A Conceptual Framework for a Source-wide Multi-pollutant Strategy

prepared for the Economic Incentives and Regulatory Innovation Subcommittee of the Clean Air Act Advisory Committee

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Executive Summary. The Economic Incentives and Regulatory Innovation Subcommittee of the Clean Air Act Advisory Committee was charged with developing a conceptual framework for source-wide multi-pollutant emission reductions using extant Clean Air Act authorities. The essential challenge is to coordinate at least four air quality planning programs (NESHAPS, NSPS, NAAQS, and NSR) so that the resulting requirements are environmentally protective, manageable, and capital efficient. A source-wide multi-pollutant strategy has the potential to meet this challenge. The objective of a source-wide multi-pollutant strategy is to align these four programs so that: (1) the timing—proposed to be coordinated on roughly a decadal cycle—of their requirements become mutually-reinforcing; (2) the sources of pollution to which they apply are more consistently defined; and (3) the emission controls required at the sources become mutually-reinforcing. The Clean Air Act—read according to its express terms and without much of the intervening interpretative gloss of the past four decades—provides sufficient flexibility to achieve these objectives in the following ways.

First, the NESHAPS and NSPS programs should be gradually reformed so that the source categories to which these program apply are defined on a facility-wide basis instead of a unit-by-unit basis. The defined source categories under both programs should be identical. So defined, unit-specific and facility-wide emission reduction requirements may be combined to achieve enforceable emission reductions, but with the flexibilities inherent to a facility-wide approach. So that the mutual reinforcing of these program is maximized, emission standards under both programs should be based on a common set of regulated pollutants, which will require the extensive use of surrogate pollutants in the NESHAPS program. Sections 2 and 3 outline the specific statutory provisions that allow for this programmatic reformation.

Second, revisions to the NAAQS should inform a coordinated, periodic updating of the NESHAPS and NSPS standards so that these three programs become mutually-reinforcing. Section 4 outlines the specific statutory provisions that allow for a beneficial alignment of NAAQS revisions with the NESHAPS and NSPS programs.

Third, the technology-forcing aspect of the NSR program should be preserved, but not allowed to inject disharmony into a synchronized approach to NAAQS, NESHAPS, and NSPS. A balance between these competing goals may be found in the use of

presumptive BACT and LAER standards—at least for a limited period of time—based on revised NESHAPS. Section 5 outlines the specific statutory provisions that allow for this alignment.

Taken all together, the goal is the periodic revision of ambient air quality standards that would subsequently be supported through updates to source-wide multi-pollutant NESHAPS and NSPS standards, to which NSR requirements would be closely aligned for a period of time.

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Introduction

The Economic Incentives and Regulatory Innovation Subcommittee of the Clean Air Act Advisory Committee was charged with developing a conceptual framework for source-wide

multi-pollutant emission reductions using extant Clean Air Act authorities. Three propositions drive the need for such a conceptual framework. First, the Environmental Protection Agency's unit-by-unit approach to pollution controls has undoubtedly failed to include *all* emission units at stationary sources, and therefore fails to comprehensively regulate air pollution at these sources. Second, the demands of the Act on air quality planning—combined with the Agency's unit-by-unit approach—has resulted in an astonishing number of existing and prospective regulations that threaten to overwhelm Agency resources. Third, the demands of the Act and the Agency's unit-by-unit approach inject unsustainable uncertainty into the regulated community's efficient use of capital in developing and maintaining production capacity and air pollution control systems.

For example, the Agency currently has underway some forty-one separate pending regulatory efforts applicable to the chemical production sector in addition to the some thirty-three regulations already applicable to the sector. Because these regulations—despite their number and complexity—are essentially unit-by-unit regulations, they do not include all sources of emissions from facilities in the sector. Seventy-four separate regulations—each of which is subject to periodic revision—creates an unsustainable demand on Agency resources. And perhaps most importantly, seventy-four separate regulations that lack significant coordination constrain any rational capital planning process that aims both to increase productivity and reduce air emissions.[1]

The essential challenge is to coordinate at least four air quality planning programs (NESHAPS, NSPS, NAAQS, and NSR) so that the

[1] The requirements of other federal and state environmental programs are beyond the scope of this paper, but impose additional complexities on any attempt to coordinate capital for purposes of productivity and environmental protection.

resulting requirements are environmentally protective, manageable, and capital efficient. A source-wide multi-pollutant strategy has the potential to meet this challenge. The objective of a source-wide multi-pollutant strategy is to align these four programs so that: (1) the timing of their requirements become mutually-reinforcing; (2) the sources of pollution to which they apply are more consistently defined; and (3) the emission controls required at the sources become mutually-reinforcing.

The statutory language creating these four programs contains sufficient flexibility to achieve this objective, though the accretion of Clean Air Act practice over four decades has in many ways obscured these sources of flexibility. This conceptual framework therefore sets aside previous interpretations of the Act as articulated in regulations, regulatory preambles, and Agency guidance documents, and instead focuses on the original text of the Act as interpreted by the courts.[2] The conceptual framework may be summarized as follows.

First, the NESHAPS and NSPS programs should be gradually reformed so that the source categories to which these program apply are defined on a facility-wide basis instead of a unit-by-unit basis. The defined source categories under both programs should be identical. So defined, unit-specific and facility-wide emission reduction requirements may be combined to achieve enforceable emission reductions, but with the flexibilities inherent to a facility-wide approach. So that the mutual reinforcing of these program is

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[2] "A court's prior judicial construction of a statute trumps an agency construction . . . if the prior court decision holds that its construction follows from the *unambiguous* terms of the statute." *Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs.*, 545 U.S. 967, 982 (2005) (emphasis added). This conceptual framework freely suggests rational Agency interpretations of *ambiguous* terms, to which the courts will owe deference. *See generally, Chevron, USA, Inc. v. NRDC*, 467 U.S. 837 (1984).

maximized, emission standards under both programs should be based on a common set of regulated pollutants, which will require the extensive use of surrogate pollutants in the NESHAPS program. Sections 2 and 3 outline the specific statutory provisions that allow for this programmatic reformation.

