THE EMERGING MARKET IN AIR POLLUTION RIGHTS

Bruce Yandle

If from any revolution in nature the atmosphere became too scanty for the consumption, . . . air might acquire a very high marketable value.

—John Stuart Mill
Principles of Political Economy
(1862 edition)

IF AIR POLLUTION can be described as a "revolution" in the nature of the "atmosphere," then John Stuart Mill's early observation on air quality may well have come of age. For today we can see the beginnings of the process by which clean air—what is called "air quality" in regulatory language—enters the market. As a result of recent actions by the U.S. Environmental Protection Agency and the Congress, property rights in air pollution emissions are now being traded, albeit tentatively and in a rudimentary way.

A system of marketable air emission rights —that is, rights to emit pollutants into the air —could provide an astonishing array of social benefits. First and of key importance, such a market would make it possible both to hold air emissions to a desired level and to allocate them to those who produced the greatest economic benefits to society. Firms desiring to expand production could do so if the value of their product enabled them to purchase the right to use scarce air quality. The possibility of trading the rights would allow for growth and change. Second, having to pay for air emission rights would make the value of air quality obvious to both buyers and sellers, thus leading

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to conservation and an efficient use of pollution control devices. Moreover, the fact that emission rights had a cost would cause firms to search for alternative methods of producing their products, thus creating an additional incentive for discovering and implementing new control technologies. After all, by reducing emissions below some established level, a firm could generate a saleable emission right—that is, the right to bring the amount of pollution up to a predetermined level.

It is certainly conceivable that an air emission rights market could do much of the job being done by environmental regulators. Moreover, through allocating air emission rights, the market would establish priorities for industrial expansion, while inducing technical efficiency in the control of air emissions. Air quality would be maintained or even improved, efficiency enhanced, and social conflict reduced.

Air Quality: The Costs of Inflexibility

Competing uses of air quality (clean air) generate conflicts reminiscent of those caused by competing uses of land. But today, instead of pitched battles between farmers who want to cultivate crops and ranchers who want open grazing, we have controversy between those who want cleaner air to breathe and those who demand air-using products such as steel, food, medical care, electricity, and transportation—with workers who are trying to protect their jobs often joining in.

Traditionally, air quality (indeed, the air itself) was treated as a free good—one belonging to everybody. Since there was no rationing mechanism, the capacity of the air to assimilate pollutants was used intensely in certain locations—which is to say that pollution became a problem. Responding to the clamor of competing air users who were unable to bargain in a "propertyless" environment (one cannot trade pieces of something that belongs generally and in an undifferentiated way to

Glossary

Regulators and economists, in the course of conducting their business, invent jargon that is likely to be unfamiliar to most readers. The terms in this article that may need explaining are defined below, in the order of their occurrence.

Air quality

Generally, the physical and aesthetic characteristics of air that relate to a person's level of satisfaction; technically, a measure of a specific amount of a pollutant defined by EPA's "national ambient air quality standards."

Air emission rights

In a strict sense, a legally enforceable property right—a title or deed—to a specified maximum rate of emission for a precise pollutant (for example, 100 tons of SO_2 a year) in a given place.

National ambient air quality standards (NAAQSs)

A set of maximum concentration levels for air pollutants that are to be reached and maintained throughout the United States. NAAQSs were provided for by the 1970 Clean Air Act, which established a two-part standard: primary standards (to be attained generally by 1975) relate to human health, and secondary standards (to be achieved in "a reasonable time") relate to property, crops, livestock, and public transportation. EPA's regulations cover particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, hydrocarbons, and nitrogen oxides.

Stationary emission source (major)

A structure, building, facility, or operation with "allowable" emissions (after the application of controls) of 100 tons or more a year of particulates, sulfur oxides, nitrogen oxides, or hydrocarbons, or 1,000 tons or more a year of carbon monoxide. Narrowly interpreted, a single stationary machine with the emissions noted here. (Mobile sources, by contrast, are automobiles, locomotives, and other wheeled or tracked vehicles.)

State implementation plan

An environmental management program designed by a state to meet the requirements of the Clean Air Act. Includes the identification of stationary emission sources, the development of plans for controlling them, the establishment of procedures for preconstruction review and enforcement, and the assurance of timely attainment of national air quality standards.

everyone), Congress passed the Clean Air Act of 1970. That act identified clean air as being in short supply—meaning that, at a price of zero, the amount of clean air demanded for use is greater than the amount available. To deal with this problem, the act set national standards for ambient air quality (the quality of air surrounding any given place), established deadlines for meeting the standards, and required states to adopt EPA-approved implementation plans to meet them. To this end, specific emission standards determined by available technology were set for new emitters of pollutants, and construction review procedures were instituted to make sure the new emitters complied with the relevant regulations.

