Statutes and Stopping Points

Building a Better Bubble at EPA

Michael H. Levin

In July 1981 General Electric discovered it could not install a new plastic-parts line at its Louisville, Kentucky, appliance plant in time to meet the state's October deadline for air emissions control. GE could shut the plant down and suffer large production losses, or risk noncompliance and substantial penalties, or buy a $1.5 million emissions incinerator that would be worthless when the old line was replaced. Instead, GE paid $60,000 to lease several hundred tons of emissions reductions that International Harvester had previously "deposited" in the Louisville "emissions bank," and used the reductions to satisfy state requirements on the old line a month ahead of schedule. The transaction saved GE about $1.5 million in capital and $300,000 in operating costs.

At about the same time, DuPont's Chambers Works in southern New Jersey faced state mandates for 85 percent reductions in emissions from each of 119 stacks, vents, and valves. Plant engineers proposed instead to reduce emissions at only 7 large stacks—but by over 99 percent. This proposal secured faster compliance and 2,300 tons a year more reductions than New Jersey had required. DuPont saved $12 million in capital and $3 million a year in operating costs.

These emissions trades and others like them were made possible by four incentive-based reforms that were first allowed, then actively encouraged, by the Environmental Protection Agency (EPA):

- the *bubble*, which lets emitters treat their *existing* sources of air pollution as if enclosed by a giant dome, trading reduced control on some stacks for extra, compensating reductions at others;
- *offsets*, which allow *new* plants or factory additions to begin operating in dirty air areas, if they secure more reductions from existing sources than the new source will add;
- *netting*, which exempts factory modernizations from burdensome preconstruction review, as long as other reductions ensure that "net" plant-wide emissions do not increase; and
- *emissions banking*, which gives firms legally protected credit for "surplus" reductions that can be stored for future use or sale.

These four developments—all variants of the "bubble concept"—have not been uncontroversial. Indeed, they have forced regulators, in-

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standards "as expeditiously as practicable" but in no event later than short prescribed deadlines—generally 1982. How could this leave room for any "surplus" reductions, since attainment would always be *more* "expeditious" if extra reductions were confiscated? The act appeared to require trades to produce equivalent ambient effects, to require EPA to ban industrial growth in areas not covered by approved SIPs, and to require any change in emission limits to be made through a formal "SIP revision" involving notice, public comment, and lengthy review before the state and EPA. How could these mandates admit trades that *shifted* (though they reduced) ambient pollutant concentrations, or that highlighted (though they improved upon) the inadequacies of previously approved plans, or that were sought by firms facing imminent compliance deadlines?

More important than these statutory questions were institutional ones. Trading would decentralize compliance decisions by transferring them to thousands of plant managers whose circumstances could not be anticipated by broad uniform rules. It would offer large savings to firms that came forward with better solutions. It would encourage plant engineers to talk to government engineers about how to solve problems, rather than spur lawyers to litigate responsibility for them. It could improve regulatory results *without changing regulatory mechanisms*—could accept the whole apparatus of ambient standards, state plans and emission limits, and simply invite firms to produce equivalent reductions less expensively.

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But these very virtues were, and to some extent still are, perceived as vices by regulatory staff and environmental groups. With trading, compliance and enforcement would no longer be automatic determinations that standard end-of-pipe control equipment had been installed. Permit writers would have to estimate the effects of such equipment and the effects of proposed alternatives, in order to decide whether equivalent reductions would ensue. Such determinations would be made far from Washington, in ways difficult to limit through public rulemaking or the broad-brush regulations it produced.

Perhaps worst of all, trading might expose what one observer has called "the dirty linen of the Clean Air Act." All the deals cut in good faith to make the act work down in the trenches—the slipped deadlines, the convenient assumptions, the acceptance of less-than-ideal emission limits for the sake of significant reductions, the approvals of questionable state plans to avoid collisions between environmental and economic progress—would be dragged into the harsh light used to judge new departures.

Such deals are not of course unique to trading. They are endemic to pollution control, a necessary part of the discretion inherent in any regulatory system. With traditional regulation, however, it generally makes little difference if EPA approves, say, a rule demanding a 75 percent rather than 85 percent reduction in emissions from appliance coating lines. Meeting the looser limit still requires standard controls on each coating line covered by the rule. Nor does it make much difference whether a firm installing this equipment actually realizes a 75 percent or 95 percent reduction. In either case, "progress" is being achieved. But with trading, such differences become critical. Once firms are allowed to comply with emission limits in the *aggregate*, actual overall emissions may *increase* if regulators give one source credit for reductions that traditional compliance "may have produced anyway," since that credit could then be used to avoid control elsewhere. No matter that where prescriptive controls are costly enough to prompt bubble proposals, the likely alternative to the bubble is years of litigation and pollution as usual. No matter that in the absence of trades, many sources subject to traditional regulation will "comply" through variances that simply hike their emission limits. The "perfect" Clean Air Act remained the legal yardstick: "imperfect" trading was seen to undermine the maximum "progress" Congress had required. Indeed, Congress had piled statutory detail upon detail to *eliminate* regulatory

discretion, to make the act as automatic as possible in order to hold the feet of EPA, state agencies, and regulated firms alike to the fire.

