be staffed by experts, who were to objectively examine the problems of their sectors and promulgate rational solutions. These solutions were to be implemented through regulatory control of entry into the industry and of prices charged for services. Thus the public would be charged only “reasonable” prices, but the regulated industry would have the comfort of knowing that it would receive a “fair rate of return” and protection from “destructive competition.” The agencies were given substantial discretion to determine what these terms meant, and were generally charged simply to regulate in the “public interest.”³

With the exception of occasional scandals over one form or other of graft, these traditional agencies lived a comfortable life from the New Deal through the late fifties, when significant doubts began to shadow the model of the independent regulatory commission. The doubts came from many directions. Scholars like Marver Bernstein (1955) found the agencies getting old and rigid, caught in the past ways of doing things, unattuned to new information. Others saw the agencies as having been “captured” by the industries they were supposed to regulate, as having at heart not the public interest, but the interests of the railroads, power companies, airlines, and so on (e.g., Huntington, 1952; McConnell, 1966). Conservative economists portrayed them either as fostering cartels whose moderate monopoly profits kept industries stable and laborers content while overcharging consumers (e.g., Stigler, 1956; Kamerschen, 1966) or as so over-regulating industries as to cause inadequate profits, underinvestment, and inadequate supply (e.g., MacAvoy, 1962).

At the same time, the agencies were coming to be seen as insensitive to values outside the narrow confines of industrial commodity production. The FPC, for example, was compiling a record of disdain for the costs of environmental degradation that would be awesome by today’s standards. The same was true of the Nuclear Regulatory Commission. Moreover, the sixties, perhaps in part because of the agencies’ poor records, brought a steady, inscrutable decline in public willingness to trust expertise. At the

same time, Congressional staffs were growing rapidly and filling their ranks with experts able to follow the activities of agencies at relatively close range. Finally, the last half of the decade saw an explosion of distrust in government and in “the system” (an interlinked network of government and large corporations) as a result of the Vietnam War. Environmental degradation, too, came to be seen in crisis proportions. It was in this milieu that the Clean Air Act was born.

D. THE CLEAN AIR ACT AND SOCIAL REGULATION

The 1970 U.S. Clean Air Act (CAA) probably ranks as one of the more complicated statutes yet produced by a modern industrial state. That is in part because of air pollution is a very complicated problem, and in part because the Act as created in a climate of great distrust of both agencies and industries.

1. *Social Regulation.*

Structurally, the CAA falls in an emergent paradigm which has come to be called (mostly at the instance of economists) “social” regulation. It differs from traditional economic regulation in several significant ways. First, rather than regulating a particular sector of the economy, the agency regulates a particular type of problem across sectors (see Weidenbaum, 1980). Second, rather than regulating entry, services, and prices, it regulates particular production practices both within firms and across sectors. The regulatory agency is then primarily responsible not for allowing fair rates of return to particular types of firms, but for, e.g., controlling pollution in society at large. Third, the implementing agency is typically located within the executive branch rather than given formally independent status. While the difference between regular executive agencies and independent commissions is not as clear or significant as the labels might suggest, the choice of the executive form reflects a rising presumption that agencies should be subject to established channels of political authority. Fourth, however, the agency is also subjected to a *new* channel of political authority: parties other than regulatees are given rights to participate in agency proceedings, obtain judicial review of agency decisions, enforce agency-set standards on polluters, and, in many cases, force the agency to promulgate standards or act in other specified ways.⁴

Although this paper will not explore the implications of these expanded “third party” or “private” rights of action in any depth (but *see* Boyer and Meidinger, 1985), it is important to understand that they involve not just expanded rights of participation, but also explicit substantive requirements to which the new interests may hold the agency. Very roughly, these standards can be divided into two forms: scientific criteria and action deadlines. Because of high levels of scientific uncertainty, definitional ambiguities, and the like, scientific criteria have in fact allowed large – but certainly not unlimited – standard setting discretion.⁵ Action deadlines, while generally not specifying actual outcomes, have also acted as significant constraints on

agency discretion by (1) removing significant control over the agenda setting process and (2) forcing agencies to take action (which is then judicially reviewable) in circumstances where political pressures, scientific uncertainties, or simple inertia would otherwise prevent or delay it.

While the above features reflect significant structural departures (*contra* Lowi, 1984), the CAA also showed important continuities with traditional regulation. Perhaps the two most important were the heavy reliance on administrative expertise and the use of uniform, categorical rules as basic regulatory building blocks. To understand the metamorphosis of air pollution regulation toward a market mechanism paradigm it is helpful to understand the key provisions of the CAA.

2. *The Clean Air Act.*

a. *National Ambient Air Quality Standards.* The CAA decided the basic question of how much pollution is to be allowed by directing the newly created Environmental Protection Agency (EPA) to set nationwide *ambient air quality standards* (NAAQA) for major, widespread pollutants having adverse effects on public health or welfare. These NAAQS essentially set limits on the total concentrations of selected pollutants allowed in the atmosphere over any given period of time. "Primary" NAAQS were to be health-based, and sufficiently stringent to prevent new injury or aggravation of pre-existing injury even to unusually sensitive members of society. "Secondary" NAAQS were to prevent other negative effects on public welfare, such as diminished soil or water productivity. The primary NAAQS requirements were interpreted as prohibiting the Administrator from considering the *costs* of attainment in setting them; thus the utilitarian trade-off analysis of how much pollution should be allowed was explicitly rejected in favor of an absolute, health-based standard.⁶ Moreover, the Administrator did not have open discretion to consider which pollutants would be subject to NAAQS. The detailed terms of the CAA required him to promulgate standards for the six "criteria" pollutants on which some technical data had already been compiled under predecessor statutes and to do so within 120 days of CAA enactment. It is worth noting that the first (and again most recent) administrator, William Ruckelshaus, managed to meet that feverish deadline, but that in the dozen years since then only one new ambient standard has been promulgated (for lead, under court order) and only one has been significantly revised (although revision of another should soon be complete).⁷ In any event, the CAA is filled with other similar discretion-limiting and action-forcing requirements.

b. *State Implementation Plans.* The nature of the NAAQS meant that particular locales might be in "attainment" with regard to some ambient pollutants and out of attainment with regard to others. In theory, it was up to the states to devise plans ("state implementation plans" or *SIPs*) for bringing non-attainment areas into attainment and for preventing attainment areas (also called PSD areas) from sliding more than a set increment

toward non-attainment.⁸ But they were to do so under significant federal constraints. First, the CAA set a 1975 deadline for attainment of most primary NAAQS; construction of major new pollution sources or modifications was prohibited where it would jeopardize meeting the deadline. (The deadline was generally not met, and moved back).⁹ Second, the states were to develop SIPs and submit them for EPA approval within nine months of the promulgation of the NAAQS. To be approved the SIPs had to meet manifold requirements, including: (1) specific “emissions limitations, schedules, and timetables for compliance”; (2) monitoring and data gathering programs; and (3) assurances of adequate state personnel, funding and legal enforcement authority. The clear intent of the statute was that states should carry out their regulatory activities by the use of emissions limitations and control equipment requirements for particular sources and classes of sources.

