Is the U.S. Environmental Protection Agency’s Revised New Source Review Rule Moving in the Right Direction?: A Deepened New Source Bias, and the Need for Pursuing Sustainable Energy Development in Air Pollution Control Law
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This Article analyzes the revised new source review (NSR) rule and argues that it violates the Clean Air Act’s (CAA’s or the Act’s) clean air mandate by changing the preexisting definition of the statutory term “change” and by extending the demand growth exclusion to all sources and creating several NSR-exempt project-based construction activities that are applicable to existing sources, without providing meaningful procedural safeguards. This is because the new rule conflicts directly with the following requirements under the CAA’s NSR program: (1) a proposed physical or operational change that would increase emissions or result in collateral emissions must go through NSR preconstruction review; (2) emissions increases and de-

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creases to be considered in NSR applicability determinations must be contemporaneous; and (3) once NSR is triggered, the stringent technology requirement, the best available control technology (BACT) or the lowest achievable emissions rate (LAER), must be applied to the sources.

The Article argues that the revised NSR rule is moving in the wrong direction in that it strengthens a bias against new sources and enlarges preexisting loopholes in favor of old, dirtier sources, which have traditionally enjoyed significant cost advantages over cleaner, more energy-efficient sources under the grandfathering scheme. It observes that the U.S. Environmental Protection Agency’s (EPA’s) reliance on the new rule’s allegedly minimal impacts on air quality and the nation’s decade-long transition to a multi-pollutant trading approach in air pollution control in justifying the rule changes is untenable in view of congressional intent leading to the enactment of NSR and the literal meaning of the term “change.” The Article concludes with the argument that the overriding goal in NSR reform is to create a level playing field for all sources, whether new or old, by building sustainability concerns into existing environmental and energy law, for example, through repealing grandfathering, the adoption of output-based emissions standards and, possibly, the enactment of climate change policy aimed at reducing fossil fuel usage.

Introduction

The permitting sections of Parts C and D of CAA Subchapter I are known as the NSR program, whose main goal is to protect, maintain, and improve air quality while providing for continued economic development and meeting energy needs. The CAA covers six criteria air pollutants: particulates (including particulate matter (PM) with a diameter of 10 microns or less (PM10) and PM with a diameter of 2.5 microns or less (PM2.5)), sulfur dioxide (SO2), nitrogen oxide (NOx), carbon dioxide (CO2), ozone (O3), and lead (Pb). It also regulates toxic air pollutants and volatile organic compounds (VOCs). Under the Act’s clean air mandate, EPA is to promulgate primary and secondary national air quality standards (NAAQS) for each of the criteria pollutants. Each state must then within three years prepare and submit to EPA for approval its implementation plan, called a state implementation plan (SIP), for meeting NAAQS. In their SIPs, the states, including tribal lands and territories, must demonstrate the timely attainment of NAAQS or “reasonable further progress” toward the attainment of NAAQS in all areas under their jurisdiction, using available monitoring data and modeling analyses. The EPA Administrator must promulgate a federal implementation plan (FIP) if a state fails to submit a SIP by the statutory deadline or if it submits an inadequate SIP, or fails to revise it after EPA’s notice of disapproval. The EPA Administrator can disapprove the entire SIP or part of it. Harsh sanctions may be imposed on states that fail to meet the statutory deadlines for SIP submittal or NAAQS attainment. On the other hand, states have the wide discretion to choose measures to comply with NAAQS as long as they can demonstrate timely attainment to EPA and make reasonable further progress. Each state, by adopting a SIP, is empowered to determine which sources to regulate and which pollution control measures to employ to meet NAAQS. In short, the CAA’s basic scheme for accomplishing its goals is “cooperative federalism” with distinct roles for the states and the federal government.

However, state authority to shape air management strategies and plans has its limits. Congressional dissatisfaction with the 1970 CAA’s performance led to the enactment of the prevention of significant deterioration (PSD) and nonattainment programs in 1977. The main thrust of the PSD program is to protect and enhance the high air quality of areas with clean air. Under the nonattainment program, states are required to implement more stringent SIP requirements in return for more time for attainment in areas within their jurisdiction that have failed to meet the applicable NAAQS. States must impose emissions reduction requirements based on reasonably available control technology (RACT) on existing major sources covered by EPA guidelines. New and significantly modified major stationary sources that want to locate in PSD or nonattainment areas must obtain preconstruction permits from state permitting agencies. For new sources in PSD areas, this usually means that they must go through air impact analyses and air quality modeling at the preconstruction stage, and meet post-construction state air quality standards.

See also, e.g., Train v. Natural Resources Defense Council, 421 U.S. 60, 79, 5 ELR 20264 (1975) (concluding that “so long as the ultimate effect of a State’s choice of emission limitations is compliance with the national standards for ambient air, the State is at liberty to adopt whatever mix of emission limitations it deems best suited to its particular situation”); Union Elec. Co. v. EPA, 427 U.S. 246, 269, 6 ELR 20570 (1976) (stating that the states have “the power to determine which sources would be burdened by the regulations and to what extent” in implementing their SIPs approved by EPA); EPA v. Brown, 431 U.S. 99, 103, 7 ELR 20175 (1977) (per curiam). Therefore, a state can demonstrate timely attainment to EPA in its SIP by relying more on control measures that target area sources, such as dry cleaners and gas stations, and mobile sources than other states.

11. EPA has interpreted RACT to mean “the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.” The 1990 CAA Amendments incorporated this RACT requirement, as interpreted by EPA guidelines. Arnold W. Reitez Jr., Air Pollution Control Law: Compliance and Enforcement 79 n.18 (2001).

See also 40 C.F.R. §§51.165, 51.166, 52.21, 52.24, and pt. 51, app. S.
12. See 42 U.S.C. §7475(e)(10)(B) (stating that PSD regulations “shall require an analysis of the ambient air quality, climate and meteorology, terrain, soils and vegetation, and visibility” at the proposed construction site and in nearby areas); 40 C.F.R. §52.21(m)(1)(iv), §52.21(m)(2), §52.21(m)(3).

13. 42 U.S.C. §7503(c)(1). The applicable offset ratio is different depending on the location’s nonattainment classification. CAA §182 sets out offset ratios for O₃ nonattainment areas. An applicable minimum ratio is five for VOCs of 1.1 in marginal areas down to 1.5 in extreme areas (1.5 for moderate areas, 1.2 for serious areas, and 1.3 for severe areas). See id. §§7511a(a)(4), 7511a(b)(5), 7511a(c)(10), 7511a(d)(2), and 7511a(e)(1). In principle, the required emissions reductions must come from a source in the same area. Id. §51.166(b)(6). However, in exceptions when the offset is provided by a source in another attainment area with an equal or higher nonattainment classification (2) whose emissions from this area contribute to nonattainment in the area where the new source is sited. Id. This exception may apply in the context of transboundary pollution in which the transport of a pollutant emitted from sources located in upwind areas contributes to nonattainment in downwind areas; areas are often called emissions reduction credits (ERCs). Prior to the 1990 CAA Amendments, ERCs were still used in offsets in nonattainment areas, bubbles and netting, and banking. See generally U.S. EPA, Emissions Trading Policy Statement; General Principles for Creation, Banking, and Use of Emission Reduction Credits, 51 Fed. Reg. 43814 (Dec. 4, 1986).

14. 42 U.S.C. §§7502, 7503. Note that an area can be in attainment for one criteria pollutant and in attainment for another pollutant. As a result, both technology standards could apply to the same source and the source applicant must prepare for both PSD and nonattainment NSR, simultaneously. The nonattainment NSR requirements are more stringent than the PSD NSR requirements. The applicant should identify all technologies, including those listed in RACT/BACT/ LAER Clearinghouse (RBLC), in which EPA has maintained a list of technologies on its website that have been demonstrated to be effective on similar sources. The applicant should also consider a control technology that has successfully been applied at other source categories. U.S. EPA, Draft New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting B.11 (1990), available at http://www.epa.gov/region07/programs/arts/air onStartRemoveMemo1990erman.pdf (last visited Mar. 1, 2005) (hereinafter Draft NSR Workshop Manual). Pollution control technologies that are being successfully applied to similar sources in foreign countries are also potential candidates for BACT or LAER. Id. at B.5. While BACT is determined “on a case-by-case basis, [after] taking into account energy, environmental, and economic impacts, and other costs,” LAER is a much more demanding one, without mentioning costs and other related considerations in the relevant provision. Compare 42 U.S.C. §7479(3); 40 C.F.R. §51.166(b)(12) (BACT), with 42 U.S.C. §7501(3) (LAER). This is mainly because nonattainment areas must make reasonable further progress toward attainment, which is intended to ensure that air quality in nonattainment areas must be improved continuously, while allowing for economic growth. BACT is an emission limitation standard, which is set at the most stringent level that can be achieved by a similar source in industry unless it is provided by the applicant as innovative or economically feasible. Rieze, supra note 11, at 195. It usually requires the use of best available pollution control methods and technologies. If emissions standards prove to be infeasible, design, equipment, work practices, operational standards, or any combination thereof can be used. 40 C.F.R. §51.166(g)(12). LAER may also lack numerical emissions limitations because of “the technological or economic limitations on the application of measurement methodology to a particular class of sources, Id. §51, app. S. IV-A n.4. (“Hereafter, the term emission limitation shall also include such design, operational, or equipment standards”) (emphasis in original). EPA has allowed states instead to prescribe a design, operational, or equipment standard in the permits for these sources that in that sources are required to pursue the right mix of control options to minimize air quality impacts to the maximum extent possible. It also is comprehensive because the applicant for an NSR permit must consider all possible environmental impacts on the environment a particular technology would have, in the technology selection process. Thus, NSR is quite similar to an environmental impact analysis under the National Environmental Policy Act (NEPA) but, because of its substantive bite, NSR can be described as “NEPA with teeth.” Moreover, EPA has significant leverage over state decisions to choose NSR technology. As with the O₃ nonattainment program, NSR is the product of congressional policy judgment favoring the Act’s clean air goal at the expense of state sovereignty and industry’s operational flexibility. It constitutes an integral part of the Act’s PSD and nonattainment programs and is one of the most important tools in moving the nation toward attaining the goal of clean air for all Americans.

15. In practice, EPA has employed a “top-down” approach. Under this approach, all technologically feasible and available technology options are identified and ranked on the basis of its stringency or effectiveness, and the permit applicant has the burden to reverse the presumption in favor of the most stringent technology available, by showing why this will not be appropriate for it. See Draft NSR Workshop Manual, supra note 14. The NSR technology selection process have traditionally focused primarily on end-of-pipe, post-combustion, controls. It, however, does not necessarily mean that the chosen technology is limited to a particular pollution control technology. It may include the use of a cleaner fuel or innovative production processes, and, even, a combination of all available control methods that can achieve the maximum degree of emissions reductions. The Act authorizes such combinations subject to the weighted emission limitation standard, which is set at the most stringent level that can be achieved by a similar source in industry unless it is provided by the applicant as innovative or economically feasible. Rieze, supra note 11, at 195. It usually requires the use of best available pollution control methods and technologies. If emissions standards prove to be infeasible, design, equipment, work practices, operational standards, or any combination thereof can be used. 40 C.F.R. §51.166(g)(12). LAER may also lack numerical emissions limitations because of “the technological or economic limitations on the application of measurement methodology to a particular class of sources, Id. §51, app. S. IV-A n.4. (“Hereafter, the term emission limitation shall also include such design, operational, or equipment standards”) (emphasis in original). EPA has allowed states instead to prescribe a design, operational, or equipment standard in the permits for these sources that
energy needs has led to a highly complicated regulatory system, which is often criticized by the regulated community as burdensome, complex, time-consuming and costly, inflexible, and even frustrating good-faith efforts to improve environmental performance in pollution control technology. Given its technology-forcing nature and onerous requirements, it is not surprising that industry has every incentive to avoid NSR by taking advantage of the weaknesses and loopholes in the NSR program. A spectrum of stakeholders, including industry representatives, environmental nongovernmental organizations (NGOs), and state and federal regulators, reached a broad consensus on the need for NSR reform around the early 1990s. EPA then embarked upon a process for NSR reform by authorizing the formation of a subcommittee to the Clean Air Act Advisory Committee in 1993. Since then, especially EPA’s new NSR enforcement initiative in the late 1990s, the NSR program has been at the center of debate over how to reform this system. The stated objectives of the NSR reform seemed promising. In reality, however, EPA is caught in the middle of a tug of war between industries and environmentalists that want to shape the agenda to their own interests and values.