Second, revisions to the NAAQS should inform a coordinated, periodic updating of the NESHAPS and NSPS standards so that these three programs become mutually-reinforcing. Section 4 outlines the specific statutory provisions that allow for a beneficial alignment of NAAQS revisions with the NESHAPS and NSPS programs.

Third, the technology-forcing aspect of the NSR program should be preserved, but not allowed to inject disharmony into a synchronized approach to NAAQS, NESHAPS, and NSPS. A balance between these competing goals may be found in the use of presumptive BACT and LAER standards—at least for a limited period of time—based on revised NESHAPS. Section 5 outlines the specific statutory provisions that allow for this alignment.

Taken all together, the goal is the periodic revision of ambient air quality standards that would subsequently be supported through updates to source-wide multi-pollutant NESHAPS and NSPS standards, to which NSR requirements would be closely aligned for a period of time.

1. Flexibility under the NESHAPS program

Of all the Act's regulatory programs, the NESHAPS program at once combines a staggering number of individual hazardous air pollutants to be regulated, an unusually taxing implementation schedule, an emission standard that is both complex and stringent enough to guarantee opposition from both environmental and regulated parties, and a general lack of flexibility—all of which is driven by a seriousness of congressional purpose to reduce quickly

and dramatically the emission of carcinogenic, mutagenic, and toxic air pollutants.

Over the past twenty years, these significant and largely competing pressures have resulted in a hodgepodge of NESHAPS, each promulgated less with an overarching strategic view of air toxics control than in response to grinding promulgation timetables under the inexorable threat of litigation. But now that the Agency has promulgated NESHAPS for virtually all the original source categories—and thereby has a minimum level of control in place—there is now an opportunity to take a more strategic view for the second and third eight-year revisions of those standards.

Recalling the tripartite goals of a multi-pollutant/source-wide strategy—environmental improvements by capturing more emissions from a facility in a source category; streamlining the development of regulatory requirements for the source category; and supporting the efficient deployment of capital for pollution controls and production processes—Section 112 appears to have sufficient flexibility to advance these goals. Conceptually, these goals may most likely be advanced by adopting a source-wide approach to major sources of HAP and requiring a hybrid command-and-control and plant-wide reductions strategy, each combined with a strong enforceability component. What is to be avoided is the current multiplicity of unit-based NESHAPS—*e.g.*, one for tanks, one for valves, one for boilers, one for engines, and one for process specific limits. Instead, the Agency should judge the stringency of the HAP emission reduction requirements as a whole from the major source rather than unitized emission reductions.

Moving from concept to practice, this shift would require the following principal changes in how the Agency approaches the NESHAPS program. First, the Agency would need to confirm that an entire facility may be treated as a major source of HAP. Second,

the Agency would need to employ Section 112(h) work practice standards more broadly as the "next generation" source-wide NESHAPS, but in a way that preserves the environmental gains of the current approach. Third, the Agency would promulgate revised source categories to which the new Section 112(h) work practice standards would be applied. Fourth, EPA will need to develop a comprehensive set of HAP surrogates for each of the facility-wide source categories that it promulgates. Each of these changes are discussed in the following sections.

1.1. Treatment of an entire facility as a major source of HAP

The statutory definition of "major source" readily supports the treatment of an entire industrial or utility facility as a single major source of HAP. Section 112(a)(1) defines a "major source" as: "any stationary source or group of stationary sources located within a contiguous area and under common control." Section 112(a)(3) adopts the Section 111(a)(3) definition of "stationary source" as: "any building, structure, facility, or installation which emits or may emit any air pollutant." The use of these plain statutory terms in aggregating direct and fugitive HAP emissions on a facility-wide basis was affirmed by the D.C. Circuit:

> Section 112(a)(1) expressly provides that a "major source" is "any stationary source *or group of stationary sources*" with emissions exceeding certain limits.
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> * * *
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> We conclude that EPA may require the inclusion of fugitive emissions in a site's aggregate emissions without conducting any special rulemaking . . . ."[3]

[3] *Nat'l Mining Assoc. v. EPA*, 59 F.3d 1351, 1357, 1361 (D.C. Cir. 1995) (emphasis in original).

These authorities make it clear that EPA may treat every HAP emission unit—whether direct or fugitive—at a facility as a part of a single "major source."

1.2. Flexibility through the use of work practice standards

The current MACT-driven approach under Section 112(d) has resulted in scores of individual NESHAPS that have not fully captured all HAP emissions from significant HAP sources. A broader approach may be available through the alternative NESHAPS standard enabled by Section 112(h)—the work practice standard. Section 112(h) provides:

> For purposes of this section [112], if it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant, the Administrator may, in lieu thereof, promulgate a design, equipment, work practice, or operational standard, or combination thereof, which in the Administrator's judgment is consistent with the provisions of subsection (d) or (f) of this section.[4]

In principle, the design, equipment, work practice, or operational standard (DEWOS) need only be "consistent" with the traditional MACT process under Section 112(d), with consistency being found through the "Administrator's judgment." Combined with a facility-wide approach to HAP regulation, the DEWOS has high prospects for being useful to frame more flexible approaches to HAP regulation on a facility-wide basis. While the details of how DEWOS might be developed to provide both emissions management flexibility and fully-enforceable environmentally-

[4] Section 112(h)(1).

protective requirements remain to be developed, DEWOS should be explored more fully.[5]

Despite the potential of DEWOS, there remains the separate threshold issue of when DEWOS may be promulgated in lieu of a "traditional" MACT standard. Section 112(h)(1) premises the use of DEWOS on a finding that "it is not feasible in the judgment of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant." And Section 112(h)(2) provides the definition of infeasibility:

> For the purpose of this subsection, the phrase "not feasible to prescribe or enforce an emission standard" means any situation in which the Administrator determines that—(A) a hazardous air pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant . . . or (B) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.