Third, two major types of new sources were to be subject to uniform federally set standards; states could be more stringent if they wanted to, but not less.

c. *Federal New Source Performance Standards.* major new *stationary* sources, and major modifications to existing ones, were to be subject to categorical emissions standards promulgated by EPA. These New Source Performance Standards (NSPS) were to be set at emission levels based on “application of the best system of emission reduction ... the Administrator determines has been adequately demonstrated.” Unlike the NAAQS, they could reflect cost considerations, but because they were to be uniform for all sources in a given category, only estimated *average* costs would be reflected. In setting these NSPS, and especially in reviewing state emissions regulations in SIPs, EPA tended to favor quite detailed regulations, with limits set for each individual emission point (often a particular subprocess) in a manufacturing complex, rather than for the complex as a whole. The same was generally true of standards set by states for types of stationary sources not directly covered by EPA standards. Such detailed regulations, it was apparently believed, would make emissions limits clearer and easier to enforce.

d. *Federal Mobile Source Standards.* New *mobile* sources (cars, trucks, airplanes, etc.) were to meet standards directly set by Congress. partly in response to the cozy relationship the old line agencies were seen to have developed with major regulated industries, Congress gave EPA virtually no discretion with regard to setting automobile standards. Rather, it specified in the statute what emissions reductions were to be achieved over what periods of time. The CAA is filled with categorical, detailed requirements and regulatory deadlines analogous to the ones outlined above. They seem to reflect a general theory that the way to avoid repetition of past misuses of discretion is to minimize the amount of discretion delegated to any agency (while perhaps ironically maximizing the tasks it is to carry out).

It is becoming apparent that the effort to so limit discretion had limited success, as agencies found large domains of discretion in scientific decision making, conflicting mandates, statutory gaps, threatening to use their

discretion in perverse ways, and the like. Nonetheless, the CAA's focus on uniform, detailed, source-specific emissions regulation is inconsistent with the forms of market mechanism regulation outlined above. The basic framework of the CAA, therefore, makes it difficult to allow individual sources to implement emissions controls most consistent with their particular cost structures. But despite this formidable structural constraint, EPA has over the past decade made very significant headway toward transforming the CAA from a categorically uniform, detailed-emissions-limit framework to a marketable-permit framework. This movement may be the most remarkable demonstration of all of the agency's ability to create discretion where none was intended. At the same time, as will become evident below, it seems possible that the very creation of the market mechanism framework may significantly curtail EPA's ability to marshal and exercise discretion in the future. How and why this transformation was pursued are the subjects to which I now turn.

E. THE RISE OF MARKET MECHANISMS IN CAA REGULATION

1. *The Academic Discussion.*

The conceptual foundation for market mechanisms in pollution control had been sketched out in the largely hypothetical speculations of economists decades before the passage of the CAA. Indeed, as early as 1862 John Stuart Mill noted that "if from any revolution in nature the atmosphere became too scanty for the consumption, ... air might acquire a very high marketable value." Pigou had developed an elaborate argument for using pollution taxes to equilibrate "private" and "social" costs by the 1920's. The modern era in resource economics as applied to "fugitive" resources like air arguably began with an elegant 1954 analysis by H.S. Gordon of fisheries as common property resources. That was initially followed by a small number of comments and minor studies, and then in the early 1960s by R. H. Coase's extremely influential article in which he argued that private bargaining will eliminate externalities in a far larger class of cases than commonly believed, and that government intervention is therefore much less often justified than commonly believed.

Significant battle lines had thus been drawn in the general terrain of then-reigning welfare economics. Thus when the physical environment came to be widely perceived as a serious and growing problem in the last half of the decade, a wide-scale debate ensued. The debate was framed in terms of the relative desirability of emissions charges, marketable permits, private bargaining, and traditional regulation for handling pollution problems. By the end of the decade, emissions charges had, not surprisingly, emerged as the alternative most favored in the literature. Traditional regulation, again not surprisingly, was the least favored alternative. And while most economists had come to believe that systematic state intervention was necessary to handle air pollution problems, a small but hardy band con-

tinued to assert the superiority of private bargaining. Marketable permits had received little serious attention at this time. They seem to have been viewed as an intriguing, but somewhat eccentric and uninspiring alternative.¹⁰

2. *The Statute.*

For all its energy, elegance and broad consensus on the inferiority of traditional regulatory techniques, the economic debate and literature had very little influence on the design of the CAA. The possibility of effluent charges was raised in the 1971 debates over proposed federal water pollution control legislation, but the Clean Water Act eventually imitated the CAA's use of uniform emissions controls and detailed regulatory procedures. Very fragmentary evidence suggests this choice was based partly on grounds that it would be morally wrong to allow people to "pollute for a fee" and partly on grounds that a charge system would be harder to implement than an emissions control system.

In any event, at the genesis of the CAA, the narrow-discretion-uniform-rule-regulation and market-mechanism-regulation conceptions stood in a complex but only partly antagonistic relationship to each other. Although it was true that the chosen system of regulation distrusted "private" economic decision making while the alternative made it a central tenet of faith, it was also true that both conceptions shared a deep-seated distrust of administrative discretion and sought to maximize the predictability of EPA's regulatory activities to the greatest possible degree. As things are working out, a marketable-permit system seems to be rising from the regulatory cracks of the narrow-discretion-uniform-rule system. Many important details of that process are obscure, and even what is reasonably well known is too involved to recount here, but the general contours of the process are easy enough to map.¹¹

a. *The Early Bubble Policy.* The first concrete move toward transforming the framework apparently came only a year after the CAA went into effect, when the smelting industry and several officials in the Nixon administration proposed to use what eventually became known as the "bubble" concept. The basic idea of the bubble concept is that a given plant with any number of discrete emissions points should be envisioned for regulatory purposes as existing under a bubble with a single hole in the top, and that the only issue of interest to regulators should be the total emissions coming out of it. The smelters used this concept to argue that they should not be subject to the strict new NSPS emissions limitations for major plant modifications if the total quantity of pollutants coming out of the bubble did not increase. They thus hoped to avoid installing costly new control equipment for plant expansions or improvements simply by decreasing emissions at other points in the plant. The proposal was strongly opposed by the Office of Air Programs and Enforcement, which was responsible for administering the NSPS program, as an effort to evade the clear requirements of the Act. The proposal looked vulnerable as a legal

matter for this reason and also because it seemed to undercut the “technology-forcing” purposes of the CAA (See Levin, 1982). The issue was put on a back burner for several years, but in 1975 EPA partially adopted the smelting industry’s proposal when it revised the NSPS regulations governing smelters to allow the use of bubbles for modifications of existing sources (but not for construction of new ones). EPA’s adoption of the NSPS bubble was eventually reversed in a quite critical and rather confusing opinion by the District of Columbia Court of Appeals.¹² Bubbles not involving NSPS requirements were later approved for use in attainment areas.¹³ But meanwhile the market mechanism concept had cropped up in different form under a separate CAA rubric.

b. *The Early Offset Policy.* As 1975 approached it became increasingly clear that virtually no major non-attainment areas would succeed in meeting the deadline for coming into attainment. The CAA provided that no major new stationary sources or major modifications could be allowed where they would jeopardize attainment by that deadline. The possibility of a real, immediate conflict between environmental protection and economic growth thus began approaching reality; since most urbanized areas were non-attainment for some pollutants the CAA would preclude any significant industrial growth in them. EPA responded by proposing the “offset” policy, which would allow major new stationary sources or modifications in industrial areas if they met three requirements. They must: (1) provide for an emission reduction (“offset”) from an existing source in the area greater than the increase in emissions due to their moving into the area, thus achieving economic growth simultaneously with a net improvement in local air quality; (2) utilize control equipment producing the “lowest achievable emission rate” (LAER) for the type of industrial process involved;¹⁴ and (3) insure that all their other emissions sources in the area were in compliance with applicable emissions limits. The next year Congress essentially ratified this innovative and rather unauthorized gambit in the Clean Air Act Amendments of 1977,¹⁵ and it extended the attainment deadline for most primary standards to 1982.