The new NSR rule, which was promulgated in 2003, is no exception. It creates a new controversy on its legality under the CAA, provoking another round of heated debate. The new rule is moving in the wrong direction because it strengthens a new source bias and enlarges preexisting loopholes in favor of old, dirtier sources, which have traditionally enjoyed significant cost advantages over cleaner, more energy-efficient sources under the grandfathering scheme. Allegedly minimal impacts on air quality and the nation’s decade-long transition to a multi-pollutant approach in air pollution control should not be used as an excuse for relaxing existing rules. NSR has been the center of the U.S. legal system’s failure to attain the goal of sustainable energy development. The correct direction to be taken in reforming NSR should be to incorporate sustainability concerns into legal decisionmaking processes under the CAA, e.g., through the adoption of output-based emission standards, repealing grandfathering, and/or the integration of sustainable energy development goals into NSR permitting processes.

This Article aims to discuss the problems with NSR and analyze the new NSR rule in detail. It argues that, while its impact will be minimal on electric utilities, the new NSR rule arguably violates the CAA’s “clean air” mandate because: (1) a proposed physical or operational change that would increase emissions or result in collateral emissions must go through NSR preconstruction review; (2) emissions increases and decreases to be considered in NSR applicability determinations must be contemporaneous; and (3) once NSR is triggered, the stringent technology requirement, BACT or LAER, must be applied to the sources.

Part I describes the elements of the CAA’s NSR program with much focus on baseline determinations and NSR applicability. It partially compares the preexisting rule with the new NSR rule. Part II explains why NSR has not worked as well as expected at the time of its enactment in 1977, and discusses NSR reform moves by the U.S. Congress, some states, and the previous and current Administrations. Part III examines the new NSR rule and discusses what changes in EPA’s prior position took place and the rationales for the changes given by the Agency. Part IV discusses grave concerns expressed by environmentalists and state agencies about the potential adverse impacts of the new rule on existing air quality. It then critically analyzes EPA’s current legal position and arrives at the presumptive conclusion that the new NSR rule is violative of the CAA’s clean air mandate in view of congressional intent leading to the enactment of NSR and the literal meaning of the statutory term “change.” The Article concludes with the argument that the overriding goal in NSR reform is to create a level playing field for sources, whether new or old, by building sustainability concerns into existing environmental and energy law.

I. Discussion of the NSR Program

A. In General

The essence of the PSD and nonattainment NSR programs is the requirement for preconstruction review. The owner or operator planning to construct a new major stationary source or to make a major modification to an existing major stationary source must undergo a preconstruction permitting process. Preconstruction review is designed to select proven modern pollution control technology as applied to each regulated pollutant emitted from the facility, including new emissions of a collateral pollutant. In order to obtain a preconstruction permit, the facility must prove to the permitting agency that it would not result in a violation of NAAQS or any applicable PSD regulations in local or downwind areas currently in compliance with NAAQS.

Because NSR involves a lengthy and complex process, much attention is paid to its applicability.


20. A relevant EPA report reads as follows:

For more than 10 years now, the Environmental Protection Agency (EPA) has been engaged in an effort to improve the New Source Review (NSR) Program in response to widespread concerns from stakeholders who are concerned that it is too complex and burdensome, it introduces uncertainty in planning, it inhibits industry’s ability to quickly make needed changes, and it is not working as effectively as it could be to protect air quality.


23. For permit requirements, see generally 42 U.S.C. §§7475(a); id. §7503(a) (nonattainment).
Under the CAA, stationary source means “any source of an air pollutant except those emissions [from mobile sources].” CAA §111(a)(3) further defines the term stationary source as “any building, structure, facility, or installation which emits or may emit any air pollutant.” The threshold emission levels for qualification as a major stationary source in nonattainment areas are set at a potential to emit (PTE) of more than 100 tons per year (tpy) of any pollutant subject to regulation under the CAA down to smaller amounts depending on the area’s nonattainment classification. In the case of PSD areas, the threshold is 100 or 250 tpy of any regulated pollutant under the CAA, depending on the source type. Under the NSR program, the amount of emissions is calculated based on aggregating sources located on contiguous or adjacent properties that are under common control, having the same two-digit Standard Industrial Classification code. Note that states have implemented minor source programs. Thus, even if new or modified sources do not qualify as major and, hence, are not subject to NSR, they can still be subject to minor source requirements imposed by states. A source’s emissions can include fugitive emissions.

New source is defined as any stationary source that begins construction or modification after the promulgation of proposed regulations for a source category. “Modification” means 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 pollutant not previously emitted.” These provisions are contained in the Act’s new source performance standard (NSPS) program, but the NSPS program has a purpose and scope that are wholly different from the NSR program. BACT or LAER are mass-based standards applicable only to major stationary sources, depending on the area’s air quality, is determined on a case-by-case basis, and is usually much more stringent than NSPS. On the other hand, generally speaking, NSPS is a national, uniform performance standard for approximately 69 categories, which does not mandate the use of particular technologies.

C. NSR Applicability

1. Physical or Operational Change: The Routine Maintenance Exception

The NSR program has been applicable only to major modifications that would “result in a significant net emissions increase,” and the NSR regulations establish significant emissions levels, which vary by pollutant. Therefore, determining whether a major modification has occurred is a two-prong test. First, there must be a physical or operational change at the facility. Neither Congress nor EPA has provided examples of what constitutes a physical or operational change.

2. New Source Review: The Exception for Startups

New source is defined as any stationary source that begins construction or modification after the promulgation of proposed regulations for a source category. “Modification” means 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 pollutant not previously emitted.” These provisions are contained in the Act’s new source performance standard (NSPS) program, but the NSPS program has a purpose and scope that are wholly different from the NSR program. BACT or LAER are mass-based standards applicable only to major stationary sources, depending on the area’s air quality, is determined on a case-by-case basis, and is usually much more stringent than NSPS. On the other hand, generally speaking, NSPS is a national, uniform performance standard for approximately 69 categories, which does not mandate the use of particular technologies.

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vided a clear definition of these terms. But EPA’s NSR regulations recognize that certain types of projects are exempt from NSR and, among other things, allow for the exception for routine maintenance, repair, and replacement.\(^{35}\)

While creating certain categories of NSR-exempt activities clearly makes sense, the obscurity surrounding the question of what types of projects should be considered routine maintenance has been highly controversial between regulators and industry. Most of the past and current EPA- or state-initiated NSR enforcement actions have targeted industry’s strategic behavior aimed at maximizing the use of this exemption. The routine maintenance exception has created a loophole that, if abused, could inflict significant damage on the integrity of the entire NSR program. This is especially so because a facility is not required to ask the permitting agency to determine whether the planned activity is within the scope of the routine maintenance exemption, although EPA will decide the applicability of the exemption on a case-by-case basis when asked to do so.

The court’s ruling in \(*\)Wisconsin Electric Power Co. (\*WEPCO\*) v. \(*\)Reilly\(^{36}\) provides useful guidance in this regard. Responding to the utility petitioner’s argument that its planned replacement project was within the scope of the routine maintenance exception, the U.S. Court of Appeals for the Seventh Circuit ruled in favor of EPA that it was beyond the exception and therefore was covered by NSPS and NSR, finding as a reasonable application of the relevant regulations EPA-used factors, such as the nature, extent, purpose, frequency and cost of work, for determining the applicability of the exception.\(^{37}\) The court did not agree with WEPCO that the cost, magnitude, and nature of its project were irrelevant for purposes of the routine maintenance exception to NSPS and PSD. Among others, the court regarded the following facts as decisive: (1) the project was a “life-extension” project; (2) WEPCO admitted that a project of such magnitude “would normally occur only once or twice during a unit’s expected life cycle,” and it never occurred before; and (3) it would cost at least $70.5 million.\(^{38}\) Therefore, a strong presumption can be established from a reading of the \(*\)WEPCO\* decision that maintenance projects intended to increase the life expectancy of an electric-generating unit (or other industrial units) are considered a modification (not routine), thereby triggering NSR.

In 2000, EPA’s Environmental Appeals Board (EAB) heard a case involving life-extension projects at nine electric-generating units owned by the Tennessee Valley Authority (TVA) in Kentucky, Tennessee, and Alabama.\(^{39}\) This case also involved TVA as one of the nine electric utilities against which EPA took enforcement actions in 1999. Unlike other companies, for jurisdictional concerns, EPA issued an administrative order under §§113 and 167 of the CAA against TVA whose failure to comply with the order could independently lead to severe penalties. The EPA Administrator directed the EAB to reconsider the administrative order and to issue a final order. The EAB applied a four-part test to determine whether the routine maintenance exception was applicable to the company’s projects at issue: (1) the nature and extent of the change; (2) the purpose of the change; (3) the frequency of the change; and (4) the cost of the change. It ruled that none of the TVA’s 14 life-extension projects qualified for the routine maintenance exception, thereby violating the NSPS and NSR requirements.\(^{40}\)

On July 26, 2002, the U.S. District Court for the Southern District of Indiana issued an important ruling on preliminary motions in an ongoing lawsuit involving the Southern Indiana Gas & Electric Company (SIGECO).\(^{41}\) The court held that EPA’s enforcement was not barred by the Indiana Department of Environmental Management’s (IDEM’s) previous determination that SIGECO’s plant upgrades constituted routine maintenance. SIGECO’s main argument was that the IDEM’s ruling was binding on EPA as a result of its delegation of enforcement power to the state agency.\(^{42}\) The court rejected that argument, however, finding that EPA is not precluded from bringing an enforcement action, given the broad language of §113 of the Act, which provides that EPA is authorized to enforce “any requirement or prohibition” of “an applicable implementation plan or permit,” and §111(c)(2) that authorizes EPA to enforce “any applicable standard of performance.”\(^{43}\) It held that the doctrine of equitable estoppel does not apply unless EPA “knew the facts” relating to a state agency’s ruling and had engaged in “affirmative misconduct.”\(^{44}\) This ruling was another victory for EPA which has been engaging in legal battles with large electric utility companies since 1999.

However, note that the definition of the term “significant” has been changed with respect to three newly created mechanisms designed to promote the use of clean energy technologies: plantwide applicability limits (PALs), the Clean Unit exclusion, and pollution control projects (PCPs). For sources choosing to use PALs or the Clean Unit exclusion, allowable emissions, instead of actual emissions, become the basis for demonstrating whether a significant emissions increase would result. A qualifying PCP is deemed not to result in an increase in collateral emissions if its net air quality benefits are judged as positive.

2. A Significant Net Increase in Emissions

a. An Emissions Increase: The Actual-to-Future-Actual Test

Once it is determined that a physical or operational change to a major stationary source would occur, the next step is to

35. \(^{Id}.\ \text{§§52.21(b)(2)(iii) (PSD), 52.24(f)(5) (nonattainment). This}\) exemption was added after a similar provision under the 1975 NSPS regulations.
36. \(^{893 F.2d 901, 20 ELR 20414 (7th Cir. 1990).}\)
37. \(^{See id. 910-13.}\)
38. \(^{Id. at 911-12.}\)
identify whether that change would produce a significant net increase in emissions in order for the source to be subject to NSR. The initial step for the permitting agency to take is to determine the baseline for the actual emissions before the change, which is compared to the projected post-change emissions to determine if there will be an increase in emissions before and after the modification. Under the old rule, the pre-change actual emissions were to be calculated based on the average rate in tpy, actually emitted during the previous two years, if those emissions were representative of normal operations at the unit during this time. Therefore, the baseline emissions meant a source’s actual emissions shortly before the proposed modification begins. The permitting agency was allowed to use a different time period if the source shows that it is more representative of normal operations. If that is the case, the calculation of actual emissions must be based on “the unit’s actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.” The new NSR rule replaced the 2-year time period with a 10-year look-back period except for electric-generation units.

Once the baseline is determined, the following step is to calculate projected postmodification emissions. Under the old rule, which still applies to new sources, post-change projected emissions must be equal to the PTE, which was defined as “the maximum capacity of a stationary source to emit a pollutant under its physical and operational definition.” While it was relatively easy to determine a new source’s PTE, much of the controversy over NSR applicability had centered around this issue, which was the trickiest part of NSR implementation. The PTE, as applied by EPA, was based on the presumption that the unit will run at full capacity (namely, 24 hours a day-year-round). This was the so-called actual-to-potential test. EPA had applied this test to modifications to existing sources since it is presumed that they have not begun normal operations. This test was quite onerous for most existing sources because they usually do not operate at their maximum capacity. Even after the WEPCO decision, the actual-to-potential test had been applied to all sources with the exception of fossil fuel-fired electric utilities until the new NSR rule was promulgated in 2003. As will be discussed below, the actual-to-future-actual test is in place for all sources.