The D.C. Circuit vacated the one non-asbestos DEWOS it reviewed, finding that EPA had not qualified the DEWOS under one of the provisions of Section 112(h)(2):

> We agree with the Sierra Club that EPA's use of work practice standards instead of emission floors violates section 7412(h). That provision allows EPA to substitute work practice standards

[5] One aspects of DEWOS that bears close examination is whether intra-source or inter-source emission trading would result in the requisite enforceable emission reduction goals. For example, the Clean Air Mercury Rule established an NSPS-based overall emission reduction goal for mercury, and then proposed a national trading program so that the reductions could be achieved in the most cost-efficient manner. The CAMR approach would likely need to be modified somewhat to protect against any demonstrated local impacts from mercury emissions.

> for emission floors only if measuring emission levels is technologically or economically impracticable. Here, EPA never determined that measuring emissions was impracticable; it determined only that it lacked emissions data from ceramic kilns. EPA thus had no basis under section 7412(h) for using work practice standards.[6]

In this case, the Agency's mistake appeared to be using a Section 112(h) DEWOS when it simply had insufficient emissions data with which to set a MACT floor. In a multi-pollutant, source-wide strategy, EPA should rely on the Section 112(h)(2)(A) factor of inability to capture HAP through a conveyance. Taken as a whole, a facility-wide approach to HAP should—in almost every case—pick up HAP that are not conveyed through stacks, vents, or other similar conveyances. Essentially, any facility that has fugitive HAP emissions could qualify for treatment under Section 112(h)(2)(A).

Even assuming that *some* HAP could not be captured, and that Section 112(h) may be appropriate, the question is whether a DEWOS would be appropriate for *all* HAP at the facility, including HAP that *could* otherwise be captured or conveyed. The statute itself appears to suggest an answer. Section 112(h)(4) provides: "Any standard promulgated under paragraph (1) shall be promulgated in terms of an emission standard whenever it is feasible to promulgate and enforce a standard in such terms." Recognizing that a "paragraph (1)" standard cannot even be promulgated unless the Administrator has made a finding that it is "*not feasible* to prescribe or enforce an emission standard," Sections 112(h)(1) and (h)(4) appear to be irreconcilably at odds. That is, *unless* the two provisions are harmonized by concluding

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[6] *Sierra Club v. EPA*, 479 F.3d 875, 884 (D.C. Cir. 2007). The court did not discuss the other method by which a DEWOS could be qualified—the lack of conveyance of HAP at the source.

that if *any* HAP cannot be captured or conveyed, the entire source may be subject to a DEWOS, which would include non-emission standard requirements for non-conveyable HAP and emission standards (similar or identical to Section 112(d)) for conveyable HAP. In this way, a "hybrid" DEWOS could be developed that would impose general source-wide HAP reduction obligations, perhaps with unit-specific emission standards which would form the backbone of the HAP reduction strategy at the source.

1.3. Revisions to the source category list

In implementing a facility-wide NESHAP program, EPA will need to modify its Section 112 source category list to include those HAP major sources it intends to regulate. EPA may modify the list by adding new source categories. Section 112(c)(5) provides:

> In addition to those categories and subcategories of sources listed for regulation pursuant to paragraphs (1) and (3), the Administrator may at any time list additional categories and subcategories of sources of hazardous air pollutants according to the same criteria for listing applicable under such paragraphs.

Alternatively, EPA may modify the list by revising existing source categories. Section 112(c)(1) provides:

> [T]he Administrator shall publish, and shall from time to time, but no less often than every eight years, revise, if appropriate, in response to public comment or new information, a list of all categories and subcategories of major sources and area sources . . . of the air pollutants listed pursuant to subsection (b) of this section.

And for either method, "[t]o the extent practicable, the categories and subcategories listed under this subsection shall be consistent with the list of source categories established pursuant to section

7411 of this title and part C of this subchapter."[7] This coordination between the NESHAPS, NSPS, and PSD program is important as the Agency seeks to streamline its regulatory development and provide clearer signals for capital expenditures at regulated sources.[8]

EPA quite clearly has the authority to designate source categories based on a facility-wide approach, and the source category establishment is not subject to judicial review, but may only be reviewed along with the ultimate NESHAPS promulgated for the source category.[9]

1.4. Expanded use of HAP surrogates

Though the statute is silent as to whether EPA can or should use surrogates[10] for HAP in NESHAPS, the agency has had a substantial practice of so doing, and reviewing courts appear to accept the practice as lawful. The D.C. Circuit has held:

> The EPA may use a surrogate to regulate hazardous pollutants if it is "reasonable" to do so.
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> * * *

[7] Section 112(c)(1).

[8] For example, coordinating the development of new NESHAPS and NSPS source categories will allow the Agency to achieve efficiencies and provide clear regulatory signals.

[9] *See* Section 112(e)(4) ("Notwithstanding section 7607 of this title, no action of the Administrator . . . listing a source category or subcategory . . . shall be a final agency action subject to judicial review, except that any such action may be reviewed . . . when the Administrator issues emission standards for such . . . category.").

[10] For example, particulate matter could be a surrogate for HAP metals, carbon monoxide (or volatile organic compounds) could be surrogate for organic HAP, and sulfur dioxide could be a surrogate for all acid gases.