Although Congress ratified the offset policy, it also left the states the option of achieving growth in non-attainment areas simply by ordering added cutbacks among existing sources, and thereby creating room (“*growth allowances*”) for new sources under the declining total emissions curve for the area. Thus the states have the option of using either market or regulatory means to allow new source growth in non-attainment areas.

c. *The Move to a Generalizable Emissions Trading Policy.* The Offsets and Bubble Policies formed the cornerstones of what would become a unified policy approximating the marketable-permits model explicated a decade earlier by J.H. Dales (1968) and other economists. Both techniques of course allowed emissions to be “transferred” from less valuable to more valuable uses (bubbles allowing them within a plant and offsets between plants).¹⁶ In 1979 EPA promulgated regulations authorizing

states to allow the “banking” of emissions reductions. Thus it would be possible to reduce emissions at one point in time, “deposit” them in the “bank,” and use them later, either in the same plant (a bubble extended over time) or in another plant (an offset extended over time).¹⁷ Two years later the Agency proposed to authorize “netting” in nonattainment areas.¹⁸ Netting involves a form of bubble quite similar to that originally proposed by the smelting industry, but would allow the modifying source in a nonattainment area to avoid not only certain control technology requirements (LAER, but not NSPS), but also new source *review* requirements. In other words, a polluter would not even have to go through the lengthy federal review process to prove it qualified for a bubble exemption; state preconstruction review would still apply to determine and quantify such exemptions. At about the same time, EPA approved the use of a “generic” bubble policy, which would authorize states to allow existing source bubbles without amending their SIP’s for each case.¹⁹ Finally, EPA promulgated a common currency of sorts, the *Emission Reduction Credit* (ERC) and a unified name for the process, *Emissions Trading* (quaintly abbreviated ET), aimed at crystallizing a new, unified framework.²⁰

It must be noted that several of these regulatory innovations, particularly bubbling and netting, have very checkered and still unresolved legal and administrative histories. Indeed, until the Supreme Court recently upheld it,²¹ the legality of the netting policy in non-attainment areas was subject to considerable doubt. At the same time, although EPA promulgated its interim Emissions Trading Policy Statement more than two years ago, the agency has not yet managed to publish a final policy statement. Second, although the legal framework may be unified in concept, it is not necessarily unified in practice. Offsetting is still handled primarily by one office of EPA, for example, while bubbling and banking are handled by another. Third, the fact that EPA has authorized them does not mean that bubbling, netting, trading and banking are in fact widely used. One potential limitation is that states have the option whether to allow such transactions or not, and to place them under a variety of restrictions. Much of the research underlying this paper focuses on the degree of state adoption of emission trading and the reasons behind the state responses. Detailed findings will be reported elsewhere (Meidinger, forthcoming). For now it is sufficient to note that the great majority of states have adopted some or all of the emissions trading proposals, and generally in permissive, liberal forms (see Ritts, 1983). Thus the states have generally exercised their statutory discretion in favor of the EPA initiatives and created a regulatory environment in which emissions trading may occur.

A second potential limitation on the practical significance of market mechanisms is that polluters may not be utilizing them to any great extent. In fact, a great deal of bubbling has occurred, but very little trading and relatively little banking. The lack of widespread trading or banking has prompted some researchers to treat the emissions trading initiatives as

unimportant or uninteresting. On the contrary, I find the development of market mechanisms especially interesting precisely because there has been no obvious economic demand or political constituency for their development.

II. WHY EMISSIONS TRADING?

Why have EPA and the state agencies undertaken the considerable task of transforming their legal mandates and past regulatory practices to facilitate emissions trading? Two of the most obvious answers are unsatisfactory in their ordinary forms.

A. TWO INADEQUATE EXPLANATIONS

1. *Efficiency.*

It has become common to not only evaluate, but attempt to *explain* legal and policy changes in terms of economic efficiency; i.e., changes may be understood as natural attempts to achieve equal or greater social benefits for lower or equal social costs (e.g., Posner, 1977).²² The development of emissions trading, however, is not well explained as an efficiency move. Not only is the efficiency criterion indeterminate regarding the choice between alternative regulatory techniques at the abstract level (cf. Pearce, 1984), but EPA had no empirical data on possible cost savings available through market mechanisms compared to other regulatory strategies until well after the basic bubble and offsets initiatives had been taken. Moreover, the very transformation of the system to allow trading created much uncertainty which could have been avoided by using "fine tuning" or "generic" regulation to reduce control costs. Finally, as I will elaborate below, there was virtually no "demand" for the emissions trading system by its ostensible beneficiaries, polluting industries, who would presumably have been in the best position to assess potential cost savings.²³

At its most abstract level, the efficiency thesis is neither verifiable nor refutable. Demsetz (1967), for example, argues that property rights emerge in response to "new benefit-cost possibilities" and that they "internalize externalities when the gains of internalization become larger than the cost of internalization." But internalization can occur through either "private" or "state" ownership (here regulation), the choice being dependent on "community tastes." Thus it is quite reasonably arguable that the external costs of pollution were already being internalized by traditional regulation, and that the internalization could have been made increasingly precise by fine tuning the existing system. On the other hand, it could also be argued that the system-change reflected the relative inefficiency of public ownership compared to private ownership, and that the switchover was a response to "new benefit-cost possibilities." Unfortunately, we have no meaningful way of measuring those benefit-cost possibilities (and EPA had none when making its policy decisions). Demsetz eschews any position on whether the cost-benefit decision is conscious, and

retreats to the evolutionary high ground that when property rights are created, it is because they were worth the costs. Conversely, if they are not created (or not preserved), it is because they were not worth the costs. His perspective thus becomes both tautological and relatively useless for understanding real-world policy making. I will therefore not dwell further on it here.

2. *Pressure Groups.*

A second conventional explanation for the development of emissions trading is that it was a response to the pressure groups in EPA's regulatory domain. There is a certain amount of truth to the explanation in this case, but the situation is more complex and contradictory than might be expected.

Although the bubble has generally been pursued and embraced by polluting industries, their response to emissions trading, starting with the early offsets program and continuing to the present, has varied between hostility and indifference. Indeed, although environmentalists have been among the strongest and most effective opponents of EPA's regulatory innovations, Kelman's early research (1981—but carried out in 1978-9) found them more receptive to and more knowledgeable about market mechanisms (in that case emissions charges) than industry lobbyists. Given the vaunted cost reduction possibilities, as well as the transfer of much pollution control decision making from regulatory agencies to industry, why was industry so cool to the project? My research suggests several reasons. Not least of them is the sheer conceptual complexity of the enterprise. A significant among of industry opposition, especially in the late seventies, was based on the premise that the scheme was so complicated and hard to understand that it would not be very workable.

Other considerations, however, seem more telling in understanding industry's opposition. First, market mechanisms were perceived as an initiative of the Carter administration, which had irritated many industrial interests by placing seasoned environmentalists in important policy positions. There seems to have been a sense, thus far expressed only in veiled or oblique ways by industrial representatives whom I have interviewed,²⁴ that the move to emissions trading might have been a Trojan horse of sorts. Industrial interests were afraid of welcoming it into their midst, only to find in it the sources of more burdensome regulation and expanded bureaucratic power. Certainly emissions taxes would have created new costs for many polluters (transfer payments from polluters to the public treasury). Moreover, even marketable permits, should the idea ever take off, would likely mean greater costs of doing business – and perhaps more distasteful transfer payments to competitors. Mere acceptance of the idea that they should have to pay to pollute has not come easily to many industrial interests. More concretely, as one especially articulate executive director of an industry association suggested, marketable permits could give regulation greatly increased knowledge of industrial practices, leading to the ability to

track them too closely. Indeed, it might embolden them to tighten standards upon finding that particular polluters could afford it.²⁵

Secondly, some sectors, or firms within sectors, undoubtedly benefited from the uniform rule system because of the costs and barriers to entry it imposed on competitors, and were loath to change it for that reason. Although none of my interviewees acknowledged that their companies were such beneficiaries, a number of them found quite plausible the Maloney and Yandle (1981) thesis that some firms use pollution control requirements to garner economic rents. This thesis, however, falls short of explaining the phenomenon. The primary advantage is held by existing firms over new entrants. Not only would existing firms be able to keep their advantage under the new system, but they would also have the profit maximizing choice of keeping or selling it.