As mentioned above, under the preexisting rule, there was an important exception that electric-generation units, called electric utility steam-generating units (EUSGUs), were subject to a different standard other than the PTE: the actual-to-projected-actual test that had been adopted in the 1992 regulation, known as the WEPCO rule, as a result of the 1990 WEPCO ruling. In this case, the Seventh Circuit faulted EPA for wholly disregarding past operating conditions at the facility for which an emission history could be established, so that “a more realistic assessment of its impact on ambient air quality levels is possible, and thus is directed.” The court required EPA to utilize a different calculation method for an electric steam-generating unit’s like-kind replacements of equipment if it is an established operation. After the decision, EPA’s WEPCO rule adopted an “actual-to-future-actual methodology” for changes at electric utility plants except the construction of a new unit or reconstruction of an existing emissions unit. Under this formula, the premontification actual emissions are compared to the projected postmodification actual emissions, and the baseline emissions are calculated based on the highest hourly emissions rate achievable in any two-year period within a five-year period preceding the proposed change. For verification purposes, a utility must monitor actual emissions after the modification and report data and information to the permitting agency for the first five years. In some cases, EPA or the state agency may extend a monitoring period up to 10 years if the 10-year period is determined to be more appropriate. Also, the new regulations exempted emissions increases due to demand growth. Increases in emissions caused by high market demand for electricity may not be included in the calculation of projected-future-actual emissions. Understandably, however, it is a very difficult task to distinguish between increased emissions due to demand growth and those emissions increases from the physical or operational change. EPA conceded this problem and proposed to eliminate the demand growth exclusion in its 1998 Notice of Availability.

47. Id. §52.21(b)(21)(ii) (pre-2002 NSR rule). This provision was heavily influenced by the WEPCO decision.
48. Id.
49. Id. §§52.21(b)(48), 51.165(a)(1)(xxv), 51.166(b)(47) (2003).
50. Id. §52.21(b)(4) (pre-2002 NSR rule).
51. See 893 F.2d at 901. EPA’s continued use of the actual-to-potential test was upheld by federal courts. See, e.g., Puerto Rican Cement Co. v. EPA, 889 F.2d 292, 20 ELR 20259 (1st Cir. 1989).
ever, the 2003 new NSR rule extends the WEPCO rule and the demand growth exclusion to all other industries. The only difference between EUSGUs and other sources is that a 10-year look-back period applies to the latter in calculating baseline emissions. The owner or operator of an existing source is now allowed to project future-actual emissions based on historical data on its operations during any one of the 5 or 10 years immediately preceding the proposed change.

The final element in determining NSR applicability is that an increase in emissions must be a net increase. Therefore, the reviewing authority must determine if there will be a net increase in emissions. Net emissions are determined after considering “[a]ny other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the [proposed] change,” in addition to the projected increase in emissions from the change. Under the

changes versus purely independent demand-satisfying increased capacity utilization will be much more difficult in the future, as restructuring in the electric power industry allows electric-generating companies to compete for retail customers. As a result, the marketplace will drive electric generators to function as any other consumer-driven industry, that is, to ensure their ability to supply the market and collaterally to increase their revenues. In addition, as utilities respond to a competitive market for the generation of electric power they can no longer be expected to accurately predict their level of operations and post-change emissions. Each physical or operational change that makes it possible for a source to efficiently increase its level of utilization, then, will likely be pursued and turned into electricity for sale.


62. Id. §52.21(b)(3) (emphasis added). The current regulations for netting was heavily influenced by the D.C. Circuit’s 1979 decision in Alabama Power Co. v. Costle, 636 F.2d 323, 402, 10 ELR 20001 (D.C. Cir. 1979). The court stated: “The Agency retains substantial discretion in applying the bubble concept. First, any offset changes claimed by industry must be substantially contemporaneous. Second, the offsetting changes must be within the same source, as defined by EPA.” (emphasis added). The use of netting was finally upheld by the Court in the famous Chevron case. Chevron, U.S.A., Inc. v. Natural Resources Defense Council, 467 U.S. 837, 14 ELR 20507 (1984). The Court observed that the PSD and nonattainment NSR permit program “represented a significant and substantial tool for public health and welfare as that attributed to the increase from [the proposed modification];” and (4) not result from the use of the “add-on control technology or application of pollution prevention practices” relied on by the source in qualifying for the Clean Unit exemption. These requirements are designed to prevent “paper credits” from being used and to ensure that offset trading must represent real progress toward attainment of NAAQS. In 1979, EPA proposed a premodification notification requirement with regard to netting, but it was never adopted due to objection from industry. As a result, currently the owner or operator planning a change to his facility that has the potential to significantly increase net emissions may forego NSR completely using a netting mechanism, and is not required to notify EPA or the state permitting agency of it. This lack of control over netting practices has been the target of criticism by environmentalists for creating another significant loophole, along with the routine maintenance exclusion, that has allegedly been taken advantage of by industry, especially grandfathered coal-fired electric utilities. There is little data available concerning how frequently


63. 40 C.F.R. §52.21(b)(3)(ii). See also id. §§51.165(a)(vi), 51.166(b)(3). Net emissions after the change are equal to the projected emissions increases from the baseline plus plantwide credit minus plantwide creditable decreases. Note that states may use a different time period in calculating a net emissions change.


65. See 40 C.F.R. §§52.21(b)(3)(iii)(a)-(b).

66. Id. §52.21(b)(3)(v).

67. Id. §52.21(b)(3)(vi)(a)-(d).

68. U.S. EPA, Requirement for Preparation, Adoption, and Submittal of State Implementation Plans; Approval and Promulgation of State Implementation Plans, 45 Fed. Reg. 51923 (Sept. 5, 1979). However, EPA stressed that “owners and operators are hereby put on notice that they should maintain sufficient records regarding contemporaneous emission increases and decreases so as to verify no permit was required.” See 45 Fed. Reg. 52676. EPA added a similar requirement to the 1975 NSPS regulations, but it was subsequently removed.
netting actually is used. According to one study, approximately 800 netting transactions took place in between 1974 and 1989. An estimated cost savings were somewhere between $25 million and $300 million, which mostly came from avoiding costs associated with permitting processes and installing modern pollution control.

It is important to note, however, that the new NSR rule has changed the preexisting netting policy in a significant way by adopting the new definition of baseline emissions (in other words, changing the prior definition of the statutory term “change”). Thus, the baseline year is not the year when the proposed construction actually takes place, but any year in a 10-year look-back period during which the highest emissions were ever recorded.

II. NSR Failures and the Movement to Reform the Current NSR Program

A. Grandfathering Under the CAA

The perceived failures of NSR are attributable to grandfathering under the CAA. Old sources were exempted because it was thought to be more economically efficient to mandate the installation of new pollution controls at the time existing facilities would be upgraded, rather than requiring those facilities to be retrofitted immediately. Congress expected many of the existing plants would soon be retired and replaced with new ones, and that future technological breakthroughs would make the costs of state-of-the-art pollution control technologies significantly lower. Unlike Congress’ expectations, however, the dichotomy between new and existing sources has allowed grandfathered major sources to stay operational beyond their expected life cycle without being subject to NSPS and NSR requirements. Notably, electric utilities have kept their old coal-fired electric units operating beyond life expectancy. Few new coal-burning electric power plants have been constructed since 1980, and preconstruction permits for major modifications have rarely been issued to grandfathered coal-fired power plants. Most of the new power plants have been gas-fired plants. Grandfathering facilitated gaming of the NSR program by the electric power industry which took advantage of the routine maintenance exception and netting to forego NSR altogether. This has given huge cost advantages to old, dirty coal-burning power plants over oil- and gas-fired power plants, and renewable energy facilities. It creates an uneven playing field in the energy sector and thus frustrates efforts to promote efficient use of energy and renewable energy development. It apparently contravenes the “polluter-pays” principle enunciated in various international environmental agreements, and is the most significant hurdle for the United States to moving toward achieving the future energy policy goal of sustainability.

Electric utilities are by far the nation’s largest polluters. Old and energy-inefficient coal-fired power plants release into the atmosphere significant amounts of SO2, NOx, and PM, as well as CO2, disproportionately compared to other stationary sources, even over 30 years after the passage of the 1970 CAA. In 1998, electric utilities were responsible for 25% of national NOx emissions, 67% of SO2 emissions, and 8% of PM10 emissions, respectively. Electricity generation was responsible for approximately 40% of national CO2 emissions in 2001, which are believed to be associated


69. Robert W. Hahn & Gordon L. Hester, Where Did All the Markets Go? An Analysis of EPA’s Emissions Trading Program, 6 YALE J. ON REG. 109, 133 (1989). In this article, the authors observed: From available data it appears that netting is the most commonly used emissions trading activity by a wide margin. In 1984, the only year for which detailed data are available, an estimated 900 sources used netting. This is about fifteen times as often as offsets were used during the same year, and it is far more often than bubbles have ever been used.

Id. (citations omitted).

70. Id. at 136.


72. See id.

73. Although EPA’s NSPS regulations were revised several times, old electric power plants are still running, thereby even avoiding NSPS requirements. See Arnold W. Reitze Jr., State and Federal Command-and-Control Regulation of Emissions From Fossil Fuel Electric Power Generation Plants, 32 ENVTL. L. 360, 380-83 (2002). Grandfathering is not limited to NSPS and NSR. Prior to the enactment of the 1990 CAA Amendments, grandfathered power plants were allowed to disperse their emissions using tall smokestacks. They were subject to less restrictions when compared to new units. With the acid rain program being implemented, however, they may not use that option, since it must reduce their SO2 and NOx emissions to the levels set by the Act or the regulations.
with global climate change. The heavy use of coal for electric generation significantly contributes to acid deposition and precipitation, ground-level O₃ formation, reduced visibility in pristine areas, and global climate change. Moreover, in today’s deregulatory environment in the electricity markets, there is also concern among the environmental community that coal-fired power plants with cost advantages will be more fully utilized. This implies that the nation’s air will be dirtier and greenhouse gas (GHG) emissions will increase. Given the fact that air pollution problems root in the massive use of fossil fuels for electricity production, regulation of CO₂ and NSR reform could produce synergistic effects. Inducing the retirement of grandfathered coal-fired power plants and promoting energy efficiency and use of renewable energy sources should be a top priority goal. It should be pursued through legal reforms that aim to align energy production with environmental goals.

B. Federal and State Efforts to Repeal Grandfathering

1. Congressional Efforts

Several bills were proposed in Congress that would have removed the grandfathering of old coal-fired power plants. On October 9, 1990, one U.S. Senate bill, sponsored by Sen. Joseph Lieberman (D-Conn.), would have required some fossil fuel-fired electric-generating units constructed after August 17, 1971, to be subjected to the same emissions standards those applied to new or modified units. Affected units would be fossil fuel-fired steam-generating units with the capacity of 25 megawatt hours (MWhs) and interconnected to the interstate electrical transmission grid for the wholesale sales of electricity. The bill would have allowed five years for those affected units to comply with its mandate, and directed EPA to develop an emissions trading mechanism to help affected units meet its deadline. On November 7, 1997, a similar bill was introduced in the U.S. House of Representatives by Rep. Frank Pallone (D-N.J.). This House bill provided for a nationwide cap-and-trade program for NOₓ and PM₂.₅.

2. State Action

Some states have moved to eliminate the grandfathered status of old electric power plants, and/or to adopt a multi-pollutant trading strategy which may include CO₂ emissions control. On May 17, 2000, the governor of the state of Connecticut signed an Executive Order directing the Connecticut Department of Environmental Protection to develop regulations no later than May 1, 2003, to reduce annual SO₂ and NOₓ emissions from 61 major sources, including all fossil fuel-fired power plants, by 30-50% and by 20-30%, respectively. The final regulations, which were promulgated on December 28, 2000, require covered facilities to take NOₓ control measures throughout the year. The regulations extend the coverage of the SO₂ acid rain program to 61 from 28 units. They also require the 28 units to retire some of their SO₂ allowances, which were initially allocated under Title IV. Emissions trading may be used to comply with the NOₓ and SO₂ reduction requirements.