One effect of the Clean Air Act has been to limit economic growth in areas where ambient air conditions are below the national standards (nonattainment areas, in the EPA vernacular). For example, as a result of the act, a major new emission source (roughly, a building or operation emitting 100 tons of certain pollutants annually) may not be allowed in a nonattainment area. The act has also limited growth in "pristine" areas, such as those containing national parks. Thus, development has been restricted in some places because they are clean, and in others because they are dirty.

Predictably, contention over air quality standards developed between forces favoring industrial development and those that were more concerned about the natural environment. In some cases, the cost of improved environmental quality was so high as to be almost unbearable—so high, in fact, that compromises had to be made. For example, in the winter of 1973-74, EPA granted a total of seventy-seven emergency variances for sulfur dioxide emissions to ease the conversion from burning Arab oil to burning higher sulfur coal. Another compromise, noted by Allen Kneese and Charles L. Schultze, occurred in 1973 when EPA relaxed its more stringent emission control approach and permitted the use of tall smoke stacks for dispersing sulfur oxides from smelters and power plants. At the time, the smoke stack approach appeared to be the only alternative to plant shutdowns.

While too many compromises may have been made for desired quality standards to be met, these compromises were thought to be proper at the time—that is, thought to make possible less painful *and sufficient* progress toward the attainment of national standards. Certainly EPA's task of managing things so as to achieve its goals and still allow some flexibility was not easy. As it became apparent that progress toward meeting national air quality standards was too slow, and as environmental regulators therefore grew less inclined to make exceptions, it was recognized that the air quality standards allowed little room for industrial growth in regions that were behind schedule in achieving cleaner air.

Ultimately this had to lead to a confrontation between costs and benefits. Thus, in November 1976, EPA explicitly considered—but rejected—a trade-off policy that would balance economic costs and air quality benefits:

> Some have argued that a new source should be allowed to worsen existing [air quality] violations if a "cost-benefit" analysis indicates that the economic costs of necessary emission controls . . . are excessive in relation to the resulting air quality benefits . . . [but] the Clean Air Act simply does not allow such an approach. Application of such a policy could allow further delay in achieving already-overdue standards. [41 *Federal Register* 55527]

In other words, EPA was saying, the act treats the damage that additional emissions cause in nonattainment areas as infinite in value.

The 1970 Clean Air Act was like a first land-use zoning ordinance in that it had to provide for both conforming and nonconforming users. The act implicitly gave initial air emission rights (not called that in the act) to firms in both categories. However, the quantity of rights the nonconforming firms received fell short of the quantity they were already using —the shortfall, of course, measuring the improvement that had to be made. While the rights were important (because firms could not operate without them), their potential value was reduced by the fact that they could be used only for existing plants—not even by existing firms for their other plants. The rights could not be sold, bartered, or stored for future use—nor, indeed, were they strictly defined. If direct transfers of rights had been allowed, it is conceivable that a market would have developed at that time. Potential users would have paid for air emission rights in particular locations; and those who preferred cleaner air might have

joined together to buy rights and hold them, thereby expressing their true demand for air quality. But since rights were not transferable, the advocates of cleaner air turned to the political process and the courts as their avenues for expressing their preferences; and the firm that wished to expand either met the standard or perhaps acquired an existing plant, merged, or adapted one of its own plants to produce a similar product without changing the level and types of emissions. In nonattainment areas, EPA attempted to assist firms that wished to expand existing emission sources (existing plants), but was not so flexible for new plants that would be major sources of emissions.

Under a strict interpretation of the air quality controls, there are two kinds of problems for expanding firms: First, since new major sources of emissions are excluded from certain regions, managements may have to settle for second-best locations. (While the social costs and benefits of settling for second best are not clear, what is clear is that some regions gain air quality as a result, while others gain income and goods, and all of society most likely pays more for food, health care, education, clothes, soft drinks, and many other products.) Second, existing firms that wish to expand by building new emission sources are treated much the same whether or not they are already operating plants in the area. (While some assistance may be offered to help in meeting standards, it may not be enough to prevent the expanding firm from having to move to another location.) In either case, the adjustment costs of settling for second best or of holding down growth are in addition to the direct costs of treating air discharge. According to estimates by the Council on Environmental Quality, the direct costs alone for controlling air pollution from stationary sources will total $74.3 billion over the ten-year period 1975–84. Both adjustment and direct costs could be reduced if exchanges of emission rights were encouraged.