Third, respondents expressed a sense of skepticism because of the uncertainty surrounding the proposals being developed by the regulatory reform staff. The details took a long time to hammer out within the agency and were often expected to change anyway. In addition, the validity of substantial parts of the program was and is in substantial doubt due to ongoing debates within the agency as well as court challenges brought by environmental groups. While this factor perhaps contributes most to understanding the hesitancy of firms to transfer emission reductions to other users, it also helps understand the skepticism with which the new proposals were viewed by many industry representatives.

Perhaps the most significant factor in explaining industry opposition is a strategic one. The market mechanism proposals evolved in a period widely perceived by industry as one of declining support for environmental protection. The stagnant, then recessionary, economy was expected to contribute to that trend. Finally, by the last two years of the Carter presidency, many analysts thought it quite possible that a Republican president more sympathetic to business interests could be elected in 1980. Industry interests had little incentive to embrace the new proposals and therefore get committed to them when the next election might bring significant relief from overall regulatory requirements.

Environmentalists, by contrast, have generally been both more informed and more divided about the use of market mechanisms than industry. My preliminary data suggest the divisions follow two axes. The first is ideological, and runs between types we might label the moralist and pragmatist points of view. The moralist position holds essentially that pollution is bad and wrong, and that it would be a serious moral distortion to treat it simply as a commodity to be paid for. The pragmatist position sees pollution as essentially a social problem to which, if it is to be successfully solved, the most effective available means must be applied.

Not all pragmatists favor market mechanisms. If anything, the strongest opposition to market mechanisms has come from environmentalists stating the problem in pragmatic terms. Several arguments are commonly raised.

Perhaps most basic is opposition to giving polluters any form of entitlement either to continue polluting at current levels or to increase emissions simply by buying permits or paying taxes. In strongest form, this is the fear of giving a “property right” to pollute (it thus carries some of the overtones of the moralist position as well). In weaker form it is expressed as an administrative concern: once emissions credits are given (or charges set) it will be significantly harder to require any further reductions than it would be using traditional emissions limits, which are taken to imply that emissions are allowed at the pleasure of the agency. A second argument is that market mechanisms will be harder to administer because they require exact emissions data over which polluters exercise a virtual monopoly and which they are under incentives to manipulate. Thus existing sources will be prone to overstate past or present emissions to receive the largest possible credits for reductions. Conversely, new sources will be prone to understate their true emissions to minimize the total number of credits they must obtain. Since accurate emissions data are difficult and expensive to obtain in the best of circumstances, regulatory agencies will be increasingly at the mercy of polluters who propose innovative control technologies, measurement methods, and so on. The ultimate result, it is argued, will be “innovations in evasion” rather than in pollution control. Finally, some assert that a move toward market mechanisms signals polluters that there will be a let-up in environmental regulation, which encourages both further political attacks on regulation and practical efforts to evade it. Overall, it is my impression that environmentalists’ analysis and discussions have been growing increasingly pragmatic over time; but this is a preliminary hypothesis which needs more data to be asserted with any conviction.

The second axis on which environmentalists’ positions seem to vary is governmental level. Quite simply, a lower proportion of the local- and state-level environmentalists in the four states I have studied show hostility to market mechanisms as a concept than national environmentalists. Since the numbers are very small and do not seem to comport with conventional wisdom, this could well be an unrepresentative sample. Nonetheless, the difference in attitudes poses some intriguing questions. The explanation offered by several state and local interviewees was that national environmental leaders know little about everyday local issues, whereas local environmentalists have to be more concerned about making regulation work and conserving their limited political resources for truly serious pollution threats. Their typical attitude is that the way to deal with market mechanisms is to ensure that they have “adequate safeguards.”

It is thus clear that the environmental agencies’ embrace of emissions trading cannot be explained in terms of the demands of their client groups. There was neither political nor significant economic demand for emissions trading when the major initiatives were taken. Moreover, as noted above, EPA’s move (and the state agencies’ willingness to follow along) is all the more intriguing because it is quite inconsistent with the structure of the

CAA and because, by creating quantitative, entitlement-like interests it poses the possibility of a further narrowing of the agencies' discretion and flexibility to respond to changed circumstances.²⁶ Why then did it happen? My answer must be provisional because it is based on ongoing research, but several kinds of reasons have emerged.

B. A MORE ADEQUATE FORMULATION

A. *Practical Considerations.*

First, the move makes some practical sense on its own terms. As noted above the Clean Air Act is sufficiently complicated and unwieldy to virtually demand efforts to remodel it. Moreover, market mechanisms may indeed offer some cost savings to polluters – although they may also turn out to be more expensive for the agencies to administer. But it must be remembered that EPA had no actual estimates of those savings until 1979, well after the fundamental policy initiatives had been taken. Finally, as I have suggested in more detail elsewhere (forthcoming), there is a certain degree of structural logic to treating pollution as a property right, since it may bear greater resemblance to that form of legal interest than to tort or civil rights in the conceptual scheme of American law (cf., Calabresi and Melamed, 1972). Again, however, the analogy is far from perfect, and strong arguments can be made for the opposite conclusion.

A second class of reasons for moving to market mechanisms can be found in the political exigencies EPA (and similarly the state agencies) faced. While the movement to market mechanisms cannot be understood as simply responding to direct demands of interest groups, the agencies were under considerable pressure by the mid-1970s not to define environmental protection as inconsistent with economic efficiency or (particularly) growth. Although the offsets policy was the clearest response to the problem, its logic was much broader. But here again, other responses would seem to have been equally possible. The most obvious based on the traditional model of regulation would have been more fine tuning of existing standards, more ready allowance of variances, and the like. However, the conservative swing in the United States during the late 1970s (as I will elaborate somewhat below), was not simply a return to the demand for economic prosperity. It also had a very substantial, anti-governmental, anti-“bureaucracy” component. It seems to have been that element of public opinion which the Carter administration was responding to (and perhaps fostering) with its regulatory reform efforts.

2. *Regulatory Entrepreneurs and the New Regulatory Culture.*

Nonetheless, the political interest thesis also comes up short, given the early development and somewhat crusading tenor of the market mechanisms movement. The movement was an *initiative*, not just a response. That initiative had several bases. An obvious one lies in the career aspirations of new staff members. Pollution regulation was a booming business in the

early and mid-seventies, and it attracted numerous bright, ambitious people. As commonly happens in such situations, many of them cast about for new initiatives which they could hook their stars to and use to separate themselves from the crowd. As it happened, a number chose emissions trading, and, to a significant degree, it worked. But this finding just pushes our question back one step: Why did they choose it, and why did it work? I suspect part of the explanation for the latter question lies in the sheer energy and entrepreneurial ability of the early promoters of the program. It appears they were unusually capable and persuasive individuals.

The larger reason, however, seems to lie in a revised understanding of regulation which was emergent in the early part of the decade and regnant at the end. I have already outlined the general disenchantment with traditional regulation which had emerged by the passage of the CAA. It seems to have achieved a significant purchase on the agencies through the graduate schools: public policy, economics, and law. Each of these disciplines had been involved for varying periods of time in debunking the myth of the benign, public interest state. Economics departments had long taught that the agglomeration of individual self-interested decisions is more likely to contribute to public welfare than is the imposition of uniform, politically determined policies. Public administration programs had somewhat more recently come to the view that public planning is “politics,” not science. And the law schools had since the legal realist movement of the 1930’s been involved in thrashing to death the idea that law simply reflects and implements justice or the public interest. Each discipline’s perspective is, of course, more complicated and more qualified than this portrayal suggests. But students who go into practical affairs tend to be interested in “the basics” and have little time for niceties. And the basics are simple: you better not put much faith in politics or bureaucracy; they are very unreliable.