> The NLA argues first that the EPA may not use PM as a surrogate for HAP metals because PM is a criteria pollutant—one of several ubiquitous pollutants that the EPA regulates by establishing [NAAQS] . . . .
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> As the EPA shows, however, the Portland cement rule does not treat PM as a HAP generally; it regulates only PM that is emitted from cement kilns . . . . We conclude that the use of PM as a surrogate for HAP metals is not contrary to law.
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> If HAP metals are invariably present in cement kiln PM, then even if the ratio of metals to PM is small and variable, or simply unknown, PM is a reasonable surrogate for the metals—assuming . . . that PM control technology indiscriminately captures HAP metals along with other particulates.[11]

More recently, the D.C. Circuit articulated the "reasonableness" of using surrogates for HAP as a three-part test: (1) HAP are invariably present in the surrogate; (2) surrogate control technology indiscriminately captures HAP along with other surrogate material; and (3) surrogate control is the only means by which facilities achieve reductions in HAP emissions.[12] While these are not the exclusive arbiters of reasonableness—indeed the third element may not even be necessary—we believe they form a rational starting place for the Agency's identification of surrogates for all HAP emitted from a facility-wide source. The following cases should illuminate the risk of performing this work incompletely:

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[11] *Natl. Lime Assoc. v. EPA*, 233 F.3d 625, 637–38, 639 (D.C. Cir. 2000).

[12] *See Sierra Club v. EPA*, 353 F.3d 976, 984 (D.C. Cir. 2004).

> We cannot review under any standard the adequacy of the EPA's correlation determination if we do not know what correlation the EPA found to exist . . . . Therefore, EPA's use of vinyl chloride as a surrogate for other HAPs emitted from PVC plants is remanded to the agency for a more adequate explanation.[13]

The widespread use of surrogates is important for at least three reasons. First, the use of surrogates—particularly criteria pollutant or criteria pollutant precursor surrogates—will allow the Agency to more closely coordinate its NESHAPS rules with its NSPS rules. While the NESHAPS will almost always require more stringent emission reductions, the NSPS program has certain structural and enforceability advantages, and close coordination should be encouraged. Second, the use of surrogates will make it easier for source operators to manage their emissions under the statutory "modification" definition and the Agency's subsequent "HAP netting" rules. One tremendous source of efficiency in using a source-wide concept is that the source owner is incentivized to make creative emission reductions in the furtherance of production goals. Having fewer HAP "currencies" in play will dramatically improve the efficiency and effectiveness of managing to a source-wide standard. Last, the use of surrogates can play an important role in defining what may constitute presumptive controls under the NSR program, and NSR regulated pollutant surrogates make that linkage stronger.

2. Flexibility under the NSPS program

Historically, the new source performance standards (NSPS) program has been outpaced by emission control requirements imposed through the new source review (NSR) program. As a result, the NSPS program now largely contributes only the basis for

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[13] *Mossville Envt'l Action Now v. EPA*, 370 F.3 1232, 1243 (D.C. Cir. 2004).

monitoring, recordkeeping, and reporting obligations for new, reconstructed, and modified stationary sources. This outcome is the result of the NSPS program's hyper-focus (admittedly informed by some early judicial precedents) on unit-by-unit controls, which will never be more stringent than NSR-driven controls. The challenge is to reclaim the technological relevancy of the NSPS program, which after all was originally designed as the Act's principal technology-forcing program for criteria pollutants.

Again recalling the tripartite goals of a multi-pollutant/source-wide strategy—environmental improvements by capturing more emissions from a facility in a source category; streamlining the development of regulatory requirements for the source category; and supporting the efficient deployment of capital for pollution controls and production processes—Section 111 appears to have sufficient flexibility to advance these goals. Conceptually, these goals may most likely be advanced by adopting a source-wide approach to major NSPS sources and requiring a hybrid command-and-control and plant-wide reductions strategy, each combined with a strong enforceability component. What is to be avoided is the current multiplicity of unit-based NSPS—*e.g.*, one for tanks, one for valves, one for boilers. Instead, the Agency should impose stringent reduction requirements on NSPS emissions as a whole from the stationary source rather than unitized emission reductions.

Moving from concept to practice, this shift would require the following principal changes in how the Agency approaches the NSPS program. First, the Agency would need to confirm that an entire facility may be treated as a single stationary source. Second, the Agency would need to employ Section 111(h) work practice standards more broadly as the "next generation" source-wide NSPS, but in a way that preserves the environmental gains of the current approach. And last, the Agency would promulgate new revised NSPS source categories to which to apply new

Section 111(h) work practices. Each of these changes are discussed in the following sections.

2.1. Treatment of an entire facility as a stationary source

It must be acknowledged right away that some early judicial precedents suggest that EPA cannot treat an entire facility as a single stationary source under the NSPS program. Nevertheless, more recent precedent suggests that EPA actually does have the authority to so define a source.

Section 111(a)(3) defines a "stationary source" as "any building, structure, facility, or installation which emits or may emit any air pollutant." EPA's 1975 attempt to define an NSPS stationary source on a facility-wide—rather than on a unitized—basis was rejected by the D.C. Circuit. The court stated:

> The regulations [defining a stationary source as including a collection of units] plainly indicate that EPA has attempted to change the basic unit to which the NSPSs apply from a single building, structure, facility, or installation the unit prescribed in the statute to a combination of such units. The agency has no authority to rewrite the statute in this fashion.
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> The bubble concept in the challenged regulations would undercut section 111 . . . .[14]

And later in revisiting the "bubble concept" in the context of the NSR program, the same court stated:

> In [ASARCO] this court struck down the agency's defining a source for NSPS as, inter alia, a combination of facilities. But that case allowed EPA broad discretion to define the statutory

[14] *ASARCO, Inc. v. EPA*, 578 F.2d 319, 327–28, 328–29 (D.C. Cir. 1978).