A Market Begins

Logically enough, EPA's shift to a stricter policy on new sources of pollution forced it to confront the problem of in-plant expansion (but not so much, to start with, the problem of in-firm expansion generally). In the course of the summer and fall of 1976, certain kinds of internal trade-offs began to be allowed on a case-by-case basis, the initiative apparently coming from EPA officials in no-growth areas. Thus, EPA might approve an expansion in one production operation if the resulting increases in a particular kind of emission were more than offset by reductions in the same emission from another source in the same plant. For example, a steel producer might expand production by replacing open-hearth furnaces with basic oxygen furnaces of a larger capacity. Internal trade-offs of this kind brought valuable flexibility, giving managements some room to achieve certain of their growth objectives by adjusting both product mix and production technique. Plant-specific emission rights had begun to emerge and property rights in air quality use had reached the barter stage. This result may not have been intended by EPA—indeed, it seems not to have been—but nonetheless a crude and limited market was taking shape. (Opportunities for using this market were, however, restricted somewhat by later court decisions.)

More specific possibilities for expanding the air emission market developed about the same time. In a speech on November 17, 1976, John R. Quarles, then deputy administrator of the Environmental Protection Agency, proposed that industrial expansion be made possible in nonattainment areas by allowing firms to trade their emission rights. Quarles went on to suggest that firms seeking to grow either by expanding their operations in one area or by moving into a new area would be allowed to obtain emission rights from existing emission sources in the same area. As with internal trade-offs, a greater than one-for-one emission offset was a given requirement. While recognizing that the offset idea was not perfect, Quarles said it was the only policy that would satisfy the Clean Air Act "without imposing intolerable restrictions on growth."

Not all reactions to Quarles's suggestion were favorable. Bethlehem Steel, for example, ran half-page advertisements in major newspapers calling the policy a "Catch-22." Bethlehem was saying, in effect, that air emission rights could not be found in areas convenient to its markets. Industrialists in Texas expressed a similar concern about petrochemical production: how could firms in the same industry

possibly generate a greater than one-for-one offset? (*Journal of Commerce*, May 25, 1977.) On the other hand, environmentalists charged that the trade-off proposal would let the camel's nose under the tent—a little dirt today, a lot more dirt tomorrow. Their concern might have been somewhat relieved had Quarles's announcement not been so limited—that is, if it had allowed for the purchase of offsets by all of the interested parties.

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As an example of some of the problems of a trade-off policy, let us consider the Sohio case. For three years, Standard Oil of Ohio (Sohio) had been seeking permission to build a pipeline terminal near Long Beach, California, in order to bring Alaskan Slope oil to the U.S. market, but its efforts had been blocked by California's regional air plan. Without the terminal, the oil would have to be shipped around South America or through the Panama Canal (in smaller tankers) to Texas—or, possibly, to Japanese refineries from whence finished products would be reshipped to the U.S. market.

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Then Sohio offered a solution to the impasse. It would purchase an old (and polluting) facility in the Long Beach area, close it, and build the new (and cleaner) pipeline terminal. The transfer of emission rights from the old to the new facility was explicit in the offer—as was the idea that, after the transfer, these rights would have a new and higher value both to Sohio and society. The fact that a voluntary exchange could result in both cleaner air and more oil for U.S. consumers had appeal. But it was not yet clear just how widely the trade-off policy would be applied. Moreover, Sohio's offer was somewhat experimental. Many legal and technical questions would have to be answered before an actual trade could be permitted.

The Regulators Respond

EPA, recognizing that the trade-off policy was a matter of considerable public interest, sought public comment on the idea through an "interpretative ruling" published on December 21, 1976. The ruling, without ever using these words, outlined the conditions for an extremely limited market in emission rights for nonattainment areas—but a real market nonetheless.

> The ruling provides in general that a major new source may locate in an area with air quality worse than a national standard only if stringent conditions can be met. These conditions are designed to insure that the new source's emissions will be controlled to the greatest degree possible; that more than equivalent offsetting emissions (emissions offsets) will be obtained from existing sources. . . . [41 *Federal Register* 55525]

Respondents to EPA's announcement asked (1) whether states would be able to tighten emission standards for existing sources, making them more severe than national standards, in order to release air emission rights for use by other (new) sources, (2) whether a source would be able to persuade (or pay) a competing source to further control its emissions in order to permit the new source to be built, and (3) whether states would be required to develop a new regulation for each emission offset situation [41 *Federal Register* 55526]. EPA answered that states could set standards more stringent than those of the federal government, but would not be required to become air emission brokers. State regulators would enforce standards, review construction permit requests to ensure that they met requirements, and approve emission exchanges if offsets were included in an EPA-approved state plan.