My hypothesis is that infusion of this perspective into the ongoing regulatory process has combined with it to yield what can usefully be thought of as a new strain of *regulatory culture*, and a new basis for choosing regulatory strategies.²⁷ Before proceeding with the discussion of how this culture becomes decisive, I should sketch what appear to be its central elements. It appears to have four core elements and three notable secondary ones. All of them can be seen in significant part as responses to the acceptance of *interest group liberalism* as the dominant and essentially unchangeable model of contemporary politics.²⁸ And all appear to take the form of stable compromises rather than deep structures.

a. *Science does not provide* a basis from which emissions *standards* or other regulatory requirements can simply *be deduced*. Science is something that can be deployed in the interest of contending parties. It is quite useful for documenting the effects of various decisions on affected parties, and given sufficient resources can do so accurately. But only in an unusually naïve political environment can it be deployed as the determinant of a regulatory decision.

b. *Regulatory decisions are inherently compromises* among contending interests, rather than applications of correct principles. There are almost never “best” solutions (based on either science or share morality). Therefore, the (only “survivable”) role of the regulatory official is to maintain a posture of neutrality and to seek compromises which minimize social conflict and the vulnerability of the agency. If both goals cannot be achieved, the latter will naturally predominate.

c. The goal of the regulatory agency is to create a *stable framework* in which the pull and haul of interests can take place and through which compromises can be implemented. Any such stable framework must be capable of including all significant interests (both current and latent). Moreover, it should be able to legitimate current decisions based on past compromises. This should minimize future conflict by piggy-backing future policies on current solutions. It is worth noting that (but for its explicitly pragmatic basis) this view bears striking resemblance to the rule-of-law imagery that has been a recurrent element in American political thought. It is also worth noting that marketable permits might be acceptable to both environmental and industrial interests because they reflect such a stable compromise which will be less subject to the vagaries of politics than would more traditional mechanisms. Recent efforts to reauthorize and amend the CAA give neither interest reason for great confidence in its ability to bend the legislative process to its purposes. Marketable permits essentially institutionalize rights to air of a certain level of cleanliness and a certain level of pollution simultaneously, and let polluters work out who will pollute it.

d. Regulatory decisions should be pinioned in so far as possible on the *interests and compromises of private parties*. Broad participation can thus be used to remove sole responsibility for the legitimacy of a decision from the regulatory agency, and public regulations can be portrayed as “natural” outcomes of private relationships.

The framework also seems to assume a set of more conventional axioms:

e) the superiority of *decentralized decision making* over centralized decision making by hierarchically situated, “disinterested” experts; f) the superiority of *market* over political authority for resource allocation; and g) the superiority of *incremental and experimental* social change over comprehensively planned social change.

3. *The Regulatory Arena.*

To further understand the emergence of this new regulatory culture, we must look first to the social arena in which it emerged.²⁹ Two features seem important.

a. *Access.* The first is the exceedingly technical and complicated nature of air pollution regulation. No discussion of appropriate regulation can go on for long without delving into the scientific and practical aspects of the problem. What, for example, are the comparative health and macro-economic implications of the alternatives, what are the costs, the technical

possibilities, the practical problems? These questions arise as soon as it is accepted that some pollution must be allowed for industrial society to continue, and that the social agents allowed to do that polluting therefore will not be committing wrongs when they do so. This recognition inherently limits access to the discussion to parties willing to commit substantial time and resources to becoming “experts.” Conversely, those who show themselves “non-expert” by making significant “mistakes” in the discussion are relatively easy to exclude from effective participation.³⁰

Overall, the group of effective participants in air pollution policy discussions is quite small. The emission trading discussions in the four case study states, for example, were carried on among knowledgeable participants numbering less than twenty. (Typically, perhaps a dozen others would become involved at some point in the process, but they would have had no effect on the outcome unless they were especially knowledgeable or had power over the decision based on legal position.) The small number of participants is typical in air pollution problems of this sort. Moreover, most of the participants have a substantial history of involvement with air pollution problems. Less than ten percent, for example, have worked in the area less than four years (although a number, perhaps half, of the environmental group representatives also work in other environmental problem areas).

Thus despite the partially conflicting interests of the parties involved, it has been possible for them to develop a relatively large amount of shared understanding of the problem. Moreover, this is not just “factual” or “scientific” understanding. The dominant element in our constructed understanding of air pollution problems is uncertainty. The policy domain about which confident predictions can be made is far smaller than that for which they cannot. Nonetheless, it is necessary to manipulate problems lodged in the domain of uncertainty, and for these purposes conventional understandings or “rules of thumb” are developed. Their exact nature varies greatly with the area. One generic form is that a smaller number of significant mistakes are likely to be made when all affected interests are part of the policy-making discussion than when some are excluded. (Thus interest group liberalism becomes technically as well as politically functional.) An example that has emerged in the market mechanism discussion is the belief that emissions trading probably will not lead to any “major problems” as long as the agencies implement it carefully and “keep close tabs” on it. Of course, we do not really know that, since the system has not been tried previously. Moreover, that is not to say that market mechanisms are good, only that they are not inherently bad. But consensus on the last point allows the discussion to proceed to the particulars of defining a market-mechanism policy and its implementation. That process, because of its significant movement along the ideological spectrum, might be much more difficult or impossible if the number of discussants was much larger.

b. *Organizational Location.* Another factor that has contributed significantly to the rise of the new regulatory culture, and thus to the develop-

ment of market mechanisms, in functional specialization within organizations. Like western legal institutions generally, regulation is typically thought of in terms of two functions: rule formulation and rule application. The organization of most environmental agencies reflects a rough division according to these two functions. Policy is to be formulated by one group of typically centralized, upper level staff and applied by another group of typically field based, lower level staff. Regulatory practice, of course, is more complicated. It is widely understood that field (or often enforcement) staff do a substantial amount of policymaking in their everyday work (e.g., Hawkins, 1984). Similarly, policy staff frequently participate in particular rule applications (especially at the state level) such as the writing of important pollution permits.

Perhaps more important, until recently air pollution rule makers and rule appliers were more similar to each other than different. The technical complexity of air pollution problems meant in practice that they had similar science-based backgrounds, most often in engineering. Moreover, their interests generally converged in the same legal forms: categorically uniform emissions standards. For policymakers, categorical rules both allowed simple (formulaic) determinations of allowable emissions for particular sources and legitimated particular applications by their very uniformity. For enforcement staff they accomplish the same purposes, but also allowed a certain amount of discretion, since it was equally well understood that uniform rules will be inappropriate for certain individual sources. In those cases, special dispensations (variances and decisions not to enforce) are appropriate. That dispensations might be given formally (and implicitly legitimately) gave rise to a major debate on the appropriate structure and use of discretion which need not be rehearsed here. The important point is that air pollution officials commonly saw their interests in terms of categorically uniform rules applied with discretion.

Until perhaps the mid-seventies pollution control agencies as wholes saw their interests in the same way. However, in addition to the external factors already noted, several internal developments opened them to revised views. First, the agencies were getting increasingly involved in major new program responsibilities (e.g., toxic substances and hazardous wastes). Typically they responded by creating separate subdivisions to handle these programs. They thus became significantly more internally differentiated. While this response made sense in terms of the detailed, quite different problems posed by each type of pollution, it simultaneously raised the possibilities of program autonomy (to some, autarchy) and inconsistency. The latter was almost guaranteed to be raised because any given polluter is likely to be regulated under more than one program, and is equally likely to point out any major inconsistencies among them.

