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Making Sense of "New Source Review"

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The Environmental Protection Agency recently announced its intention to reopen public hearings over its proposed changes to the Clean Air Act's New Source Review (NSR) regulations. No area of clean air policy has been as controversial in recent years. NSR has long been criticized as cumbersome and counterproductive. Environmentalists charge that the proposed rule changes, which are highly technical and difficult to explain, will result in increased air pollution. One part of the Bush administration's answer is to substitute a "cap and trade" program in place of detailed site-specific regulation. This Environmental Policy Outlook *aims to untangle some of the confusion. In the end, the real argument is not over more versus less air pollution, but over which methods can reduce air pollution most quickly and effectively.*

Rollback or Leap Forward?

Can anyone make sense of the New Source Review controversy? Probably not by reading news stories and editorial commentary, some of which say that the Bush administration's changes to these Clean Air Act regulations represent the biggest rollback since Moses parted the Red Sea, while others seem to view the changes as one of the most important regulatory advances since the Ten Commandments.[1] New York attorney general Eliot Spitzer reflects the former reaction, saying in an official statement that "The Bush administration has taken an action that will bring more acid rain, more smog, more asthma and more respiratory disease to millions of Americans." (Spitzer and eight other state attorneys general have filed suit to block the new rules.) Recently departed EPA administrator Christine Whitman said that "Reforming NSR will promote energy efficiency, plant safety, and modernization at refineries, power plants, and other industrial facilities across the country. . . . EPA is taking actions now to improve NSR and thereby encourage emissions reductions." Whitman and Spitzer would seem to be occupying the proverbial different planets.

Now the EPA has announced plans to reopen public hearings on the NSR changes, which is likely to devolve into yet another forum for environmental groups to scream about the Bush administration's "assault on the environment."[2] Why the EPA has decided to reopen this politicized can of worms, having already taken its lumps, is a mystery. Can something new truly remain to be said? Is the EPA, after such agony, really thinking of reversing course? The Bush administration's environmental team seems still not to have removed the "kick me" signs the Clinton administration staffers left taped to their desk chairs. The EPA move to reopen hearings sounds suspiciously like a staff-driven decision in the absence of an administrator. As Winston Churchill once remarked when Prime Minister Clement Attlee left London for vacation: "When the mouse is away, the cats will play."

One also cannot get much help in sorting this out by reading the existing NSR rules. Although the original 1977 rules were only twenty pages long, the EPA has had to promulgate 4,000 pages of guidance since 1980 trying to explain NSR, and interest groups have almost constantly tried to revise it

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through litigation and the rulemaking process. NSR has become the environmental equivalent of the income tax code, and the EPA has had the same kind of trouble as the IRS applying NSR consistently. While the NSR controversy is usually discussed in relation to coal-fired power plants, it has wide applicability to many industrial sectors. The EPA identifies about 20,000 "major" sources of emissions that are potentially subject to NSR. Forget Moses; Solomon would have a hard time untangling this mess.

The National Academy of Public Administration summarized the consensus of unhappiness about NSR in a recent report:

- "For existing facilities, however, NSR sometimes produces inequitable impacts and falls short of its environmental goals."
- "NSR's unpredictable and lengthy permitting process is also detrimental to facilities that must change operations quickly to compete effectively."
- NSR "placed heavy administrative burdens on regulators by requiring complicated applicability determinations."
- NSR has shown "insufficient focus on performance-based approaches."
- "In sum, NSR has not been very successful in linking environmental improvements to on-going capital investments by the industrial sectors responsible for the largest amounts of air pollution."[3]

This consensus is not new with the arrival of the Bush administration. The Clinton EPA judged the complaints about NSR to be salient enough such that they proposed many of the same changes the Bush administration has adopted, though environmentalists and the news media seldom acknowledge this. The main point to be understood is that NSR is an ideal case study in the problems and limitations of the centralized command-and-control, detailed rule approach. Modern conditions require a simpler approach, although even "simpler" regulatory schemes are still very complicated.