Stopping Points: A New Vision of the Clean Air Act

These considerations guaranteed that the trading initiatives would become lightning rods for much larger issues. Do midwestern states have power-plant emission limits that allow use of local high-sulfur coal, but are looser than the emission limits imposed by seaboard states whose utilities burn low-sulfur oil? Has EPA "failed to regulate" large numbers of toxic air pollutants because the act demands too much too soon? Is a statewide regulation for auto spray-painting not quite so stringent as *post hoc* control results suggest it could have been? By challenging individual bubble proposals, environmental groups could raise such issues under the banner of "progress," in ways that might tighten requirements for many sources at once. Indeed, the more EPA and firms came to value trades, the more environmental groups would see them as powerful regulatory levers.

An EPA serious about bubbles eventually had to . . . concede that some bubble reductions "might have happened anyway," and yet convince skeptics that further attempts to identify such reductions were just not worth the effort in light of the benefits that incentives achieved. . . . Only such stopping points would make the prospect of credit reliable enough to alter regulated firms' behavior.

So firms began to call these proposals "variances," "SIP revisions," "plantwide permits"—anything but bubbles. The label itself attracted too much attention; the rose by other names smelled more sweet.

An EPA serious about bubbles eventually had to confront these institutional barriers, admit that discretion was being exercised, concede that some bubble reductions "might have happened anyway," and yet convince skeptics that further attempts to identify such reductions were just not worth the effort in light of the benefits that this use of incentives achieved. In short, it was necessary to develop "stopping points" for traditional regulation that defined "equivalence" to standard controls and that refused to look beyond such equivalence, though some (unknowable) emitters would always achieve "more than standard" reductions by installing standard controls. Only such stopping points would make the prospect of credit reliable enough to alter regulated firms' behavior.

Thus, stopping points were crucial for emissions trading. However, the underlying issue was not merely bubbles, but use of incentive-based approaches to pollution control. For *any* significant shift from the prescriptive status quo would have raised the same questions about "equivalent" effects and the definition of "extra" reductions. At stake was the possibility of change itself, a new vision of the Clean Air Act—one which acknowledged that EPA could not predict each firm's emission-control performance, but also acknowledged that the last bit of pollution should not be wrung from each regulatory transaction because the quest for such perfection was ultimately self-defeating.

Under this new vision EPA would place dynamism above perfection, admitting—as one staffer remarked—that "the Act is a car with two wheels and three cylinders, and we're trying to make it go. It shouldn't have to be a Maserati before it can move at all." Instead the agency would seek continual movement toward attainment, discarding the fiction that each round of required reductions was the absolute, last, final one. The agency would make the inevitable next rounds easier to achieve, through incentives that encouraged companies to reveal rather than conceal necessary information. It would increase flexibility *and* certainty, by defining "equivalence" in ways that firms seeking to use bubbles could rely on and understand.

Stopping Points Enter the *Federal Register*

EPA's 1979 Bubble Policy was the agency's first major response to these opportunities for more efficient regulation (44 *Federal Register* 71780). The policy set two crucial stopping points.

States with EPA-approved SIPs could grant firms credit for any emissions reductions below SIP limits. Even states without fully approved SIPs could grant firms credit for any emission reductions below the individual SIP limits that EPA had approved, and those credits could be used in trades with similar sources of pollution. In neither case would EPA attempt to play "gotcha" by questioning whether reductions below approved limits were "extra."

Unfortunately, under the new policy every bubble had to be treated as a "SIP revision" and therefore be processed through two or more levels of government—an eighteen-month procedure, on average. Bubbles generally could not be used where they promised the largest savings and environmental gains—in urban nonattainment areas. Applicants had to prove that their bubble proposals were "equivalent" to SIP limits through complex and costly mathematical modelling of pollutant dispersion from all emitters in their locale. Applicants also had to comply or promise prompt compliance with the stack-by-stack SIP limits their bubbles would replace. These requirements burst many bubbles even before they could be formed. But the savings made possible—25 percent of the parent firm's aftertax profits at one steel company, for example—ensured that bubble applications continued to arrive. Indeed, a string of early bubbles yielded more than "equivalent" reductions—they allowed some states to better their SIPs and achieve full attainment.