> terms for "source" so long as guided by a reasonable application of the statute.
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> * * *
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> We view it as reasonable, for instance, to define "facility" and "installation" broadly enough to encompass an entire plant.[15]

This sequence of holdings suggests the following conclusion: that while EPA may *not* interpret the statute to define a stationary source as a combination of facilities or installations (as it attempted in 1975), EPA may interpret "facility" and "installation" to *themselves* be a combination of individual emission units. This interpretive approach is subject to much more judicial deference under the Supreme Court's 1984 *Chevron* decision than the original *ASARCO* and *Alabama Power* decisions in 1978 and 1981, respectively. In *Chevron*, the Court observed: "The basic legal error of the Court of Appeals was to adopt a static judicial definition of the term 'stationary source' when it had decided that Congress itself had not commanded that definition."[16]

These authorities strongly suggest that EPA may define a facility or installation to establish facility-wide treatment of emissions under the NSPS program.

2.2. *Flexibility through the use of work practice standards*

The current affected unit-driven approach under Section has resulted in scores of individual NSPS that have not fully captured all emissions from stationary sources. A broader approach may be available through the alternative NSPS standard enabled by Section 111(h)—the work practice standard. Section 111(h) provides:

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[15] *Alabama Power Co. v. Costle*, 636 F.2d 323, 396 (D.C. Cir. 1980).

[16] *Chevron, USA, Inc. v. NRDC*, 467 U.S. 837, 842 (1984).

> For purposes of this section [111], if in the judgment of the Administrator, it is not feasible to prescribe or enforce a standard of performance, [the Administrator] may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof, which reflects the best technological system of continuous emission reduction which (taking into account the cost of achieving such emission reduction, and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.[17]

In principle, the design, equipment, work practice, or operational standard (DEWOS) itself may developed as the "best adequately demonstrated technology." Combined with a facility-wide approach to pollutant regulation, the DEWOS has high prospects for being useful to frame more flexible approaches to pollutant reduction on a facility-wide basis. While the details of how DEWOS might be developed to provide both emissions management flexibility and fully-enforceable environmentally-protective requirements remain to be developed, DEWOS should be explored more fully.

Despite the potential of DEWOS, there remains the separate threshold issue of when DEWOS may be promulgated in lieu of a "traditional" NSPS standard. Section 111(h)(1) premises the use of DEWOS on a finding that "in the judgment of the Administrator, it is not feasible to prescribe or enforce a standard of performance . . . ." And Section 111(h)(2) provides the definition of infeasibility:

> For the purpose of this subsection, the phrase "not feasible to prescribe or enforce an emission

[17] Section 111(h)(1).

> standard" means any situation in which the Administrator determines that (A) a pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant . . . or (B) the application of measurement methodology to a particular class of sources is not practicable due to technological or economic limitations.[18]

Taken as a whole, a facility-wide approach to pollutants should—in almost every case—pick up pollutants that are not conveyed through stacks, vent, or other similar conveyances. Essentially, any facility that has fugitive emissions could qualify for treatment under Section 111(h).

Even assuming that *some* pollutants could not be captured, and that Section 111(h) may be appropriate, the question is whether a DEWOS would be appropriate for *all* pollutants at the facility, including pollutants that could otherwise be captured or conveyed. The statute itself appears to suggest an answer. Section 111(h)(4) provides: "Any standard promulgated under paragraph (1) shall be promulgated in terms of a standard of performance whenever it becomes feasible to promulgate and enforce such standard in such terms." Recognizing that a "paragraph (1)" standard cannot even be promulgated unless the Administrator has made a finding that it is "*not feasible* to prescribe or enforce an emission standard," Sections 111(h)(1) and (h)(4) appear to be irreconcilably at odds. That is, *unless* the two provisions are harmonized by concluding that if *any* pollutant cannot be captured or conveyed, the entire source may be subject to a DEWOS, which would include non-emission standard requirements for non-conveyable pollutants and standards of performance (similar or identical to Section 111(c)) for conveyable pollutants. In this way, a "hybrid" DEWOS could be

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[18] *See supra* note 6 and accompanying text for a judicial interpretation of Section 112's virtually identical language.

developed that would impose general source-wide pollutant reduction obligations, perhaps with unit-specific performance standards which would form the backbone of the pollutant reduction strategy at the source.[19]

2.3. Revisions to the source category list

In implementing a facility-wide NSPS program, EPA will need to modify its Section 111 source category list to include those stationary sources it intends to regulate. EPA may modify the list by revising existing source categories. Section 111(b)(1)(A) provides: "The Administrator shall . . . publish (and from time to time revise) a list of categories of stationary sources."

The NSPS source category definition provides an important cross-link to the NESHAPS program, because Section 112(c)(1) provides that "[t]o the extent practicable, the categories and subcategories listed under this subsection [112(c)] shall be consistent with the list of source categories established pursuant to section 7411 of this title and part C of this subchapter."[20] This coordination between the NESHAPS, NSPS, and NSR program is important as the Agency

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[19] The phrase "becomes feasible" is subject to at least two alternative interpretations. The first is outlined in the text above. The second is that a Section 111(h) standard may first be promulgated, and then in the future, if that standard becomes amenable to promulgation as a "traditional" standard of performance, the agency should do so. The difference in interpretation revolves around whether a proposed Section 111(h) approach "becomes" amenable to articulation as a standard of performance through the original Section 111(h) regulatory process, or whether a promulgated Section 111(h) standard "becomes" amenable to articulation as a standard of performance some years later. The first interpretation appears rational, and should be subject to deference.