At First, It All Seemed Very Sensible

The NSR confusion owes its origins to a sensible-sounding practical compromise over air pollution policy made twenty-five years ago. When Congress was writing the 1977 Clean Air Act, which imposed tough new emissions standards for industrial sources of air pollution, it recognized that applying the new standards immediately to all *existing* sources of pollution would be ruinously expensive. No Congress is effectively going to wipe out billions of dollars of investment in powers generators, oil refineries, chemical plants, and manufacturing facilities. The increase in utility rates alone that would have been necessary to replace existing power plants in a short time frame would have destroyed public support for clean air regulation. Besides, it was thought unnecessary to require immediate cleanup of existing sources, because industrial plant and equipment, like automobiles, have a life cycle of their own, and as they wear out should be replaced by new facilities that would have to meet the new emissions standards. Thus began what has been referred to as the "grandfathering" of old sources of pollution.

Industrial facilities, however, have a longer life cycle than automobiles, and the same kind of engineering talent that has enabled automakers to produce cars that have 98 percent lower emissions than pre–Clean Air Act cars can also be deployed to extend the life of existing industrial facilities. This was, in fact, the major unintended consequence of the NSR provisions; electric power utilities especially invested a disproportionate amount of research and development capital into keeping old plants running rather than into pursuing advanced, lower-polluting power-generation technologies.

The Clean Air Act contemplated this possibility with a provision that attempted to distinguish between routine maintenance and repair of facilities—which would be allowed—and more substantial modification of facilities, which would put the facility over the threshold of requiring attainment of the new emissions standards. In plain language, if you tinker enough with your old source, it becomes a new source, and must meet the new standards.

In the real world of complex modern industry, the difference between "modification" and "routine maintenance and repair" is ambiguous.[4] In large facilities such as power plants, technological improvements (especially in the age of advanced computer controls) often mean that a replacement component is substantially different from the original component it is replacing.[5] Steady, piece-by-piece improvements in basic technology have extended the life of power plants and other kinds of industrial facilities. Because NSR imposes standards on specific kinds of industrial equipment and requires installing the best

available control technology (BACT) or the Lowest Achievable Emissions Rate (LAER), going through an NSR review on a case-by-case basis can involve cumbersome and costly engineering reviews by the EPA and the regulated industry that typically take about eight months, but can take much longer. NSR in practice makes the EPA the co-manager of a plant, and requires integrating EPA's technical staff into a plant's engineering process. This is one reason why there are so few NSR applications; although the EPA identifies 20,000 "major" sources of emissions potentially subject to NSR regulations, only about 250 NSR applications have been filed per year. Plant managers rightly see the NSR process as the environmental equivalent of an IRS audit. The perverse incentive for plant managers, therefore, is to keep repairing current facilities rather than upgrading them with newer and more efficient technology.

Environmentalists have cried foul, arguing that industrial facilities are building virtually new facilities from the inside out by exploiting the "routine maintenance and repair" exclusion from NSR.[6] The EPA began to agree and started narrowing the NSR maintenance and repair exclusion in the early 1990s, culminating in widely publicized lawsuits against several eastern utility companies in the late 1990s charging that the utilities has cheated on the NSR regulations.

No doubt some industries have gamed the regulations to their advantage, as complying with NSR's BACT and LAER regulations can add enough to the cost of a plant upgrade to make the upgrade uneconomical. The ambiguity of discerning the difference between "substantial modification" and "routine maintenance and repair," however, is impossible to resolve smoothly and clearly in the existing regulatory framework, and the uncertainty over the narrowing of EPA's NSR regime was having a sclerotic effect on industrial plants, as plant managers delayed or cancelled plant upgrades to avoid tripping NSR.

Under quirks of the complicated NSR regulations, in some cases it was possible to be caught up in the regulatory maw even if proposed changes to a facility would reduce pollution. Detroit Edison was challenged for replacing aging turbines with more efficient ones that reduced plant emissions. Other companies got into trouble for replacing aging stream ducts.

NSR even trips up high-tech manufacturers. Intel and other microchip companies make hundreds of changes a year to their production processes and worry that a narrow application of existing NSR regulations cripples their ability to adapt quickly to fast-moving market conditions.

The Bush administration has adopted three changes to NSR that were first developed under the Clinton administration back in 1996:

- Plantwide Applicability Limits (PALs). PALs will cap total emissions of each type of pollutant from a facility but allow plant managers to make any equipment changes they want so long as their plantwide emissions remain under the cap. (In other words, for a plant operating at or near the emissions cap, emissions from one piece of equipment could increase only as long as emissions were reduced by the same amount elsewhere in the plant.) PALs will be set according to the highest emissions level of a plant over the last decade. (PALs will not apply to power plants.)