In 1981 EPA authorized states to approve certain classes of bubbles without advance federal review, declaring that SIP-equivalent trades under state "generic rules" approved by EPA were not "SIP revisions" (46 *Federal Register* 20551). This step cut a knot of procedural issues, and gave permit writers staggering under massive SIP-revision backlogs a substantial stake in the bubble's success. Equally important, it allowed EPA to reinterpret a "technology-based requirement" so as to focus on emission results rather than prescribed methods of control. The Clean Air Act directs states without fully approved SIPs to issue regulations requiring that existing sources use "reasonably available control technology" (RACT). The 1981 initiative declared that EPA, once it approved a state's RACT regulations, would cease to scrutinize the technology actually installed or the emissions reduction actually produced by emitters, provided reductions equivalent to these "RACT limits" were achieved. Different firms—a can maker and a coil maker on opposite sides of a city, for example—could thus use better-than-RACT emission reductions in bubble arrangements. In the jargon of the trade, such firms could "bubble RACT."

These developments were confirmed in the 1982 Emissions Trading Policy that replaced the 1979 bubble document and defined clear principles for approving any trade (47 *Federal Register* 15076). This policy established the emission reduction credit (ERC)—a reduction that is surplus, permanent, quantifiable, and enforceable—as the common currency firms could spend for bubbles, offsets, and nets, or could save in emission banks. (Trades without banks are "like canvassing your neighborhood for a home improvement loan instead of going" to the S&L, the Republican senator from New Mexico, Pete Dominici, had growled.) The policy also established a host of new stopping points. States could guarantee that banked reductions would never be seized to fulfill the act's "progress" requirements. States were authorized to adopt generic bubble rules covering large classes of pollutants and trades. Emitters were no longer required to model pollutant dispersion where models were likely to prove useless, and modeling requirements were restructured to protect air quality without penalizing firms whose bubble proposals identified and reduced deficiencies in existing SIPs. Finally, urban nonattainment areas were fully empowered to adopt bubble approaches, using RACT limits to define "surplus" reductions. Though "more than RACT" might someday be required, such limits were deemed sufficient until that day arrived. For the moment, dynamism had triumphed.

The Bubble in Ascent

The collective impact of these changes was profound. Industry now had economic incentives to *favor* pollution control—to reduce and bank emissions as early as possible, to ask that previously uncontrolled sources be regulated through bubbles, to develop and share new control strategies. And regulators saw that beneficial results could be achieved *voluntarily*, without the trouble of attempting to mandate

further reductions across the board. After a decade of trench warfare, both parties might now be able to act together as good environmental consumers, substituting cheap surplus emission reductions for costly required ones, moving to expensive controls only after other options had been fully explored.

By 1984 emissions trading had begun to convert EPA from a policeman involved in each permit change at every regulated plant to a manager auditing state programs. Trading had also begun to change corporate behavior by increasing the importance of pollution control decisions, shifting them from cost centers concerned with minimizing damage to influential profit centers that decide where to invest company funds. And trading had shown what can happen when a good idea gets loose. Several acid-rain bills in Congress provided for trades across large regions to reduce the costs of enormous sulfur-oxide reduction programs. EPA authorized steel makers to meet Clean Water Act limits on a plant-wide basis instead of at each outfall, and national environmental groups promised to defend that bubble (49 *Federal Register* 21024). EPA also began to explore attainment of water-quality standards through bubbles covering industrial point sources, wastewater treatment plants, and nonpoint sources like farms.

Finally, the agency decided to authorize air bubbles covering new facilities subject to stringent new source performance standards (NSPS). This was a bold new "stopping-point" initiative. Emission limits set to attain ambient standards had always contained their own natural stopping point—regulatory flexibility was generally acceptable so long as progress toward target ambient conditions stayed on track. But NSPS applied to new facilities, *regardless of ambient conditions or effects.* They admitted no natural stopping point in regulatory demands because they were meant to minimize emissions by "forcing" the installation of standard advanced control technologies at such facilities. While many firms that installed these technologies might routinely perform better than NSPS emissions limits, granting them bubble credit seemed to contradict this emissions-minimizing goal.