[20] Section 112(c)(1).

seeks to streamline its regulatory development and provide clearer signals for capital expenditures at regulated sources.[21]

3. Flexibility under the NAAQS program

The tent pole of the Act's air quality planning program, the primary and secondary National Ambient Air Quality Standards (NAAQS) have long been controversial, inconsistently revised, and driven oftentimes as much by ideological principles as scientific advances. These erraticisms have engendered political opposition to NAAQS revisions and have driven economically and environmentally inefficient emission reduction requirements. Simultaneously, it is indisputable that the NAAQS program has resulted in significant nationwide reductions in ambient concentrations of criteria pollutants, improving the health and welfare of hundreds of millions and creating trillions of dollars in estimated economic benefits. Recognizing both the inefficiencies and the benefits of the current NAAQS program, only an incremental procedural modification to the program is necessary to fully facilitate the use of a source-wide strategy to improve ambient air quality.

The procedural modification that is most closely supported by the plain text of the Act and related judicial interpretations relates to the exercise of the Agency's judgment regarding *when* to revise the NAAQS. If revised on a schedule that more closely approximates the roughly decadal review of NSPS and MACT standards, the requirements of the NAAQS and the NSPS/MACT programs would not only be more predictable to regulated entities, they could through mutual reinforcement result in more

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[21] For example, coordinating the development of new NESHAPS and NSPS source categories will allow the Agency to achieve efficiencies and provide clear regulatory signals. Unlike Section 112(e)(4), the revisions to the NSPS source category list *is* subject to judicial review as a final agency action. *See supra* note 9 and accompanying text.

environmental and economic efficiency. The statute and its judicial interpretations gives the Agency sufficient discretion to coordinate the NAAQS revisions with the NSPS and MACT standards.

3.1. Statutory and judicial authorities supporting a flexible NAAQS revision process

Section 109(d)(1) controls the NAAQS revision process. It reads: "[A]t five-year intervals thereafter, the Administrator shall complete a thorough review of the [Section 108 air quality criteria and the Section 109(a) NAAQS] and make such revisions in such criteria and standards and promulgate such new standards as may be appropriate . . . ." Bound up in the revision directive is one non-discretionary duty and one discretionary duty. The non-discretionary duty is for the Administrator to complete a thorough *review* of the criteria and NAAQS every five years. The discretionary duty is for the Administrator to *revise* the criteria and NAAQS *as may be appropriate*. That is to say, while the Administrator must review these standards with regularity, the timing of revisions are wholly within her judgment, subject only to judicial review under the arbitrary and capricious standard of review.

Reviewing courts have been clear with respect to the Administrator's duty to revise the NAAQS.[22] The courts have been

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[22] *See Am. Farm Bureau Fed. v. EPA*, 559 F.3d 512, 516 (D.C. Cir. 2009) ("The EPA must review the air quality criteria and the NAAQS and revise them as necessary at least once every five years."); *South Coast Air Qual. Mgmt. Dist. v. EPA*, 472 F.3d 882, 899 (D.C. Cir. 2006) ("Congress contemplated, however, the possibility that scientific advances would require amending the NAAQS. Section 109(d)(1) establishes as much . . . ."); *id.* at 538 ("[I]t would frustrate the purpose of the CAA to read the 1990 amendments as limiting the EPA's ability to revise the NAAQS based on advances in scientific understanding."); *Envt'l Defense v. EPA*, 467 F.3d 1329, 1335 (D.C. Cir. 2006) ("EPA is required to review the NAAQS every five years and revise them if necessary.").

similarly clear that *whether* the Administrator elects to revise the NAAQS and the *substance* of any revision is discretionary. The Second Circuit put it this way:

> The words "as may be appropriate" clearly suggest that the Administrator must exercise judgment and the presence of "shall" in the section implies only that the district court has jurisdiction to order the Administrator to make *some* formal decision whether to revise the NAAQS, the content of that decision being within the Administrator's discretion . . . .
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> * * *
>
> Formulating the details of substantive NAAQS, however, requires the sort of scientific judgment that is the "hallmark" of agency discretion . . . .[23]

The D.C. Circuit has been even more plain in the options open to the Administrator in exercising her discretionary duty *whether* to revise the NAAQS:

> Two cases seem clear: If the Administrator issues revised standards, they fall squarely within our jurisdiction because they involve actions of national application over which Congress gave this court exclusive supervisory review. Similarly, if the Administrator explicitly determines after review that revision of the NAAQS is not "appropriate," that decision would, in most situations, also be final and fall within our review jurisdiction.[24]

Two principles may be discerned from these authorities. First, the Agency has the discretion as to when the NAAQS are revised, as long as the Agency considers whether to revise the NAAQS no less

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[23] *Envt'l Defense Fund v. Thomas*, 870 F.2d 892, 898–99, 900 (2d Cir. 1989).

[24] *NRDC v. EPA*, 902 F.2d 962, 983–84 (D.C. Cir. 1990).

frequently than every five years. Second, a decision by the Administrator not to revise the NAAQS is reviewable in the D.C. Circuit under the Section 307 "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" standard of review.

3.2. A proposed flexible NAAQS revision process

The express statutory language, these judicial interpretations, and these principles suggest that the Administrator has the discretion and flexibility to implement a formal NAAQS revision schedule with the following proposed characteristics.

First, the Agency would continue in its non-discretionary five-year *review* of the criteria and NAAQS. This pentennial review is not only commanded by the statute, it provides critical scientific input for the formation of a judgment as to when a NAAQS revision is warranted.