- The "potential-to-actual test." The current NSR process assumes that a plant will be operating at full capacity 365 days a year, around the clock, an unrealistic assumption that often makes modifications in plant operations subject to NSR even if there will be no change in emissions. The Bush administration will change the threshold for initiating NSR from the potential level of a plant's emissions to projections of the actual emissions a plant will produce. This standard was adopted to recognize the full breadth of the business cycle. Changes to facilities are often undertaken during slack periods of business, when emissions are lower than peak periods of operation; applying NSR standards to emissions at a lower level of production rather than peak production creates a barrier to plant expansion.

- "Clean Unit" provision. A facility will be exempt from NSR if it employs pollution control equipment that has been certified as state-of-the-art within the last ten years.

So far, as mentioned above, the Bush changes are identical to changes first developed by the Clinton EPA. The real focus of argument is over a new definition of "routine maintenance and repair" that is still in the rule-making phase at EPA. The centerpiece of the proposed new rules would be a cost-based test to distinguish between maintenance and a major modification. The National Academy of Public Administration describes the proposal:

> Under EPA's proposed [maintenance and repair] exclusion, a yearly allowance . . . would be established for each source. This allowance would be calculated as a percentage of each source's replacement costs, and would be determined by specific rules for various categories of sources. EPA would determine the percentages from IRS regulations, standard engineering reference manuals, and actual industry data.[7]

Early EPA guidance suggests the range would be from 1.5 percent to 15 percent, depending on the industry or type of facility. While this approach would offer a clear, bright-line threshold for tripping NSR, it is far from simple or unbureaucratic. The EPA will still be looking closely over the shoulders of plant managers.

This summary description of the Bush administration changes to NSR glosses over countless complicated details that challenge the comprehension even of air quality experts. Some environmentalists complain that the Bush NSR changes will allow industry to increase emissions significantly by exploiting through sleight-of-hand the fine print of the new NSR regulations. This controversy resembles a problem in French literary criticism; it is impossible to resolve by reading the text of the regulations alone. There is a way of settling the issue: supersede NSR with an expanded tradable emissions program, and evaluate the results several years down the road.

Prelude to Cap and Trade?

The controversy over NSR is an excellent example of the limitation of the traditional method of regulation commonly and simplistically known as "command-and-control," that is, applying specific prescriptive technical measures to every identifiable source of air pollution, no matter how small. In the early days of air pollution prevention, this method yielded large results relatively cheaply and quickly because large sources of emissions were easy to identify and control—the so-called "low hanging fruit." Nowadays both industry and the EPA chafe at the declining efficiency and effectiveness of the old style of regulation.

For a long while now a wide range of policy experts have argued that a better solution to the NSR dilemma would be to scrap NSR and replace it with progressively declining pollution caps and an emissions trading regime (known as "cap and trade" for short). The 1990 Clean Air Act took the first step down this road with a cap and trade program for sulfur oxides. Cap and trade programs have serious drawbacks of their own, but the control costs of tradable emissions in SO_2 have been less than one-fourth the cost of the older command-and-control regulations, which shows the stupendous inefficiency of command-and-control systems. The Progressive Policy Institute, the think-tank arm of the Democratic Leadership Council, calls for abolishing NSR entirely and replacing it with a cap and trade program for several pollutants at once. "Once these caps are imposed," PPI says, "NSR no longer provides any significant emissions reductions, and eliminating these NSR provisions for new sources has the potential to actually boost cleaner energy technologies by equalizing the economic burden for pollution control placed on old and new sources."[8]

This is similar to what the Bush administration has proposed in its "Clear Skies" proposal, which will scrap NSR for electric power generation. Clear Skies will impose new caps on emissions of sulfur oxides (SO_x), nitrogen oxides (NO_x), and mercury, reducing SO_x and NO_x emissions by 70 percent by the year 2018 (with intermediate caps taking hold in 2010).