Yet some claimed, and some evidence suggested, that NSPS *worsened* air quality by discouraging the steady replacement of old, high-polluting facilities with new, cleaner ones. Despite the uniformity of NSPS, the costs of meeting them often varied by a factor of 1,000 for adjacent new facilities. Indeed, one petition to EPA sought to meet NSPS requirements at two new facilities through a bubble that would yield 3,000 tons a year fewer emissions and $500 million lower control costs than separately imposed NSPS. Allowing such "compliance bubbles" might turn problems into environmental opportunities, if "equivalence" to NSPS could be satisfactorily defined.

The Bubble Descends

Unfortunately, the trading initiatives created regulatory uncertainty for regulators as well as industry. Comments raising several hundred issues were filed in response to the 1982 Emissions Trading Policy. The inevitable horrible examples appeared, including one bubble that purported to yield more reductions than participating facilities had ever emitted, and others in which firms sought credit for routine compliance that happened to produce ten times more reductions than required. In August 1982 the U.S. Court of Appeals for the District of Columbia invalidated nonattainment-area netting, declaring that "a bubble concept" could not be used in nonattainment regions, which were supposed to strive for maximum air-quality improvement. This decision addressed only a sliver of trading. But it appeared to adopt the "no stopping point" philosophy for all types of trades in these areas. Shortly afterward, the Clean Air Act's 1982 deadlines for achieving ambient standards expired. The standards had not, of course, been met nationwide; they had not even been met in many areas with previously approved SIPs.

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lar, they revived questions about what rate of "progress" was acceptable in nonattainment areas. Requiring each bubble to produce overall emissions *reductions*, rather than "equivalence" to inadequate SIP requirements, represented the only real chance of environmental improvement for state agencies unable to identify uncontrolled sources or issue further regulations opposed by governors, unions, and local industries. But admitting this fact would require EPA to acknowledge that direct regulation was insufficient to yield attainment. And this admission would in turn collide with the view that "extra" control in nonattainment areas should never "count" because it was needed—hence required—anyway. The "ideal" Clean Air Act was being reasserted.

EPA eventually divided into three camps on this bubble issue. One argued that bubbles should be banned in any nonattainment region until a new approved SIP defined what reductions were truly "surplus." A second camp argued that bubbles should be approved only after scrutiny of the *motives* behind emission reductions, to make sure those reductions would not "have happened anyway." Under this approach, a series of rebuttable presumptions would be used to ensure that reductions given bubble credit resulted *solely* from a desire to trade. Thus no credit would be given for reductions that occurred long before a bubble proposal was filed, or that resulted from "standard industry practice," or that seemed motivated largely by "other economic reasons" (insolvency, for example), or that were an inadvertent effect of normal compliance actions. The third EPA camp argued that bubbles should simply be asked to produce a "substantial air quality improvement" (a 20 percent reduction in remaining emissions) over what regulation-as-usual could have required.

The first camp reflected the traditional view that attainment is the regulator's sole business: economic advantages are not to be considered until attainment is guaranteed. But this position went too far. Restricting "surplus" reductions to those in excess of a complete SIP that guaranteed attainment would have banned not only existing-source bubbles, but also offsets, nets, and all economic growth in nonattainment areas—a result Congress had plainly sought to avoid in the 1977 Clean Air Act. Moreover, the position assumed that EPA could not approve any slice of a state's program until the whole SIP pie had been assembled. It would therefore have barred EPA from approving *any* additional state requirements that were not yet part of a complete plan, even though they would produce further emission reductions.

The second camp sought to maximize environmental benefits and legal defensibility by requiring general, 20 percent emissions progress *and* scrutiny of the reasons for each bubble emission reduction. But several factors argued against this subjective approach. Most obvious was the difficulty of formulating any objective test for "standard industry practice" or "other economic reasons." How many firms within the same or similar industries would have to use an emissions-control practice before it became "standard"? If part of an industry used emissions-free processes in California, would zero emissions become the universal "standard"? If a firm accelerated closure of an unprofitable facility in order to sell resulting credits, or installed extra controls partly to recapture valuable raw materials, should bubble credit be granted or denied? These questions promised to thrust EPA into unfamiliar arenas, to reward companies that took care to generate "proper" paper trails, but to penalize those that acted with unlawyerly common sense. They threatened the worst of both worlds —endless bubble reviews to establish corporate motives, with few bubbles actually approved. They also threatened to erase previous stopping points. If the question was no longer whether reductions below required levels would occur, but whether they would occur *solely for disinterested pollution-control motives,* few bubbles would be developed or proposed. Too many environmentally beneficial trades have ancillary economic benefits—increased productivity, better feedstock management, and so on. Under the subjective test, these benefits would all become reasons for rejecting bubbles.