Accordingly, EPA was organized with several cross-program offices – one on the policy level (currently titled the Office of Policy Planning, and

Evaluation, ["OPPE"]) and one on the enforcement level (currently the Office of Enforcement and Compliance Monitoring).³¹ OPPE's interests were not synonymous with the individual program offices'. Its organizational role was to evaluate the performance of the program offices and propose ways of improving them. It therefore had an incentive to be especially amenable to approaches not currently followed in the program offices. Moreover, its efforts to minimize the costs of individual programs and eventually achieve cross-program comparability augured for limiting the discretion of the individual programs. Not surprisingly, OPPE became the natural base for the new policy types described above, and its Regulatory Reform section became a hothouse for the development and advocacy of market mechanism proposals. With direct access to top administrators and relative autonomy from the Air Program Office, OPPE staffers had substantially more policy leverage than they would have had from within the Air Office. In the state agencies (at least the larger ones) there were parallel, but structurally less pronounced changes. The key development was the emergence of regulatory entrepreneurs in state policy offices. Typically young (under 40), policy rather than technically oriented, ambitious, and often initially funded by federal money,³² these entrepreneurs effectively forced discussion of market mechanisms at the state level.

Initially the federal Air Office and most of the state offices vigorously opposed the emissions trading initiatives. Eventually however, the federal and most of the state offices went along with them to varying degrees, although acquiescence is still far from complete at either level. Moreover, it must be remembered that the program offices retain substantial discretion in the current mixed system. Nonetheless, the question to be answered is why the regulatory entrepreneurs have generally prevailed. Their organizational position is not enough by itself to explain that outcome. Indeed, the program offices probably have the organizational edge, since they have direct program responsibility, real world experience, and ability to accuse the policy offices of backing away from the legal mandate of the CAA. But when the capacity of regulatory entrepreneurs to force their proposals to the forefront of the agency agenda by virtue of their organizational location is combined with the factors already discussed, a structured explanation emerges. It has four basic elements, three of which are elaborated above:

1. the practical attractiveness of emissions trading due to the relative unwieldiness of the original CAA structure and the potential cost savings available to polluters;
2. the growth of a new regulatory culture of sufficient breadth, coherence and attractiveness to provide a strong analytic rationale and basis of moral authority for new proposals such as emissions trading;
3. the rise of talented regulatory entrepreneurs promoting emissions trading proposals (a) within relatively high-level, autonomous and crosscutting organizational subdivisions and (b) affecting program areas to which there is relatively limited access.

D. SOCIAL ENVIRONMENT

While the focus of the first three elements is largely internal to the environmental agencies, the fourth element stresses the broader social environment in which the agencies operate. It has two salient aspects, which correspond roughly to elements one and two above. First, as already noted, emissions trading has been attractive to environmental agencies in part because it allows them to argue that they are adopting the most efficient means available to preserve environmental quality, and that they are therefore not significantly or unduly hindering economic growth. Preventing a serious conflict between environmental regulation and economic growth was a major impetus behind the original offset policy. Similarly, the Costle administration was especially amenable to expanded use of bubbling because of its desire to preempt possible political challenges. Those challenges were based on the twin arguments that (1) environmental regulations were a significant drag on the economy and (2) there were much more efficient ways to regulate. By defusing the second argument, EPA and the state agencies hoped to blunt the overall challenge.

But the existence of the larger challenge is not self-explanatory. During the first half of the 1970s there was little concern with either the costs of environmental regulation or the possibility that it might slow economic growth. The focus of public opinion was on the costs of environmental degradation and the benefits of environmental regulation. By 1978, the focus had shifted considerably to emphasize the costs of environmental regulation (although relatively few ventured further to argue the benefits of environmental degradation!) (cf. Shnaiberg, 1980). In part, this change of focus seems attributable to a large-scale, relatively well funded movement to research and critique regulation. Conservative "think tanks" and business associations supported a spate of studies into the costs and benefits of regulation—especially the costs, since it was assumed the agencies would take care of the benefits.³³ However, while important, these studies do not seem to explain fully the change in attitude either. The changing public opinion to which the environmental agencies have sought to respond is also tied to a continuing evolution in the public understanding of the capacities and most desirable role of government. Certain of the broad scale tendencies in public attitudes present at the passage of the CAA have continued to the present, and the new regulatory culture appears closely connected to those larger trends. While a thorough analysis is out of the question here, I can offer a brief outline. First, the distrust of government (or perhaps more precisely, the welfare state) has continued, and even grown. To a significant degree, however, it has been uncoupled from distrust of big business (originally the other major member of "the system"), and business has undergone a substantial rehabilitation. Witness, for example, the framing of issues and outcome of the 1984 United States presidential election.

No doubt this process is in part the purposive achievement of discrete social interests pursuing deliberate, rational strategies. But just as clearly its success draws on long-standing, deep-seated, and widely shared social images. Perhaps the core ones are the image of the market as the natural organizing framework for society and its corollary image of individual freedom exercised within the market framework. Market imagery, of course, has been central to the rise of interest group liberalism since the Second World War. Indeed, as suggested above, the new regulatory culture may be seen as the more or less natural working out of the premises of interest group liberalism. It had to overcome two significant bulwarks: (1) the early 20th century faith in rational scientific solutions to social problems, and (2) the long standing belief the all “political” compromises should be achieved in elected legislatures (the non-delegation doctrine, etc.).³⁴ In the very process of overcoming these bulwarks, however, the theory of regulation was also fundamentally transformed, because it had lost its scientific and democratic terms.

When interest group liberalism’s image of politics as a market prevails, the role of the state recedes. Similarly, acceptance of the affiliated image of market freedom reduces political actors to choosing among and bargaining for options, based, of course, on their individual interests and preferences. No longer is freedom the right to participate in defining a larger collective good.

Market-derived terms like interest and incentive dominate the contemporary policy-making vocabulary, depriving it of the very language needed to think about public purposes. Market imagery transforms the public’s view of itself from one of an active, deliberate citizenry to one of a gaggle of consumers shopping for policies from shelves stocked by governmental experts. (Landy and Plotkin, 1982).

Finally then, the “private,” non-state sphere becomes the sole source of legitimate policy; the correct policy is that chosen by the affected parties, through an aggregation of their interests. The role of government is merely to enforce the rules of the game and the terms of particular outcomes. There is no other image of collective action, decision making or value creation available in this model.

III. EVALUATION AND CONCLUSION

Few of the ideas in the last several paragraphs are novel or surprising, but they do raise some noteworthy questions for the evaluation of emissions trading and other market-based initiatives. First, while offering individually efficient means of implementing existing, well-defined objectives, and while putting the problem of governmental discretion in a convenient box, market mechanism programs could in fact make it more difficult to discuss and create guiding values. In the process of defanging the technocratic state, they may make its operations more inaccessible and irreversible.

Indeed, social policy seems likely to become increasingly invisible, as it recedes into the organizational apparatus of the private world and becomes defined as part of the natural state of affairs. Thus in the name of making the regulatory machine work better, we may well make it even more difficult to redesign.

Second, in addition to removing a substantial amount of pollution policymaking into the private sphere, by defining the pollution control decisions as allocational rather than distributional issues, emissions trading may make it more difficult to adjust the distributional impacts of pollution control policies. The problem can easily be illustrated using a basic question: what should be done if some social groups suffer greater impacts from pollution than others? The answer based on market logic would be that they should buy some emissions permits away from the responsible polluters (assuming again that to be inhibited such pollution should pose greater costs to pollutees than benefits to polluters). And indeed, the emissions trading framework being developed tacitly allows for that possibility. But, of course, if the affected group happens to be poor, rather than wealthy, chances of its buying away permits are correspondingly lower. There are, of course, efficiency-based arguments which could be deployed to argue for state intervention regardless of the wealth of the affected group. Thus the high transactions costs of organizing the almost inevitably diffuse affected groups may justify regulatory action where it could achieve the same adjustment at lower cost. But by the terms of its rationale, such an adjustment should seek to achieve only as much reduction as the pollutees would pay for if they could organize themselves to do so.