In 2001, Texas enacted legislation to phase out grandfathering of one-third of the state’s industrial facilities, under which those in East Texas must go through permitting by 2007, and other facilities by 2008. The same year, Massachusetts promulgated a regulation requiring fossil fuel-fired boilers, including indirect heat exchangers with a nameplate capacity of 100 MWhs or more, to meet output-based emission rate standards that would cut NOₓ emissions by 50% and SO₂ emissions by 74%. This regulation covers mercury, CO₂, and fine particle emissions from power plants and employs a credit trading mechanism.
New Hampshire’s Clean Power Strategy placed caps on emissions of four covered air pollutants owned by Public Service Company of New Hampshire. It expects to cut 75% of SO₂ and mercury emissions and 70% of NOₓ emissions from baseline levels. This strategy also required a 7% reduction of CO₂ emissions by 2010, which is the same as the reduction target for the United States under the Kyoto Protocol. The state of New Hampshire employs a cap-and-trade approach, in which the company is allowed to comply with these requirements using credits earned by purchasing from outside sources or banking its future emissions, and offers several other incentives designed to lower compliance costs and encourage the timely attainment by the company of the reduction goals.

The state of Illinois directed the Illinois EPA to issue findings about the need for controlling emissions from power plants by September 30, 2004, and, if needed, to propose rules containing options to reduce those emissions to be finalized by the Illinois Pollution Control Board. On June 20, 2002, North Carolina enacted its Clean Smokestacks bill requiring 14 coal-fired power plants to reduce NOₓ emissions 77% by 2009, and SO₂ emissions 73% by 2013, from 1998 baseline levels.

C. EPA’s Enforcement Initiative

As a response to perceived failures of the NSR program discussed above, EPA mounted enforcement actions against coal-fired power plants owned by seven large electric utilities in midwestern and southeastern regions during the Clinton Administration. This enforcement initiative targeted the industry’s decade-old practice in which electric utilities made component replacements incrementally for the purpose of maintaining reliability, efficiency, and safety of electric-generating plants. It also included enforcement actions against the refinery, wood products, and other industries. EPA’s changed position was based on its 1998 NSR guidance, which adopted a more stringent definition of modifications. According to the NSR guidance, there were two scenarios in which NSR requirements could be invoked: (1) when a stationary source exceeded an applicable major source threshold level without obtaining a preconstruction permit; and (2) when a stationary source with a synthetic minor permit exceeded an applicable major source threshold level in violation of the permit limitation. In both situations, violating sources would be required to undergo the NSR process. EPA’s theory of liability was threefold: (1) utility life-extension projects replacing major components of the unit are not considered routine; (2) the reduced hours of operation during interim shutdowns or curtailments are excluded when the physical construction is involved; and (3) component repair or replacement projects that caused forced outages or deratings can always be projected to increase the utilization of the unit after the project. EPA intended to narrow or close a loophole in the NSR program that it believed was being taken advantage of by regulated industries to forego NSR using the routine maintenance exception. While many electric utilities alleged that EPA’s new interpretation constituted a rulemaking without fair notice as required by the Administrative Procedure Act (APA). The panel reasoned that, notwithstanding explicit congressional intent, the statutory scheme was unconstitutional as drafted that authorizes EPA to impose penalties for failure to comply with an administrative order without any provision for affording challengers due process rights. It concluded that, since a mere failure to comply with an administrative order cannot be allowed to deprive any person of his property or liberty, the order at issue is not final agency action subject to judicial review. See supra Part I.C.1. and text accompanying note 40. On December 22, 2000, EPA sued Duke Energy in the U.S. District Court for the Middle District of North Carolina. DOJ NSR REPORT, supra, at 15.

93. Id. at 71, tbl. 11-2.
94. Id. at 71-80.
98. See id. at 17-19 and 43, app. II; Christopher W. Armstrong, EPA’s New Source Review Enforcement Initiative, NAT. RESOURCES & ENVT’Y, Winter 2000, at 203, 203-04. EPA’s NSR enforcement began in the late 1980s. The early enforcement actions were filed against the wood products industry. The WEPCO decision was an ignition point for enforcement actions against large electric utilities. Beginning in the mid-1990s, EPA’s Petroleum Refinery Initiative addressed possible NSR violations in the refinery industry. See DOJ NSR REPORT, supra note 97 at 11-19.
100. See id. at 3-6. EPA said that “as part of an EPA settlement, the Consent Decree should require a minimum level of control which the Agency believe[d] ensures BACT/LAER-equivalent emission reductions.” Id. at 3. To avoid the NSR requirements, a new source or an existing source opting in to the old actual-to-potential test can voluntarily choose to become a “synthetic minor source” by agreeing to a permit condition setting a federally enforceable emission limit on the changed unit, which imposes restrictions on its operations, such as hours of operation less than full capacity, the use of pollution controls, and changes in production. See NSR BACKGROUND PAPER, supra note 28, at 6-7; Letter from Francis Lyons, supra note 45, at 18.
Procedure Act (APA), some of the offending power plants facing EPA enforcement actions agreed to the installation of control equipment or implementation of process changes that were equivalent to NSR requirements through settlement with EPA.

D. The Overhaul of EPA’s Enforcement Initiative

1. The National Energy Policy Group’s Report to the President

EPA’s enforcement campaign was subject to a possible change when the current Bush Administration took office. In late January 2001, the Bush Administration convened a National Energy Policy Development Group (NEPD) to be headed by Vice President Dick Cheney. The NEPD submitted its 170-page report to the president on May 16, 2001. The NEPD recommended in its report that the president direct federal agencies to review the NSR program. Accordingly, President George W. Bush ordered EPA to conduct a 90-day review of the NSR regulations and asked the U.S. Department of Justice (DOJ) to independently determine whether EPA’s enforcement campaign was consistent with the CAA or its implementing regulations, or whether it constituted administrative rulemaking within the meaning of the APA. Shortly thereafter, Eric Schaeffer, EPA Director of the Office of Regulatory Enforcement, resigned in a protest to the new Administration. In his resignation letter, he strongly criticized the Bush Administration for its hostility to the Agency’s NSR enforcement campaign.

2. The DOJ’s NSR Report

On January 15, 2002, the DOJ published its NSR report. The DOJ’s NSR report almost exclusively focused on the routine maintenance exception. It asked: (1) whether the enforcement actions constitute “a substantive change in EPA’s interpretation of the CAA and its regulations that would require APA-compliant notice-and-comment rulemaking”; and (2) whether, despite a lack of administrative rulemaking, EPA’s interpretation of the routine maintenance exception is “reasonable” in light of the Act and its implementing regulations, and prior guidance documents. Based on a reading of the applicable case law, the DOJ found administrative rulemaking procedures unnecessary because it believed that EPA’s legal position in the enforcement actions against large electric utilities could be categorized as being interpretive and “did not constitute a departure from a prior authoritative interpretation of ‘routine maintenance.’” Moreover, the report emphasized that EPA was entitled to Chevron deference in its interpretation of the CAA, and that it deserved utmost deference as announced in Bowles v. Seminole Rock & Sand Co. in the interpretation of its own implementing regulations. It finally concluded that it would continue to pursue the enforcement actions pending in federal courts.

In this regard, on October 24, 2002, the Southern District of Indiana held that EPA’s interpretation did not constitute a rulemaking in violation of the APA. There exists an authoritative judgment that EPA’s enforcement actions are not unlawful. However, the reason why the pace of the litigation has been slow thus far is that EPA has to prove facts which often spanned more than two decades. Most of the reviewing courts did not enter summary judgment for EPA.

3. EPA’s 90-Day NR

For its part, EPA finalized its 90-day review of the NSR pro-

102. 5 U.S.C. §§551 et seq., available in ELR STAT. ADMIN. PROC.


105. It recommended to the president that EPA, in consultation with the Secretary of Energy and other federal agencies, “review New Source Review regulations, including administrative interpretations and implementation, and report to the president within 90 days on the impact of the regulations on investment in new utility and refinery generation capacity, energy efficiency, and environmental protection.” It also recommended that the DOJ “review existing enforcement actions regarding New Source Review to ensure that the enforcement actions are consistent with the Clean Air Act and its regulations.” Id. at 7-14.

program in June 2002. EPA’s final report borrow largely from the findings of its previous study of NSR and comments from various stakeholders, including members of the general public. It addressed the impacts of the NSR program on capital investment in the energy sector, especially for electric utilities and refineries. This issue had important implications for the adequacy and reliability of the nation’s energy supplies. EPA’s findings were twofold. For new power plants and refineries, EPA found that

the NSR program has not significantly impeded investment in new power plants or refineries. For the utility industry, this is evidenced by significant recent and future planned investment in new power plants. Lack of construction of new greenfield refineries is generally attributed to economic reasons and environmental restrictions unrelated to NSR.

For existing power plants and refineries, EPA concluded that

the NSR program has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency and safety of existing energy capacity. Such discouragement results in lost capacity, as well as lost opportunities to improve energy efficiency and reduce air pollution.

EPA’s findings appeared to favor more to industry’s dominant view that the NSR program “discourage[s] investment in both preserving and maintaining utility and refinery generating capacity as well as in improving energy efficiency and expanding capacity.” Furthermore, whereas it said there is no question that the NSR program has made a significant contribution to improving the nation’s air quality, EPA stated that


118. See id.

119. See id. at 2-3.

120. Id. at 1.

121. Id. at 2.

122. See id. at 8-21. However, it did not make any definitive findings supported by fresh data and rigorous analysis. EPA based its findings more on general perceptions among industry than on hard evidence. Its New Source Review Background Paper did find that “capital expenditures for air pollution control as a percentage of total capital expenditures on new plant construction are significantly lower than those expenditures on existing plants.” NSR Background Paper, supra note 28, at 18. It noted that it could not answer the question of “whether or not NSR had affected the economic behavior of new plant owners or developers.” Id. at 21. If it then illustrated a number of factors that may contribute to cost increases, such as the costs of pollution controls, and time delays, complexity and regulatory uncertainty, commonly associated with NSR. Id. at 21-23. It did state, however, that these costs were difficult to quantify, and referred to comments and studies that argued economic factors, not environmental regulations, are decisive in making siting and expansion decisions. Id. at 24. As for the refinery industry, it found that pollution control costs constituted a small portion of capital investment. Id. at 41-42. Then EPA either summarily concluded that NSR has impeded or resulted in the cancellation of projects that would maintain or improve reliability, efficiency or safety of existing power plants and refineries.

123. It conceded the difficulty of quantifying the benefits in the report, but its NSR Background Paper did estimate that as a result of NSR 4.1 million tons of all regulated air pollutants per year were avoided [it] also believes, however, that for particular industry sectors the benefits currently attributed to NSR could be achieved much more efficiently and at much lower cost through the implementation of a multipollutant national cap and trade program. In particular, the President’s Clear Skies initiative is a much more certain and effective way of achieving emissions reductions from the power generation sector.

There may be some truth in these findings in view of the time delays and costs associated with the NSR process itself. Perhaps, NSR may have “failed to accommodate adequately industries with short product cycles and large-scale batch production, affecting them in ways that may reduce their competitiveness.” But the findings and industry comments seemed to reaffirm the common understanding that the NSR program has not worked as intended at the time of its enactment. They also implied that the CAA’s NSR scheme may have been gamed by some industries. The low number of NSR permits issued to old, dirtier electric power units and cost disparities between grandfathered and new power plants dictate this conclusion. Therefore, it is one thing to say that NSR reform is needed, and it is another to argue that NSR itself is to blame for its alleged failures to induce clean energy development. The challenge is how to design the regulatory structure in a way that distinguishes good- and bad-faith players and rewards the former. There also is a need to level the playing field for alternative energy resources, which, thus far, have been disadvantaged under the current regime.