The third EPA camp on bubbles argued that subjective inquiry would discard too much genuine progress in an attempt to isolate suspect motivation. A subjective test, it held, was fundamentally inconsistent with *any* use of incentive schemes. Such schemes recognize that real-world actions occur for many motives and seek to tip that calculus in favorable directions *on the actor's own terms*—to match private interests with public ones. Subjective tests would

dissolve that match and impose a calculus that had little to do with reasons for which corporate managers act. Though some proposed bubble reductions might still "have happened anyway," this camp continued, a 20-percent-per-trade margin was more than enough to compensate for such cases. Indeed, the reductions required were sufficient to produce virtual nationwide attainment, had states been able to include them in general regulations.

As this debate within EPA proceeded, the Supreme Court struck a blow for stopping points. In *Chevron U.S.A. Inc.* v. *Natural Resources Defense Council, Inc.* (June 25, 1984), it unanimously reversed the D.C. circuit's 1982 netting decision: EPA, the Court indicated, is not required to insist on every potential reduction in nonattainment areas when the agency reasonably believes such efforts to be counterproductive. Bubbles, said the Court with approval, give "a plant manager flexibility to find the places . . . within a plant that control emissions most cheaply, [allowing] pollution control [to] be achieved more quickly"; even the act's NSPS section "implies a bubble concept of sorts." The decision applied only to bubbles for certain new sources in nonattainment areas. But because these sources are subject to the act's most stringent requirements, the Court's statements appeared to cover existing-source bubbles as well.

Nevertheless, the *Chevron* decision merely confirmed EPA's *discretion* to adopt stopping points; it did not *require* EPA to do so. The agency remained free either to grant bubble credit for many reductions below required emissions limits, or to deny credit by attempting to determine whether those reductions were selfless and simon-pure. Which path would EPA take? In a series of meetings ending in January 1985, the agency made its choice.

The Bubble Floats Free

EPA has now proposed to approve the first NSPS bubble (50 *Federal Register* 3688). Moreover, while details remain to be worked out, the broad outlines of the agency's forthcoming NSPS bubble and final emission trading policies now seem clear. EPA will opt for reliable stopping points that acknowledge the need for interim progress and the bubble's ability to se-

cure it. It will tighten requirements for nonattainment-area bubbles, but in ways that make trades easier to use. The agency will neither psychoanalyze all bubbles in nonattainment areas, nor visit the sins of the past on future bubble applicants. Instead it will generally approve bubbles that meet objective threshold criteria.

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For *existing sources*, a nonattainment-area bubble will generally be approved if it uses a RACT baseline to define aggregate threshold emissions, if it reduces emissions by 20 percent from that baseline, and if it does not rely on "past" reductions effected before the application to trade or bank was filed. This last criterion will generally limit bubble credit to reductions below "actual" emissions—those current when an application is filed. Thus past horror stories involving bubbles that relied on preapplication reductions unrelated to trades will not be repeated. But the criterion will also give full credit for all reductions made in contemplation of trades—an approach that will recognize superior control efforts without attempting to unravel past motives or predict the actual performance of future, yet-to-be-installed controls. A few bubbles that meet these three tests may still be questioned. But strong presumptions will favor approval.

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For *new* sources, bubbles that lump together facilities subject to NSPS will generally be approved if they yield emission reductions as great or greater than those that would flow from source-by-source compliance with NSPS. EPA will defer writing precise definitions of "surplus" NSPS reductions until it has evaluated more NSPS bubbles. But such definitions appear inevitable, for the agency plans to allow bubble credit for reductions resulting not only from better-than-NSPS control equipment, but also from superior operation of standard equipment. Both steps require benchmarks defining what "superior" performance is.

These broad resolutions are important. They indicate that the agency will not debate again whether trades are impermissible because their reductions "might have happened anyway." They make "past" reductions easy to address without such inquiry: because such reductions have *already* happened, we know their precise amounts, which may generally not be used in subsequent bubbles. But bubbles are typically sought by firms attempting to meet *new* control demands less expensively. And since no one can predict whether a firm *proposing* to install specific control equipment will perform above or below target levels, surrogates for "equivalence"—for example, expected average performance for technology-based NSPS requirements—will have to be the measure of valid bubble reductions. Without such measures, EPA's resolutions suggest, plant managers could not be sure that extra reductions would be credited, so few reductions would be sought or disclosed. With such measures, managers will have continuing reasons to come forward with better pollution data and control methods. Though some "ideal" Clean Air Act reductions may be "lost" in the process, more real-world environmental progress will be made. That fact makes all the difference. ■