The 1977 amendments to the Clean Air Act (enacted August 7, 1977) allow EPA's interpretative ruling to continue in operation for nonattainment areas until July 1, 1979. At that time, any nonattainment area not covered by a state implementation plan that ensures re-

gional achievement of national air quality standards by December 31, 1982, will face a ban on new major sources of emissions—in effect, a limited industrial growth situation. If a state initiates an offset-trading program, that program can continue until July 1, 1979, and beyond under EPA-approved, state-operated arrangements.

The Limited Market

It is clear that EPA's interpretative ruling set in motion a crude but limited market mechanism. Along with the requirement that nonattainment areas demonstrate progress toward meeting national air quality standards, the rules of the market appear to be these:

(1) In treating its discharge, new major emission sources must use a technology that yields "the lowest achievable rate of emission." This means that a new source cannot gain additional emission rights by shifting from an inferior to a superior technology. Nor can it sell existing rights if new, cleaner technology is developed.

(2) Only the same kinds of emissions are subject to exchange. For example, emissions of SO_2 may be substituted for emissions of SO_2.

(3) An emission offset of more than one-for-one is required, or, to put it another way, each transaction carries an in-kind tax.

(4) There can be no banking of emission credits or rights, for these must be used or lost. Also, there can be no net sales or purchases.

(5) Only parties desiring to build new emission sources can enter the market as buyers. Proponents of improved air quality cannot buy emission rights and destroy or hold them.

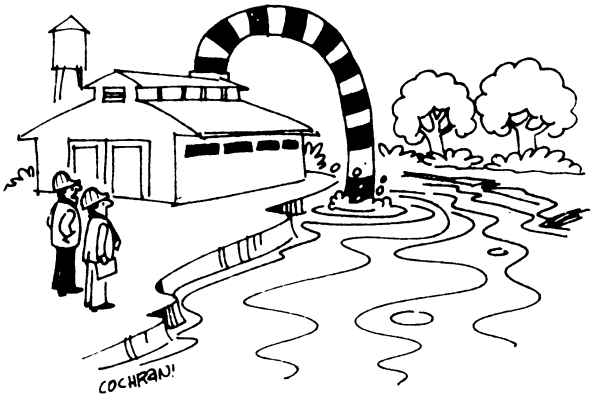
Just how much flexibility does this policy allow? In what circumstances will there be a market?

It is unlikely that a firm seeking to expand a plant will find room within the present rules for fruitful negotiations with a direct competitor. Both firms will tend to have the same costs and the same value for their products, and also to have emission standards based on similar treatment technology. Of course, firms or plants on the verge of going out of business may be potential offset sellers, but their number would be limited. This leaves plants from different industries (and the firms owning them) as the potential bargainers.

A firm desiring to enter a region where no additional emissions are permitted may negotiate with an existing firm that discharges the same emission but produces a different product. Successful bargains can be struck if the right to discharge pollutants is sufficiently valuable to the entering firm. In fact, it might be possible for an entering firm to offer enough to enable the existing firm to treat its emissions more than required by the standard, thereby releasing additional air emission rights and enabling both firms to operate. Alternatively, an existing firm might be induced to reduce its output and thereby its emissions. Again, both the new and the existing plant could operate (the latter at a reduced level), and air emission rights would tend to be allocated to their most beneficial use. The offset policy offers some flexibility, but the market is certainly limited.

Current Transactions in the Market

The Sohio case illustrates the possibilities that EPA's new policy offers to firms wishing to expand in nonattainment regions. Under the ruling, California's South Coast Air Quality Management District has overseen Sohio's effort to find offsets for hydrocarbons, sulfur dioxide, and other emissions that its proposed pipeline terminal would generate. When its original trade-off proposal did not work out, Sohio be-



"It may satisfy the clean air people, but the clean water people will never dig it!"

gan to pursue the same scheme in separate negotiations with three major Long Beach dry-cleaning establishments and with California Edison. The three dry-cleaners have agreed to equip their plants with tighter emission controls (reportedly at the oil company's expense), thereby releasing emission rights to Sohio. California Edison has agreed to the same arrangement. As of now, Sohio, its engineering studies reportedly completed and its purchase orders for the two transactions standing by, is awaiting final decisions by the state and federal regulators. The value of these transactions is estimated at approximately $90 million.