By moving ahead first with NSR rule changes, critics say the Bush administration has put the cart before the horse and given up political leverage on Congress to enact Clear Skies. But the political logic of air quality policy is a two-way street. Members of Congress who sincerely believe the Bush NSR reforms threaten to make pollution worse can obviate this prospect by enacting Clear Skies. Some environmental organizations oppose cap and trade proposals for the self-serving reason that such a system would put an end to one of their favorite activities: filing lawsuits against the EPA and private companies to bend regulatory policy to their will. The practice is both lucrative and effective.[9]

Beyond the insincerities of some environmental lobbies, the basic ideological split between the two parties at work can be observed once again. The dispute over how reformed NSR rules and Clear Skies will work in practice is in form very similar to the arguments over supply-side economics and tax cuts. The conservative argument in favor of NSR reform and emissions trading is not only that it will reduce the economic cost of cutting pollution, but also that it will do so more quickly and effectively. Liberals have less confidence in market solutions and insist, in the case of the economy, that government-directed stimulation generates economic growth, and, in the case of the environment, that only aggressive

regulation can clean up the air. This is how the debate in Congress over Clear Skies is likely to unfold—if it ever takes place.

One of the odd criticisms opponents of the Bush reforms are making is that the EPA cannot offer models or projections of the effects of the NSR changes on air quality. This is an odd objection because the EPA is unable to provide estimates of the effects of the *current* NSR regime on air quality because of inadequate data and limited modeling capabilities. Although EPA believes that its current NSR regime delivers meaningful benefits—when has a regulatory agency publicly doubted its own efficacy?—the fact that there is no reliable data on which to compare before and after results of the new NSR regime means that the argument will go on forever, or at least until the results are in.

Forecast: Clearer Skies, Gloomier Rhetoric

The argument over the Bush air quality changes has run a curious course. Rather than argue that the Bush NSR reforms are less effective in reducing pollution than vigorous enforcement of the existing regulations, environmentalists and politicians initially charged that the changes will *increase* pollution and even cause more deaths. The Natural Resources Defense Council, for example, said "The Bush administration decided to allow corporate polluters to spew even more toxic chemicals into our air, regardless of the fact that it will harm millions of Americans." The NRDC's John Walke adds, "More than 30,000 Americans die every year from power plant air pollution alone, and crippling the standards will only make things worse."[10]

Nowhere has this criticism been more severe than in the Northeast, where it is supposed that emissions from Midwestern power plants contribute significantly to the Northeast's smog. As polls have consistently found, a large majority of Americans believes that air quality in the United States has been getting worse when in fact it has been improving for the last generation. The most recent EPA data show that, nationwide, ambient sulfur dioxide has fallen by half over the last twenty years, by 27 percent for nitrogen dioxide, and by 12 percent for ozone. As the table below shows, with the exception of NO_2, the decline in air pollution in the Northeast has been greater than for the nation as a whole.

Decline in Ambient Air Pollution Levels, 1981–2000

	SO_2	NO_2	Ozone*
Nationwide	50%	27%	12%
Region 1**	53%	40%	26%
Region 2***	62%	15%	19%

Source: EPA
* 4th maximum eight-hour standard.
** Region 1 comprises the New England states.
*** Region 2 is New York and New Jersey.

There is every reason to believe that this trend will continue, regardless of the NSR reforms or whether Congress enacts the Bush Clear Skies proposal.[11] So much so, in fact, that the author offers a $1,000 wager with any of the critics who have publicly claimed that the NSR changes will increase air pollution that ambient air quality in the Northeast will be better in 2009 (the last year of a prospective second term for the Bush administration) than it is today.

As time has passed, the argument has slowly changed to admit, grudgingly, that the Bush plan would reduce pollution, but not by as much as the previous NSR regulations if enforced to a maximum extent. American Lung Association President John J. Kirkwood, in a statement of June 13, 2002,[12] said, "The U.S. Environmental Protection Agency's announced changes to the Clean Air Act rules, known as New Source Review, are accounting gimmicks that will *increase pollution* and threaten public health" (emphasis added). Yet in a statement six weeks later,[13] Kirkwood amended his line considerably: "The Administration's Clear Skies legislation, introduced today in Congress, will dismantle the Clean Air Act and severely weaken the nation's efforts to fight air pollution. The plan *will not reduce power plant emissions enough* to clear the skies and protect the nation's health" (emphasis added).