Second, in the first five-year review, the Administrator would make a judgment regarding whether newly-developed scientific data demonstrates "clear and convincing" evidence that the existing NAAQS are insufficient to protect the public health and welfare with an adequate margin of safety. If there is no new scientific data, or new data is not clear and convincing with respect to the need to revise the NAAQS, the Administrator would announce her decision not to revise the NAAQS at that time. If the newly-developed data is clear and convincing, the Administrator would propose to revise the NAAQS at that time.

Third, in the second five-year review, the Administrator would make a judgment regarding whether any scientific data (newly-developed or not) demonstrates that it is "more likely than not" that the existing NAAQS are insufficient to protect the public health and welfare with an adequate margin of safety.

In a refinement to this approach, the Agency could combine NAAQS into naturally-reinforcing groups, so that criteria pollutants that are generated through similar processes or are controlled by complementary emission reduction strategies or technologies would be reviewed and revised together. At least three natural groupings are possible:

Simultaneous review In this grouping pattern, all the NAAQS would be reviewed simultaneously to provide the most comprehensive and complementary approach to multi-pollutant strategies.

Grouping by stationary/mobile source emissions In this grouping pattern, ozone, NO_2, and carbon monoxide would be revised together as the primary contributions to ambient concentrations from mobile sources, while SO_2, particulate matter, and lead would be revised together as the primary contributions to ambient concentrations from large-scale fossil fuel combustion at stationary sources.

Grouping by complementary ambient impacts In this grouping pattern, SO_2, NO_2, particulate matter, and ozone would be grouped together to take advantage of complementary emission control approaches (*e.g.*, reductions in SO_2 and NO_x as precursors to fine particulates), and carbon monoxide and lead would be grouped together as the remaining criteria pollutants without strong complementary links.

3.3. Benefits of a flexible NAAQS revision process

By announcing in advance the standards by which the Administrator will exercise her discretion to revise the NAAQS, at least six salutary goals will be advanced.

First, the environmental and health community will have some confidence that the Agency will more regularly review and revise the NAAQS.

Second, the Agency will have additional time to process admittedly complex scientific data in support of NAAQS revisions (the ten-year revision), while leaving open the possibility that unexpected advances in scientific understanding will quickly be translated into NAAQS revisions (the five-year revision).

Third, by announcing in advance the weight of scientific evidence required to support a NAAQS revision, contestants and courts will have an easier path to the application of the "arbitrary and capricious" standard of review.

Fourth—and related—a more systematized approach and clear standards will discourage the all-too-common judicial consent decree driving environmentally and economically inefficient NAAQS revisions.

Fifth, the periodicism of the NAAQS revisions will give states and the regulated community a better sense of order, thereby reducing political opposition to erratic revisions and allowing for more efficient capital investments in pollution controls and production processes.

And last, by extending modestly the currently unsustainable five-year review and revision cycle, NAAQS revisions can be coordinated with NSPS and NESHAPS standards reviews, both of which occur on eight-year cycles.[25]

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[25] The NAAQS revision cycle could also be scheduled on an eight-year basis, with a five-year review (with a possible "clear and convincing" NAAQS revision) followed by another review three years later (with a more likely "preponderance of the evidence" NAAQS revision). *See* Section 109(d)(1) ("The Administrator may review and revise criteria or promulgate new standards earlier or more frequently than required under this paragraph.").

3.4. Procedure by which NAAQS revision flexibility may be implemented

The announcement of the Administrator's exercise of discretion in this manner may be achievable through a statement of policy. However, formalizing the revision schedule through the promulgation of a regulation would be beneficial in at least two ways. First, any challenges to the schedule could be resolved through judicial review *prior* to the use of the schedule for any particular NAAQS revision, thereby avoiding the uncertainty of a procedural challenge to the timing or weight of evidence used to support the revision (or non-revision). Second, publication would regularize the use of the schedule across administrations, thereby maximizing the probability of its use over multiple NAAQS revision cycles.

4. Flexibility under the new source review program

The new source review (NSR) program—in both its PSD and non-attainment area forms—provides a strong case-by-case technology-forcing aspect to air pollution control. But this strength of the NSR program is also its greatest weakness. The case-by-case aspect of the program—if unconstrained—introduces significant disorder into coordinated management of emission reductions and productivity gains at regulated sources. This disorder can be significant enough to discourage the more efficient use of raw materials, with the result that many potential air pollution reductions remain unrealized.[26] Moreover, the significant

[26] For example, a company may forgo the installation of an economizer on an existing industrial boiler—and installation that would dramatically improve the efficiency of unit and result in less fuel use and fewer emissions—because the addition may trigger expensive NSR retrofits. In this example, the case-by-case approach sets the perfect (*i.e.*, BACT/LAER-controlled units) as the enemy of the good (*i.e.*, more efficient non-BACT/LAER-controlled units), with the result that the bad (*i.e.*, inefficient, uncontrolled units) sometimes

procedural inefficiencies associated with an unconstrained case-by-case approach make it quite difficult to coordinate overall emission reduction goals.

Two alternative approaches to the NSR program may result in greater coordination with revolutionized, facility-wide NESHAPS and NSPS programs. Both alternatives share common premises. First, a source-wide NSPS program for new, reconstructed, and modified sources will include requirements that will result in substantial—yet flexible—source-wide emission reductions. Second, source-wide NESHAPS will use—wherever appropriate—NSR regulated pollutants as HAP surrogates at new and existing major sources. This translation of both NSPS pollutants and HAP into a common currency recognizable under the NSR program is the linchpin for coordination among the three programs. Under this approach, non-HAP new, reconstructed, and modified sources would have stringent, NSR regulated pollutant-based emission reduction requirements that could fold easily into the NSR program. New and existing HAP sources would also have stringent, NSR regulated pollutant-based emission reduction requirements that could also easily integrate into the NSR program.[27] For example, NESHAPS controls of metals through particulate matter controls would also inform which NSR controls would be required at this site.