The Sohio case raised major environmental questions that were considered and answered in public hearings and negotiations. One crucial question was, how much greater than one-for-one should the offset ratio be? At this point, Sohio has been told to plan on the basis of a two-for-one exchange on sulfur dioxide and up to a 7.2-for-one exchange on hydrocarbons. Proponents of clean air see the trade-off ruling as beneficial: with a two-for-one offset, two units of sulfur dioxide would be removed by Sohio for every one unit added, for a net gain from the trade-off of one. On the other hand, those concerned about production costs note that the cost of reducing emissions rises as those easiest to control are eliminated, so that each additional offset in an area becomes more expensive than the one before.

Sohio's search has been a difficult one, and indeed it may turn out that many efforts to find offsets will only uncover violators of existing emission standards—will lead, in other words, not to new "emission rights" but only to the elimination of present violations. Even so, the emission rights market can still offer net benefits when an approved transaction occurs.

While the Sohio case illustrates a potential transaction under EPA's policy, the cases of Volkswagen's Pennsylvania plant and General Motors' Oklahoma City plant illustrate actual transactions. In both of these cases, emission offsets had to be obtained to compensate for hydrocarbons from paint lines and other manufacturing operations. For a time it appeared that VW would not be able to operate its U.S. facility but, after considerable search, the state of Pennsylvania came up with the necessary offset, by agreeing to reduce its own emissions of hydrocarbons from asphalt processing and paving. In the GM case a refinery in Oklahoma City installed improved controls (without being compensated), reducing its emissions in order to make room for GM's.

A trade-off similar to VW's occurred in Virginia when the Hampton Roads Refinery sought a construction permit and the state of Virginia made adjustments in its asphalt operations so as to allow construction. While there might be some costs to taxpayers in these states as a result of these barter transactions (more costly paving operations for public works, for example), there might also be benefits in the form of increased tax revenues, reduced unemployment, and cleaner air.

Gains in efficiency are, of course, difficult to assess when a public body—a state, for instance—changes its operations in order to assist a private firm. Nevertheless, it is possible that the transferability of emission rights could lead to improvements in a state's own environmental control. It is also possible, however, that a state might act so as to put the burden of a new plant's emissions solely on the taxpayers and, figuring emission rights therefore to be costless, continue to seek new industry. In any event, the transactions that have so far occurred—both private and public—imply that air emission rights (like property rights to land and other resources) are transferable and may be of greater social value when used in ways differing from their current use.

Improving the Emission Rights Market

To be sure, EPA's emission rights market is only embryonic and contains a number of imperfections that firms might exploit. Since emission rights cannot be banked, some firms might delay adopting the best treatment techniques in the hope of selling out before the ax falls. Firms entering the market might likewise behave "strategically"—might, since emission rights acquired from other firms must be used or lost (cannot be resold), be less than fully diligent in operating their emissions control systems. Allowing the banking of the rights or their (unrestricted) sale would limit behavior of this sort.

Moreover, since the emission rights obtained by newly constructed plants cannot be held for future use—that is, the only rights that

can be used are those obtained in accordance with the original EPA-approved plan—a firm needing emission rights will look to the short rather than the long run and will obtain only the amount that fits its immediate needs. If that firm decides to increase its output two or three years later, it will have to wait till construction plans are approved before purchasing the necessary new emission rights—at whatever the going price is then. If rights were bankable, a growing firm could plan and invest more rationally for emission control than it can now. Thus, by precluding the development of a "futures" market in air emission rights, EPA may be limiting the time horizon for pollution control planning and thereby limiting progress toward cleaner air.

The "use them or lose them" policy may indeed provide certainty, though it is certainty of the wrong kind. Contrariwise, there may be insufficient certainty of other kinds. First, any change in a state's overall air quality plan, in the national ambient air quality standards, or in the clean air statute could change the value of all emission rights. Indeed, a change in the direction of more stringent standards could eliminate some emission rights entirely. Emission rights, like any property right, require government protection. If it is uncertain that government will protect them, firms will sharply discount the future value of the rights, and only those transactions that give promise of high return will be likely to occur. Air quality regulators could reduce uncertainty and thereby push forward the investment horizons of emission rights' purchasers by carefully defining all emission rights and by strictly enforcing requirements that emissions be monitored. (Monitoring would protect the nascent property right.) State authorities could add protection to the new property rights by keeping other air quality users from "poaching" and by ensuring some minimum life to emission rights at the time of an approved exchange.