More importantly, any distributional adjustment would have to confront, and infringe into the increasingly private sphere of pollution entitlements. The expert agency, after all, has already set a uniform baseline with the NAAQS (to protect all citizens to the same level), and developed a system by which trades should maintain that baseline. Claiming reliance on that baseline and system, threatened polluters will have made significant investments not only in emission rights, but in related factors of production which they will argue should be protected. They may be able to draw relatively wide support for their arguments by analogizing their interests to other private property which must be protected, according to the conventional imagery, both to provide a bulwark against a potentially capricious state and to provide an arena for the exercise of economic liberty and independence. By analogizing pollution rights to other forms of property, polluters will attempt to draw upon the more general cluster of beliefs holding that it is necessary to respect property and that undermining one kind of property interest might facilitate the later undermining of other kinds.³⁵ It is true that legally (evidently from an intuitive fear of this possibility) environmental agencies have taken great care to state that polluters will not have formal claims to permanent protected property rights in emissions reduction credits. But of course, to stretch the analogy less than it might

seem, so did William the Conqueror when he distributed the lands of England after 1066. Nonetheless, those landholdings gradually grew inheritable, then alienable, free from sovereign interference. At the same time, the sovereign's legal ownership of all land came to have little more than theoretical significance. The twin cultural beliefs in private property and market organization that developed during that period are now, of course, much stronger, and more fully articulated. They become all the more available to polluters as pollution is defined as an economic rather than a moral activity, and as the appropriate forum for pollution decision making becomes the firm rather than the regulatory agency. In sum, the rise of emissions trading seems to me to have a built-in tendency against redistributive policy making because: (1) the ability to obtain any given commodity is differentially distributed according to the existing distribution of wealth, and (2) the important conceptual apparatus which grew up to protect private property is all available to polluters seeking to protect their emissions interests. At the same time, the key counter-arguments—the possibility of scientific (non-market) rationality and the possibility of creating a public (non-private) definition of the good—are on the decline.

There are, however, important countertendencies which require note. Although the regulatory culture described above seems to have an increasingly strong purchase on environmental agencies, it does not seem likely that the agencies will ever define their interests as becoming identical to registries of land deeds (which play purely record keeping functions). There are a variety of reasons. First, of course, modern regulatory agencies simply do not act that way. Much like other complex organizations, they seem to define their interests in terms of survival and, often, expansion (e.g., Michels, 1949; Nonet, 1969; Wilensky, 1969). Further, they tend to pursue power, at least where doing so does not threaten survival (e.g., McCullough and Shannon, 1977). Second, unlike land registries, environmental agencies face substantial uncertainties in accounting for their resources. Estimating the actual effect of any given pollution entitlement on the total stock of air quality is a very complicated matter, requiring sophisticated scientific modeling, monitoring, and so on. Third, and perhaps, most important, there is an enormous constituency with organized representatives whose interests may be defined as inconsistent with strong pollution entitlements. The environmental agencies' ability to define themselves as the protectors of public health allows them to reclaim enormous latitude that the emissions trading framework might otherwise concede. Organized environmental groups have the ability and the developed relationships to maintain pressure in that direction. Finally, there is an alternative legal imagery, that of the "privilege" rather than the "entitlement," which pulls in the other direction. Reformist efforts to define interests in the largess of the welfare state, such as Aid to Families with Dependent Children or Social Security payments, as property-like interests have largely failed.³⁶

It is interesting to examine the relationship between the Reagan administration and EPA in this light. During the first three years of its tenure, the Administration showed relatively little interest in the emissions trading initiatives. They were not attacked or cut, but they were not vigorously promoted or expanded either. Whether emissions trading was seen as a positive development or as a Trojan horse, or simply as a functioning program not needing attention, is unclear, but it is clear that market mechanisms were not the central focus of the Administration's attention. Its stated goal was not "regulatory reform," but "regulatory relief" (Eads and Fix, 1984). Its early ambitions seem to have focused on amending or repealing environmental laws and regulations on the one hand and on reducing the agencies' effectiveness through budget and staff cuts on the other. The Administration had some success in cutting staffs and budgets and in rescinding implementing regulations (more with agencies like the Federal Trade Commission and the Office of Surface Mining, but also with EPA), but it thus far has failed to achieve any significant amendments of major environmental legislation.

Earlier last year top officials in the Office of Management and Budget (OMB), probably the Administration's most powerful arm in regulatory policymaking, promoted major proposals to "replace the Clean Air and Clean Water Acts and related environmental laws with laws that emphasize economic incentives rather than mandatory federal standards." Where such sweeping reform is not possible, they propose to expand the use of cost-benefit analysis and tradable emissions permits.³⁷ Thus, having failed to "relieve" polluters of the legal obligation to substantially reduce pollution, the central Administration may be seizing the moderate efficiency rationale as the centerpiece of its program. Whether it expects the same goals to be more readily achieved through these means is not clear (and whether they will be, of course, remains to be seen).

EPA, meanwhile, seems to have reacted rather coolly to even moderate proposals to revise major environmental legislation. In commenting on a Senate bill to reauthorize and slightly revise the CAA, for example, agency officials expressed preferences for several existing provisions over proposed streamlined ones. EPA would prefer to keep the existing PSD program rather than adopt an "opt out" system, for example, and to keep LAER for non-attainment areas rather than switch to BACT,³⁸ essentially on grounds that the new proposals would be no easier to implement than current provisions, and possibly harder. The meaning of these maneuvers is impossible to decipher from outside the agency at present, but they make clear that the interplay between traditional and market mechanism regulation—both as ideology and strategy—is far from finished.

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NOTES

1. The primary advantages conventionally attributed to emissions charges are that the revenues they generate would go to public (rather than private) coffers, that they would not require creating a new market, and that the cost of emissions would be relatively predictable. The primary disadvantages of emissions charges are that total emissions are relatively unpredictable (because of unknown cost functions of individual polluters), that they would require extensive monitoring and enforcement efforts, and that local adjustments might be necessary every time a major new source started up (thus undercutting the predictability of emissions charges). The case for marketable permits is essentially the reverse. Because total emissions are set by the total number of permits available, emissions would be more predictable and adjustments less likely necessary. Less intensive monitoring and enforcement would be necessary because of the possibility of implementing permit limits in terms of control technologies. Conversely, the cost of emissions to polluters using marketable permits would be less predictable, the revenues generated would go to private coffers, and making the system work would require creating a wholly new market. See, e.g., Hahn and Noll (1982).
2. It should be noted that the jurisdictional domains of the traditional agencies were both fluid and somewhat arbitrary. The jurisdiction of the ICC, for example, was originally limited to railroads and later expanded to include water carriage and trucking. The Federal Power Commission (now the Federal Energy Regulatory Commission) gradually had its jurisdiction extended from federal hydropower to interstate natural gas, interstate electricity, and oil transported in interstate pipelines. Similar examples could be listed for many other agencies. Moreover, there is no inherent reason why jurisdictional domains should have been defined exactly as they were; in most cases they might well have been larger or smaller. Nonetheless, the general logic was to apply regulatory expertise to a

particular type of business, often one in which significant tendencies toward monopoly were argued to exist. See Weidenbaum (1980).