E. A Multi-Pollutant Trading Approach at the Federal Level

1. Four-Pollutant Bills

There have been legislative efforts to introduce multi-pollutant bills primarily targeting the electric utility industry. This move is inspired largely by the relatively successful performance of the acid rain program under the 1990 CAA. On the other hand, it derives in part from the widespread recognition that it is much more economical to concentrate regulatory energy and efforts on the electric utility industry often characterized by inefficiencies. The so-called four-pollutant bill, called the Clean Power Act, was introduced in the Senate to mandate reductions in SO2, NOx, mercury, and CO2 emissions from electric power generators using a cap-and-trade approach on a pollutant-by-pollutant basis. This Senate bill would require the electric-generating industry to cut 75% of its SO2 and NOx emissions, 90% of its neurotoxin mercury emissions, and 20% of its CO2 emissions, respectively, and calls for implementation of policies such as strengthened efficiency standards for buildings and appliances, and incentives for development of renewable energy sources. But it is now being stalled in the
face of opposition to the inclusion of CO₂ as one of the covered pollutants.128

2. Three-Pollutant Bills: The Bush Administration’s Clear Skies Initiative

President Bush has pushed the Clear Skies Initiative (three-pollutant bill),129 and, on February 27, 2003, S. 485 and H.R. 999, known as the Clear Skies Act of 2003, were introduced in both houses of Congress, which would create a cap-and-trade program for SO₂, NOₓ, and mercury for electric utilities, with a possibility of future downward cap adjustments, and deadlines of 2008, 2010, and 2018.130 This bill would exempt all changes at existing sources, called “affected units,” from NSR requirements, and would require that new sources meet NSPS rather than BACT or LAER. A stationary source qualifies as an affected unit if it satisfies the requirement that its operational changes not “increase the maximum hourly emissions of any air pollutant achievable at the unit during the last five years.”131 Therefore, the proposed bill tried to amend the current law concerning NSR preconstruction review. EPA’s recent NSR reform efforts have been based on this bill’s basic scheme.132 On the other hand, the Clear Skies Initiative is designed to reduce carbon intensity by encouraging electric power plants to develop clean coal technologies with regard to CO₂ emissions and by supporting other programs to enhance energy efficiency and to develop renewable energy resources and clean fuels.133 Carbon intensity is “the ratio of [GHG] emissions to economic output,” and President Bush’s plan aims to reduce carbon intensity by 18% in the next 10 years.134 This effort could be promising, given the fact that energy-related CO₂ emissions contribute over 80% of national GHG emissions. But it appears that the plan will not greatly help the nations to achieve the Kyoto Protocol target, or even the stabilization goal of the Climate Change Convention, because it does not impose any legal obligations on industry to reduce CO₂ emissions, and because the U.S. economy is expected to continue to grow. In its 2002 report to the United Nations, the U.S. Department of State projected that GHG emissions would increase by 42.7% until 2020.135 It is expected that political support would increase for addressing global warming through regulation of CO₂ as an air pollutant, but, as of now, the lack of political enthusiasm remains a significant obstacle to establishing a nationwide global warming strategy.

After a series of energy bills had been defeated in Congress, EPA announced that it would pursue a regulatory approach until a White House-sponsored three-pollutant bill is passed.137 On March 15, 2005, it promulgated regulations, which would adopt an emission trading mechanism for utility SO₂, NOₓ, and mercury emissions.138 Under the finalized rules, the current SO₂ cap emissions would be further tightened and NOₓ control would become more stringent.139 However, the exclusion of CO₂ may increase the long-term costs of CO₂ control by postponing the issue of regulation of CO₂ to a future day, and could have chilling effects on voluntary efforts by the private sector and some states to reduce CO₂ and other GHG emissions.

III. The 2002 New NSR Rule

On December 31, 2002, EPA promulgated new NSR rule, which took effect on March 3, 2003.140 The same day, it published a proposed rule for changing a regulatory definition for the “routine maintenance, repair, replacement exemptions.”141

128. This bill was reintroduced in 2003, S. 366 and H.R. 2042, 108th Cong. (2003). This bill had a “birthday” provision that would require existing power plants to meet NSR and NSPS requirements 30 years from either the date of the plant began operation or 10 years after passage of the bill, whichever is later. For updated information about congressional activity, see Pew Center on Global Climate Change, President Bush's Clear Skies Plan Moving Slowly in Both Houses; Senate Markup Planned, 34 Env’t Rep. (BNA) 2009 (2003).


133. Id.


135. Id.


139. Eric Pianin, EPA Aims to Change Pollution Rules: Utilities Could Buy Credits From Cleaner-Operating Power Plants, WASH. POST, Dec. 5, 2003, at A2. The final rules are based on proposed rules dated January 30, 2004. Under the proposed interstate air quality rules, a cap on SO₂ emissions would be further tightened in the eastern half of the United States beyond the current level required under the Act’s acid rain program. 69 Fed. Reg. at 4617. This was possible by applying a new PM₁₀ standard in view of the fact that SO₂ emissions are main precursors to fine particle pollution and regional haze. And, more areas and sources would have to comply with more stringent NOₓ control requirements under the new eight-hour O₃ standard. EPA proposed to find that NOₓ emissions from sources in 25 states and the District of Columbia significantly contribute to the nonattainment of the new eight-hour O₃ NAAQS, in downwind areas. Id. at 4570. Since NOₓ emissions are also precursors to the formation of fine PM, NOₓ reduction requirements would be imposed throughout the year in areas found to significantly contribute NOₓ emissions to PM₁₀ nonattainment downwind. See id. at 4633. In the final rules, EPA made relatively minor changes to the proposed rules by reducing the number of covered states subject to new fine particle-related SO₂ and NOₓ reduction requirements based on new modeling results, by adding such new features as opt-in requirements, and by deciding to apply new NOₓ reduction requirements one year earlier. For a concise summary of the final rules, see U.S. EPA, BASIC INFORMATION (2005), available at http://www.epa.gov/cair/basic.html.

140. 67 Fed. Reg. at 80186.
A. A 10-Year Look-Back Period and the Actual-to-Projected-Future-Actual Test

Generally speaking, the December 31, 2002, rule was based on the 1996 NSR reform proposal. Its key provisions can be summarized as follows. The actual-to-projected-future-actual test is extended to all source categories. The new rule did not adopt the potential-to-potential test proposed by some members of the electric utility industry. Sources have the option to choose between the preexisting actual-to-potential test and the new actual-to-future-actual test. Sources choosing the former are not subject to recordkeeping requirements that otherwise apply to sources using the actual-to-future-actual test. The actual-to-future-actual test allows source owners to project future actual emissions based on projected capacity and usage, historic trends and emissions from the unit before the modification, and other emissions factors, during any one of the 5-10 years immediately preceding the proposed change.

Different time periods for determining the baseline emissions apply: a 10-year look-back period for all industries, except for EUSGUs that is still subject to the WEPCO rule’s five-year period. Sources, except EUSGUs, may use any consecutive 24-month period in the past 10 years. They may consider “the utilization rate of the equipment, fuels and raw materials used in the operation of the equipment, and applicable emission factors.” However, past emissions that are not allowed under “the most current legally enforceable limits” applicable to the changed unit must not be included. For EUSGUs, the baseline emissions are the average emission rate, in tpy, of any regulated pollutant during any two years within the five-year period shortly before the proposed construction begins.

The new rule not only retained the demand growth exclusion, which had been applied to electric utilities as part of the WEPCO rule, but also extended the exclusion to all sources. Therefore, sources “could exclude emissions resulting from increased utilization due to demand growth that the unit could have accommodated before the change” in calculating projected future emissions or establishing PALs. This was in stark contrast to EPA’s position in its 1998 Supplemental Notice. Furthermore, the source owner is not subject to rigorous reporting requirements.

B. PALs

PALs can only be established through a public comment process. A PAL is one option that sources can use to avoid NSR. It establishes a plantwide emissions cap for any regulated pollutant, which is similar to a bubble concept. As long as a PAL is not exceeded, a source can increase its emissions without triggering NSR, thereby affording maximum flexibility. If PALs are set in an environmentally friendly manner and can actually be successful in giving incentives for source owners to install state-of-the-art pollution control equipment or processes, they could make a significant contribution to achieving the dual goals of NSR reform: environmental protection and economic growth. EPA used the term “baseline actual emissions” instead of “actual emissions” that it had used in its 1996 NSR reform proposal. While in its 1998 notice it had said that it considered requiring facilities to consider contemporaneous emission decreases and increases, EPA stated that “there is no need [ ] to quantify contemporaneous emissions increases and decreases for individual emissions units.”

141. Id. at 80290.
142. U.S. EPA, Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Equipment Replacement Provision of the Routine Maintenance, Repair, and Replacement Exclusion, 68 Fed. Reg. 61248 (Oct. 27, 2003). The purpose of this new rule is to maintain and improve safety, reliability, and efficiency. Id. at 61252. It contains two key features, which all aim to simplify the applicability of the routine maintenance exception, thereby offering regulatory certainty. First, it established the cost threshold at 20% of the cost to replace the entire process unit. To qualify, replacement equipment must be “functionally equivalent,” which means it serve the same function and basic design parameters as the old one, such as heat input and fuel consumption. Id. Second, activities whose cost are below an annual maintenance allowance to be set by EPA on an industry-by-industry basis would be exempt from NSR. Id. Because of a lot of controversy about this second option, EPA did not finalize it in issuing the final rule. Id. (“We have decided, for now, not to take final action on the proposed annual maintenance, repair and replacement allowance approach.”). As a result of this final rule, many of the changes to existing sources that would otherwise trigger NSR under the CAA will be out of NSR altogether. EPA’s position on the routine maintenance exception is well reflected in its pronouncement of NSR recommendations, which had been published immediately before the 2002 new NSR rule was proposed. See U.S. EPA, NEW SOURCE REVIEW, NEW SOURCE REVIEW RECOMMENDATIONS 4-6 (2002).
144. 67 Fed. Reg. at 80189.
145. Id.
146. Id.
147. Id.
148. Id. at 80196.
149. Id. at 80195.
150. Id.
151. Id. at 80189.
152. Id. at 80192.
153. See 63 Fed. Reg. at 39860-61 (stating that the exclusion “ignore[d] the realities of a deregulated electric power sector,” and that its “self-implementing and self-policing” mechanism created enforcement problems).
154. 67 Fed. Reg. at 80206. The applicant must go through all applicable procedural requirements, under the state’s minor NSR permit program or the Title V operating program. “Where the PAL is established in a major NSR permit, major NSR public participation procedures apply.” Id. at 80208.
155. As a practical matter, PALs can be established for more than one pollutant. See id.
156. Id. at 80206.
158. Id. at 80206-07; see also 63 Fed. Reg. at 39863 (pointing out that PALs could function as another loophole for avoiding NSR if the contemporaneity requirement as dictated by the Alabama Power court is not applied). EPA noted: We believe that the concept of contemporaneity, as articulated in Alabama Power and as set forth in the regulations governing the major NSR program, does not apply to PALs. The PAL program differs in certain important respects from our current regulations and from the 1978 regulations at issue in Alabama Power. The Alabama Power court was not presented with the PAL approach for determining whether there was an increase in emissions and did not consider whether the principles it set forth in its opinion would apply to such an approach.
159. 67 Fed. Reg. at 80215.
A PAL is the sum of the baseline actual emissions plus an amount equal to the applicable significant level for the covered pollutant. The formula for establishing a PAL is complicated. The calculation of the baseline emissions distinguishes between existing units with more than a two-year operating history and new units with less than a two-year operating history. The first step is to calculate the baseline actual emissions based on the average emission rates, in tpy, of existing units for the covered pollutant that existed during any consecutive 24-month period chosen by the applicant within the 10-year period immediately preceding the change. The second step is to add emissions equal to PTEs of existing and new units that were constructed since the 24-month period and then to subtract the emissions of any units that was “permanently shut down” or dismantled since that time period. Baseline emissions must reflect currently available technology requirements. A PAL’s facilitywide emissions cap should consider fugitive emissions to the extent it is quantifiable. The permitting agency must include a PAL in a federally enforceable permit. It must specify in the permit that a reduced PAL level would be imposed at the time any applicable federal or state requirements that it is aware of prior to issuing the permit.

A PAL will be valid for 10 years. It would be renewed for another 10 years if there is a timely request for renewal and the reviewing authority approves it. At renewal time, the PAL must be revised in consideration of newly applicable requirements. Where a source’s PTE has declined below the PAL, the new PAL must be readjusted at a level that does not exceed its PTE. Besides these requirements, in general, the reviewing authority has great discretion to choose the new PAL. It can approve the application without any adjustments to the original PAL if the sum of the baseline actual emissions plus an amount equal to the applicable significant level for the covered pollutant is equal to or greater than 80% of the PAL level. If it is less than 80%, the authority may create a new PAL level that is more representative of the source’s actual emissions, or taking into account other relevant factors. Despite emissions increases exceeding the plantwide emissions cap, the PAL may be adjusted upward without triggering NSR requirements if it is demonstrated that the owner is unable to reduce emissions levels below the PAL even with BACT-equivalent technology being applied to units that have a PTE greater than the applicable significant level. Otherwise, all exceedances above the PAL must go through NSR. Readjustment decisions during the 10-year term are largely at the discretion of the reviewing authority with some exceptions.