One other problem deserves mention. As noted, requiring a more than one-for-one offset will lead to reduced emissions when trade-off transactions are made. It will also, however, reduce the number of transactions that occur, since it makes emission rights more expensive when traded than when held (that is, there is a tax on the transaction). This will encourage less efficient users of these rights to hold on to —and use—the rights they have, rather than trading them to more efficient users. The efficiency of the market in rights is thus substantially reduced.

An Expanded Market Alternative

The problem of limiting pollution emissions into the air is fundamentally the same as the problem faced when any resource becomes scarce: somehow society must bring about the birth of a market. The approach taken by EPA and the Congress represents one stage in the birth struggle. While EPA's interpretative ruling of December 1976 gives explicit recognition to market forces, further moves could be made to maintain or improve air quality and also ameliorate the shortcomings noted in the present policy.

The problem of limiting pollution emissions into the air is fundamentally the same as the problem faced when any resource becomes scarce: somehow society must bring about the birth of a market.

Consider, for example, a system in which state authorities, after defining the amounts of specific emissions that could be absorbed (in our case, by the atmosphere) in a given region or market, could simply hold an auction for rights to discharge those emissions, letting anyone bid. In calculating their bids, firms would have to consider the costs of alternative treatment, of moving, and of shutting down. And those who wished to remove the rights from the market in order to prevent the emissions altogether would have to consider other ways in which they might attain their goals. (This is to say that all opportunity costs would be considered.) Furthermore, those who happened to be earning extra profits because of the "free" air quality with which they were endowed by location would face the costs they had previously not faced. All users of air emission rights would have the opportunity to gain the continued use of the rights at a cost. Their calculations would take into account future revenues, benefits, and costs and should produce a fairly complete identification of demand. Once the auction were

completed, emission rights would be like any other private property: owners would respond to changing market conditions by buying and selling as they saw fit. (The system described here is like the one proposed for water quality by J. H. Dales.)

In this system, the first definition of rights would set the maximum amount of discharge —that is, the amount that could not be legally exceeded. As with the offset market, there would be wealth distribution questions to consider here if existing plants obtained saleable assets through the first definition of emissions. But, in our case, if the government desired to improve the conditions of overall air quality resulting from the auction (remember that some rights might be banked or simply destroyed), it would have to enter the market and purchase rights like any other buyer. A full market to a limited quantity of rights would be in operation.

Conclusion

The process by which a previously "free" natural resource enters into a market—that is, the process by which scarcity is recognized, rights established, defined and guaranteed, and the market created—is not an easy one. For this reason, any market in air emission rights may be somewhat limited, perhaps for a considerable time, perhaps permanently. But the market for land is also limited. Owners of land may be required to follow performance standards and zoning ordinances. Excavation, mining, sewage, and waste-disposal requirements further reduce the number of potential property rights that are subject to free market forces. Moreover, in some places land is owned by the state and leased for controlled uses. Still, there is a functioning market for land in which significant rights are freely traded.

One might expect to see similar developments in the market for air emission rights, as it evolves. The property rights approach allowed by EPA's ruling and subsequently contained in the 1977 Clean Air Amendments is akin to land's being zoned and then bought and sold. An alternative approach would be for the government to determine, as it sometimes does with land, what amount (of air quality in our case) is to be used, to hold title to that amount, and to lease certain units of it for approved purposes. An air emission fee or charge might accomplish this, the fee perhaps rising and falling to allocate the fixed number of units among prospective users, much as rents rise and fall to allocate housing.

Either an air emission rights approach or a fee approach would induce cost-effective behavior on the part of polluters—that is, lead them to find the least-cost way of producing goods, given the cost of air use. Despite the improved procedures, however, an unsettled question remains: what is the optimal amount of air quality to be marketed? Given that we lack answers to this question and given the public's unwillingness to release the question for a market answer, we are not likely to achieve total efficiency. But society might wish at least to encourage cost-effective behavior.

The steps taken by EPA may be historic: we may indeed have witnessed the first day of a new market. It is a market created not in the twinkling of an eye by government fiat but in a give-and-take process involving industry, environmental groups, and EPA. None of these set out to create a market or saw the first halting steps for what they were. But if the policy discussed here continues to be successfully carried out, air quality will have joined land, bread, water, and even peanut butter as another product too valuable to keep out of the market. And John Stuart Mill will have called the shot correctly. ■

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