3. To fill in the picture it should also be noted that the rise of traditional economic regulation was in juxtaposition to another form of widescale economic regulation aimed at *creating a national market*. The major elements in this development were the use of the "dormant commerce clause" to constrain state regulation of interstate commercial activity and the anti-trust laws to constrain the development of oligopolies and monopolies outside the spheres of economic regulation in which they were purposefully permitted and encouraged. For an interesting European perspective on this form of regulation, see Reich (1983).
4. Expanded participation rights are not unique to social regulation: they have also been grafted onto economic regulatory systems. But their popularity as solutions to regulatory failure coincides with the surge of social regulation in the late 1960s and early 1970s, and they therefore serve to typify it.
5. See, e.g., *Lead Industries Association v. E.P.A.*, 545 F.2d 320 (CA2, 1976) upholding J.E.P.A.'s lead NAAQS.
6. Ibid.
7. It should also be noted, however, that the CAA sets specific deadlines for review and possible revisions of the NAAQS, and that such review processes are currently underway at EPA. (See 42 U.S.C. 7409[d].)
8. PSD stands for "prevention of significant deterioration." Those areas in attainment with the NAAQS are required to prevent significant deterioration by not allowing ambient pollution levels to rise by more than a set increment during any given year.
9. The 1977 Amendments to the Act subjected states which failed to meet the deferred deadlines (1982 for most pollutants) to cutoffs or significant federal funds.
10. I am indebted to Professor David Pearce for correcting my earlier depiction of this literature, in which I overstated the popularity of marketable permits and understated the popularity of private bargaining in the discussion. Personal Correspondence, June 5, 1984.
11. For more detailed discussions, see Liroff (1980 and forthcoming), Levin (1982) and Meidinger (forthcoming).
12. *ASARCO v. EPA*, 578 F.2d 319 (1978).
13. *Alabama Power v. Costle*, 606 F.2d 1068 (1979); *modified* 636 F.2d 323 (1979).
14. LAER standards were to be at least as strict as NSPS and possibly stricter, since costs were to be given less weight in LAER than in NSPS determinations. In practice the two standards seem generally to have been similar. See 41 *Fed. Reg.* 55525 (Dec. 21, 1976). See also, Liroff (1980); National Commission on Air Quality (1981).
15. For the record it should be noted that a parallel proposal had bounced around the Senate Subcommittee on Environmental Pollution during the same period. The so-called "steel amendment" would have met the expansion needs of American steel plants (most of which were located in non-attainment areas and traditionally expanded at existing sites rather than developing new ones) by allowing them to open new facilities utilizing "best available control technology" and emitting less pollution than concurrently shut down facilities. The amendment stirred up much controversy for failing to provide means for new companies to move into non-attainment areas and apparently benefiting previously recalcitrant companies (who would have more emissions available to reduce) more than cooperative ones. See Liroff (1980).
16. It should be noted that technically bubbles could be allowed *between* (and not just within) plants, so long as they both qualify as existing sources. The key dis-

inction—and major issue in litigation—is what emissions will be treated as coming from *existing* versus *new* sources.

17. 44 Fed. Reg. 3274 (1979).
18. 46 Fed. Reg. 50766 (1981).
19. 46 Fed. Reg. 20551 (1981).
20. For details, see EPA's "Emissions Trading Policy Statement", 47 Fed. Reg. 15076 (April 7, 1982) and 48 Fed. Reg. 39580 (August 31, 1983).
21. *NRDC v. Gorsuch*, 685 F.2d. 718 (1982); *Chevron U.S.A. v. NRDC*, 104 S.H. 2778 (1984).
22. Note, however, that for reasons he has not persuasively stated, Posner asserts that regulatory changes generally will not be efficient, whereas judge-made common law changes will (Posner [1981]).
23. Polluting industries frequently did support the bubble, but not the idea of a larger emissions trading system, to which it was allied.
24. The research on which this paper is based includes in-depth interviews with all parties significantly involved in emissions trading policy developments in four case study states (New Jersey, Oregon, Pennsylvania, and Washington) and with a substantial sample of individuals involved in the federal policy process. Interviewees in every case include representatives of environmental regulatory agencies, polluting industries, and environmental groups.
25. See Levin (1985) for a discussion of the "stopping point" problem in implementing the emissions trading system.
26. I take it as axiomatic that social organizations prefer to retain maximal flexibility to alter their relationships to their social environments.
27. I use "culture" in the limited, but important sociological sense to connote a *set of shared understandings making it possible for people to act in concert with each other*. Although I will argue below that the new regulatory culture has derived part of its potency from connections to ideological currents in the larger society, this localized form is neither logically deducible from nor determined by the larger system. Nor need culture be fundamental or enduring in any major way. All that I imply by using the term is a set of mutual understandings which help define and evaluate options for regulatory action. Becker (1982) provides a good summary of the concept as I am using it.
28. The classic analysis of interest group liberalism is Lowi (1969); for a careful tracing of the phenomenon in administrative law, see Stewart (1975).
29. My use of the term "regulatory entrepreneurs" may also invite reference to the work of James Q. Wilson (1980). His typology categorizes as entrepreneurial those regulatory situations in which the benefits of regulation are widely dispersed while the costs are concentrated. The type of regulation discussed here fits this categorization. But my use of the term entrepreneur was inspired by my interviews with the individuals involved; the connection to the typology only came to mind as I revised this paper. More importantly though, it does not seem to me that Wilson's analysis is of any particular aid in predicting or understanding the developments here. This is in part because of the move to emissions trading reflects a tendency also present in other types of regulation.
30. I will note but not develop the point that ease of exclusion may be somewhat asymmetrical: those with more immediate interests—e.g. money to lose—may be permitted more mistakes than those with more abstract interests. But I have found sufficient counter-examples to be skeptical of any simple formulation at this stage of the research.
31. It should be noted that a major part of the original Gorsuch effort to change EPA policy involved breaking up the Enforcement office and reassigning staff to Program offices (Lash et al., 1984). That move was later partially reversed in

- series of incremental steps, but the enforcement program still suffers from incomplete restaffing and the lack of clear lines of authority.
32. The most important of these was the AQTAD (Air Quality Technical Assistance Demonstration) Program, through which the OPPE helped to fund six state level studies, none of which was particularly successful on its own terms but all of which brought emissions trading advocates into state and local program offices. See, e.g., Palen *et al.* (1982).
 33. See, e.g., Business Roundtable (1980a and b) and Crandall (1983).
 34. Expanded participation rights, discussed above as one of the structural features of social regulation, can also be seen as a response to this problem.
 35. Gordon (1982: 287) offers an illuminating analysis of this sort of conceptual inter relationship: "Law, like religion and television images, is one of these clusters of belief—and it ties in with a lot of other non-legal but similar clusters—that convince people that all the many hierarchical relations in which they live and work are natural and necessary. A small business is staffed with people who carry around in their heads mixed clusters of this kind: 'I can tell these people what to do and fire them if they're not *very* polite to me and quick to do it, because (a) I own the business; (b) they have no right to anything but the minimum wage; (c) I went to college and they didn't; (d) they would not work as hard or as efficiently if I didn't keep after them; a business can't run efficiently without a strong top-down command structure; (e) if they don't like it they can leave,' etc.—and the employees, though with less smugness and enthusiasm, believe it as well. Take the ownership claim: the employees are not likely to think they can challenge that because to do so would jeopardize their sense of the rights of ownership, which they themselves exercise in other aspects of life ("I own this house, so I can tell my brother-in-law to get the hell out of it"); they are locked into a belief-cluster that abstracts and generalizes the ownership claim."
 36. See Reich (1964), for an optimistic argument for treating state-conferred privileges like property rights. The argument seemed to gain some credence in the 1970 Supreme Court decision of *Goldberg v. Kelly* (397 U.S. 254), but by 1976 it eroded into an inconclusive form of procedural balancing (*Matthews v. Eldridge*, 424 U.S. 319 (1976)).
 37. See "OMB Wants to Replace Clean Air, Water Laws with Market Incentives," *Inside EPA Weekly Report*, February 17, 1984. Although the internal memo reported in the article probably stated a major position with OMB, and was the subject of a meeting of the Cabinet Council on Economic Affairs, its author, Christopher DeMuth, abruptly resigned his post and left Washington in mid-1984. ("DeMuth Objected to Formaldehyde 4 (F) Listing, Suggests High Level Review," *Inside EPA Weekly Report*, May 18, 1984). it is not possible to ascertain the reasons for implications of the resignation as yet, but it seems to indicate the continuing uncertainty and volatility of the Administration's regulatory policy.
 38. "EPA Sees Minor Problems in Committee Non-Acid Rain CAA Provisions," *Inside EPA Weekly Report*, February 24, 1984.

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