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prevails, with *no* improvement in air quality and an inefficient use of raw materials.

[27] There is, of course, a third category of sources: existing non-HAP sources to which no NSPS would be applicable. Changes at these sources that would trigger the NSR modification rules but not the NSPS modification rules would be treated only under the NSR rules. EPA would want to take care to not include these types of sources in its early rounds of multi-pollutant, source-wide regulations.

With these common premises in mind, the first alternative approach is a highly-flexible and readily-enforceable plant-wide applicability limit (PAL) for new NESHAPS and NSPS source categories could eliminate many of the problems with the case-by-case NSR approach while still ensuring significant emission reductions at the relevant sources. The second is the use of "presumptive best available control technology" (P-BACT) or "presumptive lowest achievable emission reduction" (P-LAER) at the new NESHAPS and NSPS source categories that—at least for a period of time after these standards are promulgated—would strongly influence the case-by-case approach to BACT/LAER development. While the range of necessary improvements to the existing PAL program is beyond the scope of this paper,[28] the notion of P-BACT and P-LAER bears some brief comment.

P-BACT and P-LAER as acceptable elements of NSR will work best at existing NESHAPS facilities, because the development of the NESHAPS for the facility will in most cases result in pollution controls that are more stringent than those required by NSR. For example, a NESHAPS for HAP metals that requires stringent source-wide reductions in particulate matter emissions will almost certainly qualify as BACT or LAER for particulate matter.

Section 169(3) defines "best available control technology" as:

> an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs,

[28] It must be noted that the timeframe for PAL revisions could easily be accommodated to a decadal review of NAAQS, NSPS, and NESHAP program requirements.

> determines is achievable for such facility through application of production processes and available methods, systems, and techniques . . . . In no event shall application of "best available control technology" result in emissions of any pollutants which will exceed the emissions allowed by any applicable standard established pursuant to section 7411 or 7412 of this title.

Notable in this definition are the references to "major emitting facility," "production processes and available methods," the explicit linkage to Sections 111 and 112, and "case-by-case basis."

The phrases "major emitting facility" and "production processes and available methods" work together to support the notion of coordination on a source-wide basis between the PSD, NESHAPS, and NSPS programs. Regarding the phrase "major emitting facility," the Agency should ensure that the terms "major emitting facility" under PSD, "stationary source" under NSPS, and "major source" under NESHAPS are coextensive. And the phrase "production processes and available methods" strongly suggests that the design, equipment, work practice or operational standard (DEWOS) promulgated under new source-wide NSPS and NESHAPS regulations could be coordinated. These two phrases could be interpreted by the Agency to mutually support and reinforce a source-wide approach to air pollution control.

The most challenging aspect of P-BACT is undoubtedly the explicit reference to NSPS and NESHAPS "baseline" requirements and the case-by-case technology forcing aspect of BACT. These phrases have traditionally been read to mean that applicable NSPS and NESHAPS requirements form minimum technology requirements, and that the case-by-case process gradually but inexorably tightens emission reductions through requiring more and more advanced emission controls. It is this traditional interpretation that has had the salutary effect of forcing some new technology, and also the

unintended consequence of inhibiting some improvements in production efficiencies. These unintended consequences are primarily economic and cost-driven. In particular, sources that install NESHAPS controls may nevertheless forego subsequent productivity improvements that may trigger NSR modification requirements because of the procedural and technological uncertainties of the BACT process, particularly when case-by-case BACT may be inconsistent with previously installed technologies. These unintended consequences are most acute at existing sources to which the NSR modification rules may apply. So to remedy these unintended consequences, the Agency could determine in each NESHAPS rulemaking that BACT for *existing* sources in the relevant source category is presumptively set at the NESHAPS level for a period of time—perhaps five years—after which modified sources would have to conduct a non-presumptive case-by-case BACT determination. The statutory grounds for P-BACT would be a finding that case-by-case evaluations for existing sources during the five-year presumption period would result in "economic impacts and other costs" that are inconsistent with the overall goal of improving air quality. Of course, the "economic impacts and other costs" principle would be generally inapplicable to *new* sources, which would be required to coordinate the installation of NESHAPS, NSPS, and BACT technology—along with highly efficient production processes—at the outset.

The P-BACT approach would apply in principle to P-LAER determinations. Section 171(3) defines "lowest achievable emission rate" as:

> that rate of emissions which reflects—
>
> (A) the most stringent emission limitation which is contained in the implementation plan of any State for such class or category of source, unless the owner or operator of the proposed source

> demonstrates that such limitations are not achievable, or
>
> (B) the most stringent emission limitation which is achieved in practice by such class or category of source, whichever is more stringent.

In both clauses of the definition, the reference emission limitation is determined by "class or category of source." This definition appears well-suited to deriving P-LAER limits from a source-wide NESHAPS regulation, which is based on categories of sources. That is, instead of developing LAER on a unit-by-unit basis, P-LAER could be developed on a source category-by-source category basis, using the published source-wide NESHAPS limitations as P-LAER for the "category of sources."

5. Conclusion

If the difficulty with the Agency's current approach to air pollution regulation is incompletely environmentally protection, difficult to manage, and provides conflicting signals to the regulated community that results in the inefficient use of capital, then a source-wide multi-pollutant strategy coordinated among the four principal air quality planning programs of Title I is a potential solution. This solution will require that the timing of these programs' requirements become mutually-reinforcing, that the sources of pollution to which the requirements apply be more consistently defined, and that the emission controls required at the sources become mutually-reinforcing. Though many aspects of implementing this framework approach will undoubtedly be challenging, the language of the Act supports this approach to air quality regulation.