Any monitoring system must be “based on sound science and must conform to generally acceptable scientific procedures for data quality and manipulation.” Any monitoring system contained in the permit must satisfy the minimum requirements as required by the rule. Monitoring systems must be able to precisely quantify the emissions from each unit on a 12-month rolling basis. But this does not mean that the use of a continuous emissions monitoring system (CEMS) or other rigorous monitoring requirements is mandated. The source may employ emission factors to monitor actual emissions at each unit. Sources must use “current emissions or other current direct measurement data.” The reevaluation of the data must occur “at least once every 5 years” for the PAL term, using “a performance evaluation test or other scientifically valid means [] approved by the reviewing authority.” Then the final rule provided for minimum recordkeeping requirements. The facility owner must submit a semiannual emissions report to the authority.

159. 67 Fed. Reg. at 80208. The 1996 NSR reform proposal used the language “a reasonable operating margin less than the applicable significant emissions rate.” 61 Fed. Reg. at 38265. The final rule has instead chosen “the applicable significant amount” as specified in the NSR regulations or the CAA. For explanation on the part of EPA, see 67 Fed. Reg. at 80218-19.
161. Id. EPA said that “you will have broad discretion to select any consecutive 24-month period in the last 10 years to determine the baseline actual emissions.”
162. Id. at 80208-09. For EUSUGs, however, a different formula is applied. Whether nor not a shutdown is considered permanent is decided on a case-by-case basis considering all relevant facts and circumstances. The foremost consideration is the intention of the owner or operator of the unit at issue. There is a rebuttable presumption that “[s]hutdowns of more than 2 years, or that have resulted in the removal of the source from the State’s emissions inventory,” are permanent. Id. at 80209 n.30.
163. Id. at 80209.
164. Id. at 80208.
165. Id.
166. Id. at 80209.
167. Id.
168. See id. at 80209-10. At least 6 months prior to, but not earlier than 18 months from, the expiration date of the PAL, the facility owner or operator must submit a complete application. Id. at 80209.
169. Id.
170. Id.
171. Id.
172. Id.
173. Id. at 80210.
174. Id.
175. Id. The final rules explained the reasons for mandatory adjustments:
   (1) To correct typographical/calculation errors made in setting the PAL or to reflect a more accurate determination of emissions used to establish the PAL; (2) to reduce the PAL if the owner or operator of the major stationary source creates creditable emissions reductions for use as offsets; or (3) to revise a PAL to reflect an increase in the PAL.
   Id.
176. Id. at 80211.
177. See id. at 80212-13. See also 40 C.F.R. §60, app. B.
178. 67 Fed. Reg. at 80211. Compliance with the PAL is determined based on a consecutive 12-month period, rolled monthly. Id. at 80214.
179. The monitoring system must be one of the following methods or any combination thereof:
   (1) Mass balance for processes, work practices, or emissions sources using coatings or solvents; (2) Continuous Emissions Monitoring System (CEMS); (3) Continuous Parameter Monitoring System (CPMS) or Predictive Emissions Monitoring System (PEMS) with Continuous Emissions Rate Monitoring System (CERM) or automated data acquisition and handling system (ADHS), as needed; or (4) emission factors. Id. at 80211.
180. Id.
181. Id.
182. Id. at 80213. Emissions data during periods of startup, shutdown, maintenance, and malfunction must be collected even though they may not be considered part of the emissions in determining compliance with the PAL. The reviewing authority has the discretion to approve different monitoring for various operating conditions for each unit. However, the facility owner is still subject to the same minimum monitoring requirements. Id.
and must record "all periods of deviation, including the date and time that a deviation started and stopped and whether the deviation occurred during a period of startup, shutdown, or malfunction." 183

C. The Clean Unit Exclusion

The Clean Unit exclusion applies to units that installed BACT or LAER through recent NSR. 184 A unit can still qualify as a clean unit if it is demonstrated that its emissions control level is comparable to BACT or LAER. 185 The new NSR rule adopted a new applicability test. The Clean Unit status gives its owner operational flexibility to make any change to the designated clean unit without triggering NSR if a change to the unit does not alter the emissions limitations or work practice requirements imposed in the permit in conjunction with BACT or LAER, or physical or operational characteristics that formed the basis of the BACT or LAER determination, or if it does not result in a significant net emissions increase in violation of the CAA. 186 The comparability requirement is satisfied when the candidate pollution control technology is BACT or LAER chosen for other similar sources in the RACT/BACT/LAER Clearinghouse (RBLC), or when it is demonstrated on a case-by-case basis that it is "substantially as effective" as BACT or LAER. 187

The Clean Unit status will be valid up to 10 years. 188 The new applicability test was a departure from the 1996 NSR reform proposal, which stated that the new rule would base the Clean Unit status on the unit’s pre-change hourly potential emissions rate. 189 In 1996, EPA proposed that there would be three routes to be used for the Clean Unit designation. The first and second would be through major or minor NSR, which took place within the last 10 years. 190 As for the third, to be comparable BACT or LAER, the pollution control technology’s performance level must be: “(1) the average of the BACT or LAER for equivalent sources over a recent period of time (such as 3 years); or (2) [ ] within some percentage (such as 5 or 10) of the most recent, BACT or LAER levels for equivalent or similar sources.” 191 For the units within the third category, the 1996 proposed rule provided that the Clean Unit status would last for five years. 192

As a result of these changes, stringency required for qualifying technologies is greatly reduced, and thus it would be much easier for major sources to use the clean unit option. Furthermore, its longer term (10 years other than 5 years) would have potential to offset much of the beneficial effects that the Clean Unit exclusion might otherwise have. Units that have gone through major NSR automatically qualify. 193

Other units may go through a SIP-approved permitting process. 194 A unit may requalify for the Clean Unit status after the 10-year period, subject to the above-mentioned applicability test. In other words, it must go through major NSR or a SIP-approved permitting process once again and meet technology requirements for pollution control to be adopted at the unit, reflecting advances in technology and changes to the existing unit during the effective period. 195 Where the unit’s location has been reclassified as a nonattainment area during the term, it must install LAER or LAER-comparable pollution control at the time of expiration to requalify. 196

The required emissions reductions under the Clean Unit exclusion are not allowed to be used for netting purposes or as offsets. 197 But those reductions below the emissions limitation that qualifies the unit as a clean unit can be used in a netting analysis or as offset credits if the general requirements applicable to netting or offsetting are met. 198 In principle, the Clean Unit exclusion is pollutant-specific with the exception that “simultaneous Clean Unit status [may be granted] for other pollutants at those emissions units that are sufficiently controlled to independently qualify as ‘clean’ for each pollutant.” 199 The Clean Facility exclusion, which was proposed in the 1996 proposed rule, was omitted. 200

D. PCPs

The new NSR rule extended the utility-specific PCP exclusion to all types of sources. 201 Listed PCPs are automatically exempted from NSR if there is no violation of a NAAQS or any of the PSD requirements, such as PSD increments and visibility. 202 PCPs that are not listed must pass the “environmentally beneficial” test on a case-by-case basis. 203 The PCP exclusion offers flexibility while giving incentives for sources to install modern pollution control. Therefore, its success depends in large part on the effectiveness of the technology selected.

188. Id.
189. Id. at 80189.
190. Id. at 80190.
191. Id. at 80189-90.
192. Id. at 80222.
193. Id. at 80222-23.
194. Id.
195. Id. at 80227.
196. Id. at 80228.
197. Id.
198. Id.
199. Id. at 38258.
200. If adopted, the clean facility exclusion would have exempted from NSR requirements major stationary sources that have undergone NSR for the entire source within the last 10 years. 61 Fed. Reg. at 38258.
201. 67 Fed. Reg. at 80233.
202. Id. at 80190. There is a rebuttable strong presumption that listed PCPs and technologies, and other standards are environmentally beneficial. See id. at 80233-34.
203. Id. at 80190. For non-listed PCPs and technologies, the reviewing authority must consider the case-specific factors and employ a public notice-and-comment process. Id. at 80234.
One of the concerns about the PCP exclusion is that PCPs may result in emissions increases of any collateral pollutant, which triggers NSR under the CAA. The 1996 proposal embodied the “primary purpose” test, which said that the primary function of a PCP is to reduce pollution. It also stated that the listed add-on technologies and switch to less polluting fuels may qualify as a PCP that would be presumed to be environmentally beneficial. Other PCPs not listed must be environmentally beneficial, and new add-on technologies must be demonstrated in practice.

The new rule eliminated the primary purpose test and expanded the scope of listed PCPs and add-on technologies. It included as potential PCPs energy efficiency projects, the replacement, reconstruction, and modification of existing pollution control equipment, and work practice standards. Upgraded or rebuilt control equipment must achieve a more stringent level of emissions reductions than the original one in terms of input- or output-based emissions rate or must have the same level of performance, provided that it is more energy-efficient. It clarified that non-air pollution impacts would not be considered in the environmentally beneficial determination. It limited the applicability of the PCP exclusion to existing sources.

One of the most significant changes to the 1996 NSR proposal was that the environmentally beneficial test is conducted based on the determination as to whether a PCP would have net environmental benefits. Net environmental benefits result when the emissions reductions of the primary pollutant(s) are anticipated to outweigh any potential increases in collateral pollutants. The new actual-to-future-actual test is applied to the calculation of any collateral emissions increases. PCPs are available both in PSD and nonattainment areas. Only where any collateral pollutant contributing to nonattainment increases by a significant amount as a result of the PCP can the offset requirement apply.

Another significant change was that the applicant for the PCP exclusion is not required to conduct air quality modeling if he determines no air quality-related values (AQVRs) exists in a nearby Class I area that could be impacted by expected collateral emissions increases. The applicant can make this determination after checking information, which is publicly available on the Internet about whether any AQVRs such as visibility have been identified for that area by the federal land manager. Even if an AQRV exists that have been identified by the federal land manager, the applicant also is not required to conduct a modeling analysis if there is no likely correlation between the AQRV and the pollutants emitted as a result of the PCP, including the case where collateral emissions will not increase by a significant amount. Then the applicant is merely required to submit such determination to the reviewing agency. In general, the reviewing authority has the discretion to request more specific information about adverse impacts on AQVRs in nearby Class I areas and, if it determines it as necessary, to require the applicant to conduct air quality modeling.

These changes aim to streamline the PCP process for providing major sources with incentives to undertake environmentally beneficial projects.

IV. Another Round of Heated Debate Over the New NSR Rules

The new NSR rules provoked uproar among many stakeholders. Nine northeastern states brought suit in the U.S. could be exempted from the application of the environmentally beneficial test).

214. Id.
215. Id. 80237.
216. Id. EPA said, however, that “a less than significant emissions increase may be subject to a State’s minor NSR requirements.” Id.
217. Id.
218. Id.
219. Id.
220. Id.
221. Id.
222. In this regard, EPA said:

The new, broader PCP Exclusion will ensure equitable treatment of all source categories and remove any disincentive for companies that wish to install pollution control and pollution prevention projects, to the extent allowed by the CAA . . . . Despite today’s rule revisions addressing a broader array of pollution control and pollution prevention projects at a larger variety of sources, we feel that the rule’s procedures are less complex than and are clearer than the WEPCO PCP Exclusion and the July 1, 1994 policy guidance. We are satisfied that the final PCP Exclusion best achieves the goals of minimizing regulatory burden and reducing procedural delays for projects that ensure net overall environmental protection.

Id. at 80233.
Court of Appeals for the District of Columbia (D.C.) Circuit seeking an order staying the new proposed rule on December 31, 2002, the day it was promulgated. They contended that “the changes to the preexisting NSR regulations deviated from CAA requirements and also that EPA’s rulemaking process was procedurally flawed.” On March 6, 2003, however, the D.C. Circuit refused to grant the motion for the stay.