While the latter argument is more scrupulous, it rests on a particular interpretation of the Clean Air Act. Unlike the Bush administration's Clear Skies proposal, which sets specific caps on emissions of mercury, SO_x, and NO_x, the Clean Air Act does not set specific emission targets. These were left up to the EPA to determine. Critics of Clear Skies say the existing Clean Air Act would reduce emissions more than Clear Skies (75 to 80 percent versus Clear Skies' 70 percent) if the EPA vigorously enforces the NO_x SIP Call process.[14] This scenario, while plausible, will entail years of litigation (existing SIP Calls have involved about a decade's worth of court proceedings), and is guaranteed to produce the maximum expense and political friction. There is reason to doubt

whether the NO_x SIP Call process will achieve the results claimed for it. Even if it does, the difference between the Clear Skies cap (70 percent reduction) and the NO_x SIP Call reduction (75 to 80 percent) is negligible in terms of health benefits.

The disproportion between the rhetoric and the reality of air quality policy is really a measure of the disenfranchisement environmental groups fear will take place if a relatively simpler scheme of regulation is adopted—a scheme that will remove their de facto seat at the regulators' table and courthouse steps. Keep this in mind as the new round of public hearings offers mostly nonsensical noise pollution.

Notes

1. *New York Times* columnist Paul Krugman wrote that NSR reform "marks the beginning of a new era of environmental degradation." The *Charleston* (W.Va.) *Gazette* (November 29, 2002, p. 4A) called the Bush NSR changes "a sneak attack on the air you breathe." The *Philadelphia Inquirer* (November 28, 2002) editorialized that "Air pollution in the Northeast is about to get a whole lot worse." On the other side, the *Times-Union* of Albany, New York, (December 9, 2002, p. A-10) editorialized that the NSR changes will provide "greater clarity to the clean-air program called New Source Review and will result in greater environmental protection" and the *Rocky Mountain News* (December 3, 2002, p. 30A) said the changes "make good environmental sense."

2. See Eric Pianin, "EPA Will Reconsider Enforcement Policies; Lawsuit Spurs Retreat on Clean Air Act Provisions," *Washington Post,* July 28, 2003, p. A2.

3. *Breath of Fresh Air: Reviving the New Source Review Program* (Washington, D.C.: National Academy of Public Administration, April 2003; available at www.napawash.org), pp. iii, 1–3, 87.

4. The Clean Air Act defines "modification" as "any physical change in, or change in the method of operation of, a stationary source which increases the amount of any air pollutant emitted by such source or which results in the emission of any air pollution not previously emitted." Routine maintenance and repair has been left more or less undefined.

5. An example in the electric utility sector is replacing a "forced-draft" system with a "balanced draft" system for air injection into furnaces.

6. While environmentalists hollered, some industry groups expressed disappointment, with the Edison Electric Institute saying that the Bush changes do not go far enough.

7. *A Breath of Fresh Air*, p. 66.

8. Byron Swift and Jan Mazurek, *Getting More for Four: Principles for Comprehensive Emissions Trading* (Washington, D.C.: Progressive Policy Institute, October 2001), p. 3.

9. The classic analyses of this kind of litigation are R. Shep Melnick, *Regulation and the Courts: The Case of the Clean Air Act* (Washington, D.C.: Brookings Institution, 1983) and Jeremy Rabkin, *Judicial Compulsions: How Public Law Distorts Public Policy* (New York: Basic Books, 1989).

10. Quoted in Jeff Nesmith, "Clean Air Rules Eased; Plan to Upgrade Plants Stirs Outrage," *Atlanta Journal Constitution,* November 23, 2002, p. 1A.

11. In part this is due to existing technological changes coming on stream (see Joel Schwartz, *No Way Back: Why Air Pollution Will Continue to Decline,* American Enterprise Institute, July 2003, available at www.aei.org/book428), and to state and local regulatory action. North Carolina, for example, has passed legislation requiring fourteen coal fired power plants to reduce NO_x emissions by 78 percent, and SO_2 emissions by 49 percent, by the year 2009. Massachusetts and New Hampshire have enacted similar programs.

12. www.lungusa.org/press/envir/air_061402.html (accessed July 31, 2003).

13. www.lungusa.org/press/envir/air_072902.html (accessed July 31, 2003).

14. SIP, short for State Implementation Plan; this oleaginous acronym refers to the process of requiring states to ratchet down emissions to enable downwind states to achieve the ambient air quality standards.