A. Criticisms of the New NSR Rule: Environmental Groups’ Arguments

A coalition of environmental groups also filed a petition for reconsideration with EPA. Environmental groups argued that EPA must begin a new rulemaking process for three reasons: (1) EPA had relied on “materials and recommendations that were developed after the 1996 and 1998 comment periods,” thereby precluding informed public comment; (2) changed circumstances after 1998 justified new rulemaking, such as electricity deregulation and a better understanding of the public health and environmental effects of power plant emissions; and (3) the December, 31, 2002, NSR rule violated the substantive provisions of the CAA, and EPA failed to adequately explain why the deviations in the new rule from the 1996 and 1998 proposals were warranted. Environmental groups challenged almost every aspect of the final rule, alleging that it creates too many loopholes and, hence, would seriously compromise the environmental protection goal of the CAA’s NSR program.

First, they argued that EPA’s business cycle rationale for the 10-year look-back period is unfounded in light of the study it relied on, and that basing the calculation of the baseline actual emissions on a source’s highest emissions rate in any year within a 10-year period would nullify the simple mandate of the CAA, which requires NSR whenever a proposed change is expected to result in an emissions increase, and violates the contemporaneity requirement as articulated by the D.C. Circuit in the 1979 Alabama Power Co. v. Costel case. According to environmental groups, allowing netting transactions in addition to a 10-year baseline period and the use of a different time period for each regulated pollutant confirmed the conclusion that EPA’s methodology violates the CAA’s requirement that NSR be based on contemporaneous emissions increases and decreases as part of the proposed change. Also, they warned that allowing inclusion of fugitive emissions in baseline emissions calculation would inflate baseline emissions, on the one hand, and overestimate projected emissions, on the other hand, making it easy for existing sources to escape NSR. Environmental groups contended that the new NSR rule lacks meaningful limitations on the discretion of a permitting authority to approve the source’s quantification of fugitive emissions. This concern may be addressed by applying conservative assumptions about quantifiable fugitive emissions. But verification systems will vary in terms of stringency from state to state. Given the fact that fugitive emissions are extremely difficult to quantify, inclusion of fugitive emissions will likely create enormous enforcement problems or big loopholes, depending on the will or the financial resources of a state or local air quality management agency.

A recent report, published by the Environmental Integrity Project (EIP), shows that large quantities of fugitive emissions in “upset” conditions are being released from regulated stationary sources. This report analyzed upset reports submitted by 57 facilities in 5 states, which include California, Louisiana, Ohio, Pennsylvania, and Texas. These facilities include oil refineries, chemical plants, natural gas-fired power plants, and one carbon black plant. Of these facilities, relatively accurate information about fugitive emissions was available only with regard to 37 facilities from Texas and Louisiana. The EIP found that these facilities, in 2003, emitted fugitive emissions in an amount that is many times greater than their reported 2002 annual emissions. Of six natural gas plants, four released significant amounts of VOCs and SO2. Ten of the 18 refineries included in the study had annual emissions of at least one pollutant, SO2, CO, or VOCs, that were more than one-quarter of reported emissions. Chemical plants and the one carbon black plant emitted significant quantities of VOCs and CO during upsets. Benzene and butadiene, toxic air pollutants subject to regulation under CAA §112, were released in massive amounts from some of the chemical plants. VOC and CO emissions from the carbon black plant were 85 and 8 times greater the reported emissions, respectively.

In overall, these 37 facilities released 63,411,603 pounds of air pollutants in 2003, which included 167,133 pounds of benzene and 142,754 pounds of butadiene. More than one-half of these emissions were CO emissions, and the other one-half were split almost equally by VOCs and SO2 emissions.

This report demonstrates two things. First, many stationary sources may have gamed upset provisions under the CAA and facility-specific permit variances under state SIPs. Second, most states have not yet developed a highly developed fugitive emissions reporting system. Even in case a relatively reliable reporting system is in place, such as one in Texas, regulated sources underreported their fugitive emissions. Therefore, environmental groups’ argument

224. Id. at 805-06.
227. Id. at 16.
228. 636 F.2d 323, 10 ELR 20001 (D.C. Cir. 1979).
229. Earthjustice, supra note 226, at 21-25.
230. Id. at 9.
raising serious concerns about inclusion of fugitive emissions in the calculations of baseline emissions and future projected actual emissions should be paid attention to by EPA and state and local air officials.

Second, environmental groups contended that EPA failed to reasonably explain why it had decided to retain the demand growth exclusion and even to extend it to other industries, because it did not come up with a new rationale for justifying the significant departure from its prior position. Specifically, the lack of procedural safeguards “would place an unduly large burden on [state] permitting authorities,” deny the public access to emissions data, and transform NSR into post-construction review. Also, state-by-state variations in NSR enforcement would weaken the effectiveness of the NSR program.

Third, they argued that EPA’s decision not to subject PALs to the contemporaneity requirement violated the CAA and were arbitrary and capricious because of the Agency’s failure to explain the reason for the change to prior proposals. Under the final rule, the term of a PAL is 10 years. And, despite the bubble concept underlying PALs, a source owner is allowed to raise the PAL level without undergoing NSR, provided that the existing major emissions units currently subject to a BACT or LAER requirement that was imposed within the last 10 years are not contributing to the emissions increase. Automatic renewal is granted to the source whose average emissions in any 2 years within the preceding 10 years are at least 80% of the PAL. Environmental groups argued that, combined with a 10-year lookback period used for setting a PAL, this would allow for netting during an extended period of time, deprive the public of a meaningful opportunity to participate in establishing PALs, and does not create any incentive to install modern pollution control. They also alleged that the final rule permits the use of alternate monitoring without providing any meaningful check on the discretion of a state permitting authority and includes emissions factors with inherent inaccuracies as one of the four monitoring approaches, despite the fact that “a PAL necessitates superior monitoring” to be effective.

Fourth, environmental groups criticized EPA for choosing the net emissions benefits test to be used for determining a qualifying PCP in violation of the statutory requirement that NSR be triggered whenever a proposed physical or operational change would “result[ ] in the emission of any air pollutant not previously emitted.” More specifically, they argued that EPA had not provided an opportunity for public comment on the inclusion of the replacement or reconstruction of an emissions unit as a PCP, or offered any new justification for the departure from its prior position that, however beneficial, “major capital investments in industrial equipment are the very types of projects that Congress intended to address in the new source modification provisions.”

Finally, environmental groups contended that, unlike the prior proposals, the final rule sets the effective term of the Clean Unit exemption at 10 years and allows the exemption to be renewed for another 10 years without the unit being subject to new technology requirements. They basically argued that EPA’s chosen method for the Clean Unit designation “flatly contravenes the statutory requirement[s] [ ] that a modification be determined based on changes that increase emissions,” and that the chosen technology should be BACT or LAER, the most stringent one of its kind.

### B. Concerns About the Revised Routine Maintenance Exception Rule

Many stakeholders expressed concerns about EPA’s proposed rule for the routine maintenance exception, because it would allow sources to avoid NSR indefinitely by making changes to their facilities in an incremental manner, thereby resulting in increased pollution. They argued that EPA’s categorical approach failed to consider “the large diversity of industries and situations,” because even sources with the same industry have different maintenance needs “based on such factors as age, prior maintenance history, intensity of use, raw materials used in production processes, climate, and local labor costs.” They also alleged that the cost threshold and the minimum annual budget allowance to be established by EPA violated the statutory requirement that NSR be conducted whenever emissions increases would result from a proposed change. According to them, states, especially downwind states, would face more difficulty ensuring compliance with NAAQS, since “the proposed per se exemptions deprive states of one of the strongest tools they have in controlling emissions: federally uniform restrictions on modifications to existing sources.” This is because cost-based exclusions may “allow sources to operate indefinitely without implementing state-of-the-art control technology.” Furthermore, the cost-based approach would not eliminate uncertainty altogether, in that even an activity which falls within the annual budget but is in essence not a routine maintenance is considered a major modification.

Establishing annual maintenance allowances “invites manipulation of expenditure.” Sources would likely engage in creative, but bad, accounting practices in an attempt to spread costs in a multiyear period. This in turn will lead to conflict and litigation over the cost calculation, and thereby create another administrative complexity and resulting costs and time, which might otherwise be spent on other more important legal issues.

In June 2002, EPA promised to reconsider the rules. On October 27, 2003, however, it promulgated the final regul-
tion for the routine maintenance exception without much of a change. 261 The only exception was that EPA decided not to finalize the annual budget allowance proposal. 262 EPA also decided to implement the NSR rule as finalized on December 31, 2002.

C. The U.S. Government Accountability Office (GAO) Studies on Stakeholders’ Views on the New NSR Rules

In response to objections to the new rules, Congress commissioned the GAO to conduct surveys of key stakeholders’ views on the revisions. In a October 2003 report, the GAO found that federal and state enforcement officials and other stakeholders were concerned that some of the revisions, especially the proposed changes to the routine maintenance rule, would negatively impact ongoing federal and state enforcement actions and settlement negotiations with industry. 263 It also found that certain provisions in the December 2002 final rule would limit the public’s access to emission data, because “[u]nder the rule, fewer facility changes may trigger NSR and thus the need for permits and related requirements to notify the public about changes and to solicit comments—unless state and local air quality agencies have their own permit and public outreach rules.” 264 Further, the GAO pointed out that the lack of clarity about the definition of “reasonable possibility” and its “self-policing” nature in NSR determinations with regard to the demand growth exclusion “could potentially hinder enforcement and monitoring activities.” 265

The October 2003 GAO report prompted some congressional members to ask EPA’s Inspector General to investigate the Administration’s claims that the new regulations would not affect the ongoing NSR enforcement actions. 266 A study conducted by a Rockefeller Family Fund project and Council of State Governments found that changes to the preexisting NSR rules could lead to an almost combined 1.4 million tons more of persistent air pollutants in 12 northeastern states. 267

In another report published in February 2004, the GAO gave a survey result, which showed that a majority of the state officials expected the new rules to increase air emissions. 268 According to the report, some state officials were concerned that the revisions would rather complicate their jobs and thereby increase their workloads, since weakened NSR enforcement would give fewer options for states to comply with NAAQS. 269

D. The Stay of the Routine Maintenance Exception Rule and the Uncertain Future for NSR Reform

On December 24, 2003, the D.C. Circuit ordered the stay of the routine maintenance rule. 270 However, the court once again denied the motions for the stay of the December 2002 NSR rule on the grounds that “[p]etitioners [had] not demonstrated sufficient changed circumstances to justify revisiting the [May 6] order.” 271 On July 1, 2004, EPA formally issued an administrative stay, 272 and announced that it planned to reconsider three issues concerning the routine maintenance rule: (1) whether the rule as originally finalized is allowable under the CAA; (2) the legal basis for selecting the 20% cost threshold; and (3) a simplified procedure for incorporating a FIP into SIPs to accommodate changes to the NSR rules. 273 Many observers expected the result of the presidential election to decide the fate of the NSR rules, and several observers have predicted that the U.S. Supreme Court will ultimately hear the NSR debate given splits in the various circuits. 274 Because President Bush was reelected last November, it is expected that EPA will continue to push its NSR initiative, and that the Court will ultimately resolve the ongoing controversy surrounding the new NSR rule in coming years.

E. The Legality of the New NSR Rule

The new NSR rule will not have much national impact until states with an approved NSR program complete the SIP revisions and implement their revised NSR regulations upon EPA’s approval. Currently, the new NSR rule has been implemented in 11 states that do not have an approved NSR program and other some states with a delegated NSR program. 275 Hence, it is somewhat too early to tell how the new NSR rule will change the behavior of regulated industry in any significant manner.

When reading its brief submitted recently to the D.C. Circuit, EPA’s legal position hinged primarily on two grounds. First, relevant CAA provisions are ambiguous such that EPA is entitled to Chevron deference for the new definition of the statutory term “change.” 276 Second, the environmental impacts of the new rule would be positive or zero, since it would give regulated sources the incentive to engage in-

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262. Id. at 61252 (“We have decided, for now, not to take final action on the proposed annual maintenance, repair and replacement allowance approach.”).
264. Id. at 21-25.
265. Id. at 25-26.
267. See id.
269. Id. at 23-24.
271. Id.
273. Id. at 40278.
275. Mastroyannis-Zaft, supra note 223, at 809.
Environmentally beneficial projects without the fear of being subject to NSR. 277 Adverse environmental impacts on existing air quality that could otherwise result from rule changes would be reduced to a minimum by implementation of a number of safeguards provided under the new rule. 278 Throughout the brief, EPA stressed the fact that it has the duty to balance the CAA’s clean air goal and economic growth needs in implementing the Act’s NSR program. 279 Put differently, the reason for revising the prior rule was motivated by the Agency’s belief that it deprived existing sources of operational flexibility to meet increased market demand or failed to give them incentives to invest in pollution control technologies or energy efficiency projects, which would otherwise have produced air quality improvements. EPA made it clear that the primary goal of the new NSR rule is not to unduly inhibit economic growth, by stating that “the purpose of the NSR provisions is not to compel emissions reductions from existing sources, but to limit emissions increases resulting from physical or operational changes.” 280 In other words, in EPA’s view, the new NSR rule aims to return the previous state of affairs tilting toward environmental considerations to the right balance between air quality protection and economic development needs.

I would like to respond to EPA’s position by making two points. First, even if it is conceded that EPA has the authority to interpret the NSR provisions in order to balance the NSR’s two equally important goals, the overriding goal of the CAA is to improve air quality on a continual basis for the benefit of the general public. The NSR program has functioned as one of the valuable tools for accomplishing that noble goal. Throughout the Act’s history, Congress has continued to increase the Act’s stringency by adding new program requirements or by tightening preexisting standards and requirements that it deemed necessary to move the nation toward meeting clean air goals. There is no doubt that congressional intent in enacting the NSR program in 1977, was to bring more and more sources into its coverage over time. Congress did not anticipate that NSR would become an end run game played by grandfathered sources, in particular those in the energy industry. As a result, contribution to air quality improvements from industry has come mainly from new sources or existing sources’ compliance with requirements under other programs under the CAA.

Moreover, EPA’s new definition of the term “change” is against its common sense understanding. The primary purpose of NSR should be to improve existing air quality. Any imaginative interpretation of the term “change” cannot go too far so as to violate this simple mandate. It is therefore clear that the enactment of the NSR program was the nation’s choice to emphasize clean air goals rather than economic growth. To paraphrase, the purpose of the NSR program is to compel emission reductions from existing sources whenever they propose a change that will increase their actual emissions in a way that adversely impacts existing air quality. Thus, the first prong of EPA’s legal position is untenable.

Second, EPA’s argument that the new NSR rule would lead to air quality improvements because, in its view, more existing sources are expected to have incentives to invest in clean energy technologies cannot withstand analysis. Experience with implementation of a variety of environmental statutes tells us that industry responds to the economics rather than act on its environmental awareness. More often than not, it is clear market signals, usually in the form of unambiguous statutory or regulatory mandates, that have succeeded to motivate regulated sources to become cleaner or more energy efficient. Under the new rule, existing sources can avoid NSR more easily than in the past. It is hard to believe that they will have incentives to install state-of-the-art pollution control technologies or inherently cleaner energy technologies that they had little incentive to use under the previous rule. The opposite will be more true. Given this, PALs, the Clean Unit exclusion, and PCPs will likely be underutilized. Otherwise, their frequent use will lead to more and more existing sources escaping NSR for an extended period of time. If it is assumed that their use will be subject to adequate public scrutiny, as EPA argues, industry will find it cumbersome and hence not worthy of pursuit to opt in to such mechanisms. Furthermore, EPA seems to neglect the fact that new sources, which have been the driving force for technological innovation, will experience more of an economic disadvantage under the new NSR rule. The notion of a level playing field or environmental comparability hardly found its way into the new rule.

Conclusion

To summarize, the new NSR rule is another example of EPA’s failure to reconcile two conflicting goals: environmental protection and economic development. While allegedly providing increased simplicity and flexibility to industry, the rules aggravate the problems with the preexisting rules such as a bias against new sources and, most importantly, compromise the clean air goals of the NSR program.

It appears that the issuance of the new NSR rules is outside the scope of EPA’s delegated authority under the CAA.
The Act contains three simple but clear requirements in its NSR program: (1) a proposed physical or operational change that would increase emissions or result in collateral emissions must go through NSR preconstruction review; (2) emissions increases and decreases to be considered in NSR applicability determinations must be contemporaneous; and (3) once NSR is triggered, the most stringent technology requirement, BACT or LAER, must be applied to the source. In issuing the new NSR rules, EPA seemed to be so preoccupied with one of the two NSR goals, i.e., easing the regulatory burdens on industry, that it forgot the clear mandates of the CAA.

Although it has become less important in controlling emissions of large coal-fired power plants, which has incrementally been brought under the multi-pollutant trading approach, NSR is still a valuable tool that can be used as a backstop to impose more stringent requirements on grandfathered plants. Moreover, NSR enforcement represents one of the most significant options available for states to utilize in compelling other source categories, such as refineries, smelters, wood products industries, to update existing pollution control. EPA should reconsider the December 2002 NSR rule. NSR reform should not result in a rollback of preexisting rules. Rather, it should be aimed at improvements in the nation’s air quality and laying the foundation for creating the clean energy path.

In pursuing these goals, it is advisable for the nation to listen to the following recommendations of the National Academy of Public Administration in its EPA-commissioned report, which, among others, include: (1) repealing grandfathering; (2) retaining NSR for new sources; (3) the continuation of vigorous NSR enforcement; (4) the replacement of NSR for existing source with a compulsory three-tier system (cap-and-trade for industrial sources with reliable monitoring records, cap-and-net, or unit-cap for other sources); and (5) requiring all new and existing sources to regularly report their emissions data to regulatory agencies and the public in order to enhance accountability. To add to these recommendations, netting also should not be allowed. In the alternative, reporting requirements should be imposed on those sources seeking credits for contemporaneous net emissions decreases at their facility. Another alternative approach to NSR is to adopt output-based emissions standards and to put more of an emphasis on energy efficiency and conservation goals in NSR permitting processes, in order to facilitate sustainable energy development.

EPA has justified changing the preexisting NSR rule on the basis of the findings of its 90-day NSR report to the president, which said that the old NSR rule impeded the energy development and environmentally beneficial projects of existing power plants and refineries, while its adverse impacts on new sources were minimal. Even if it is assumed that the findings were correct, EPA seems to overlook the fact that its new NSR rule would have the effect of skewing the preexisting unlevel playing field toward old, grandfathered sources more than in the past, however insignificant it might be. In other words, EPA stands on the wrong foundation. Because the status quo has been changed in a way that would aggravate intersource and regional disparities in emission reduction requirements, the new NSR rule may not deliver its goal of economic efficiency unless it provides for additional mechanisms that would zero out all the advantages it may give to existing sources, in order to maintain the preexisting status quo. The fundamental solution for resolving the inequities in NSR implementation should be to repeal grandfathering and to adopt uniform output-based emission standards that are equally applicable to new and existing sources.

When implementing environmental and energy law, sustainable development takes the form of environmental comparability. Environmental comparability generally refers to a general policy approach that is designed to fully internalize the negative externalities of energy production and consumption. Its central strategy is to incorporate sustainability concerns into the current law under which all sources can compete on an equal footing with one another solely on the basis of environmental performance, regardless of their age. Available policy tools to this end include, among other things, the phaseout of grandfathering, the adoption of output-based emissions standards, and providing subsidies for accelerating the commercial deployment of cleaner, more energy-efficient sources such as renewable energy. They essentially symbolize sticking to the principle of sustainable development in the energy law field.

Environmental regulation discriminates against new and cleaner energy sources. In most instances, it imposes on new sources more stringent emission reduction requirements on a percentage, input basis, even though these sources oftentimes are much cleaner than old, grandfathered sources because of the inherent nature of fuels or combustion technologies actually used. *In 1996, coal plants had average efficiencies of state-of-the-art combined-cycle, natural gas-fired plants is nearly 60%, whereas the most energy-efficient coal-burning technology currently in dominant use has a thermal efficiency of 33% at best.* See Steven Ferrey, *The New Rules: A Guide to Electric Market Regulation 4* (2000). Thus, input-based emission standards disregard energy efficiency aspects, producing the practical effect of rewarding old, energy-inefficient energy sources, which are primarily grandfathered coal-fired power plants. Second, clean fuel-burning sources embodying energy-efficient technologies are subject to percentage reduction requirements. Though being less polluting, more energy efficient, these sources must install expensive modern post-combustion control equipment whose efficiency gains are questionable in terms of effectiveness in pollution control compared to incurred investment monies. See Swift, *supra*...
emission rates that were [thirty] or [fifty] times higher than new gas units with low-NOx combustion and SCR controls.287 Midwest electric utilities’ average NOx emissions may be 10 times higher than those in the Northeast region even on a per Mwh basis.288

Although implementation of both the CAA’s NOx acid rain program289 and EPA’s NOx 1998 SIP call290 have had the effect of addressing these disparities in emissions reduction requirements to some extent, they fall short of achieving the environmental comparability goal. The SIP call’s emissions limit of 0.15 pounds per million British thermal units291 is “still roughly [ten] to [twenty] times less stringent than typical NOx emission rates required of new natural gas combined-cycle units in nonattainment areas.”292

Moreover, both CAA’s SO2 allowance trading and the EPA’s NOx Budget Trading (NBP) program293 designed to implement its 1998 NOx SIP call each allocate SO2 and NOx allowances based on historical operating data such as fuel input.294 This allocation method penalizes new and cleaner sources in two ways. First, grandfathering of allowances constitutes “scarcity rents” for large existing sources, because new sources have to purchase allowances in the trading market to begin operation. Second, input-based allowance allocation is another form of discrimination against new and cleaner, more energy-efficient sources, because these sources need more allowances under an input-based allocation formula than under an output-based one.

Nine northeastern states and the District of Columbia under the Ozone Transport Commission (OTC) NOx cap-and-trade program295 or other states opting-in to EPA’s NBP have not set aside allowances for new sources, or even if they did, the number of set-aside allowances were “not large enough to cover all the new power plants seeking to enter the market.”296 These inequities can be addressed adequately by establishing a cap-and-trade program, which incorporates the following three features: (1) the adoption of an output-based allowance allocation method; (2) periodical updating of allowance allocations; and (3) the application of the same emission rate to new and existing sources.297 The way in which the method for making allowance allocations on an output basis, called the Uniform Generation Performance Standard, can be implemented as follows. First, the relevant authority calculates the amount of total allowable emissions. Second, it establishes the same emission rate, which is applicable to all new and existing sources on a per kilowatt hour or Mwh basis, “by dividing the cap by the expected generation for that region over a set period of time.”298 Additionally, an output-based cap-and-trade program can be designed to allow renewable energy sources to directly participate in trading. In this way, more efficient sources, regardless of their age and the chosen energy technology, can gain a competitive advantage. This in turn provides strong incentives for generation sources to become cleaner, more energy-efficient.

beginning operation after December 31, 1995, must purchase allowances in EPA-administered auctions or from existing sources who have allowances to sell in the secondary market. Id. at § 7651d(g)(3)-(4). Under EPA’s NBP, a state’s baseline inventory for large electric-generating units is based on “the higher of the 1995 or 1996 ozone season heat input values.” 63 Fed. Reg. at 57407. Covered large nonelectric-generating units, which are defined as nonutility industrial boilers and turbines units with a capacity greater than 250 mm Btu per hour or with NOx emissions greater than one ton per day, are required to achieve a 60% reduction of their preexisting NOx emissions. Id. at 57378, 57415. But note that participating states have the discretion to apportion allowances between covered units.


296. Woolf & Biewald, supra note 287, at 45-46.

297. Id. at 47.

298. Roy, supra note 288, at 57.
It is important to note, however, that implementation of output-based allowance allocation or NSPS proves difficult in practice. At one time, EPA pursued output-based NSPS for NOx control applied to electric utility boilers built, modified, or reconstructed after July 9, 1997, but it withdrew the proposal after the D.C. Circuit’s vacatur. Massachusetts, one of the OTC states that had agreed to implement the OTC NOx cap-and-trade program in 1994, adopted an output-based allocation formula in November 1997. But it still set different emission rate standards for four different categories of affected sources, and new sources were allocated allowances based on their permit limits. Worse, new sources had to surrender up to 50% of their allowances if they left over unused allowances.

Climate change policy may be the most effective way of promoting clean energy development, given that there are currently no commercially available carbon capture and sequestration technologies. Thus, it has the effect of restricting fossil fuel usage. Because old, dirtier sources usually use more carbon-intensive fuels, it rewards cleaner, more efficient energy sources, without relying on output-based standards. Put differently, well-designed climate change policy has the potential to send price signals to energy producers and consumers that adequately reflect environmental externalities of energy-related products and activities.

Most of these and other reform proposals require action on the part of Congress. It will take time to gain political currency. The United States badly needs the leadership of both chambers of Congress to clear the way for achieving the goal of sustainable development.


300. Roy, supra note 288, at 62.

301. Id.