What to Expect From EPA: Regulation of Greenhouse Gas Emissions Under the Clean Air Act

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As Congress debates comprehensive climate change legislation, a second line of action is underway in the United States to regulate greenhouse gases (GHGs). The U.S. Environmental Protection Agency (EPA) has begun a series of rulemakings to reduce GHG emissions under existing provisions of the Clean Air Act (CAA).[1] To date, EPA has initiated a number of actions that are required under the U.S. Supreme Court's 2007 decision in *Massachusetts v. EPA*,[2] including new emissions standards for mobile sources and preconstruction permitting for new and modified major stationary sources under the prevention of significant deterioration (PSD) program. EPA has also signaled that additional regulation may be in store for existing stationary sources under the new source performance standards (NSPS) program, with official notice coming as early as spring 2010. The most likely regulatory pathways are outlined in Table 1:

I. Mobile Sources of GHG Emissions

President Barack Obama announced the Administration's intention to regulate GHG emissions from new motor vehicles through a joint rulemaking by EPA and the U.S. Department of Transportation (DOT). This joint rulemaking will be accompanied by a revision of the California Pavley vehicle standards to make the California standards equivalent to the federal standards through 2016. The vehicle emissions standards will be set at a fleet average of 250 grams of carbon dioxide (CO_2) per mile, or 35.5 miles per gallon for model year 2016.

This action on mobile sources follows a 10-year effort that began in 1999 when a number of advocacy groups filed a petition asking EPA to regulate GHGs from vehicles under Title II of the CAA. The petition was ultimately denied by the George W. Bush Administration's EPA on the grounds

Table 1. Actions Underway and Likely

	Actions Done or Underway	Planned or Likely in 2010	Possible Future Actions
Mobile Sources	§202 Endangerment Finding (Expected 3/2010)		Medium and heavy-duty trucks,* aircraft, locomotives, and marine engines
	Joint EPA-DOT Vehicle Emissions & Efficiency Standards for Light-Duty Vehicles (Expected 3/2010)		Post-2017 motor vehicle standards. (Pavley II standards underway in CA)
Stationary Sources	GHG Reporting Rule (Done)	New Source Performance Standards for Cement Kilns	More NSPS standards by category of sources
	Prevention of Significant Deterioration (PSD) preconstruction permitting (BACT)(Expected 3/2010)	New Source Performance Standards for Electric Generating Units	
	Title V operating permit requirements for major sources	NSPS at State Level for Existing Sources—cap-and-trade or traditional performance standards?	
Fuels			Low Carbon Fuel Standard

* The 2007 Energy Independence and Security Act requires DOT to develop fuel economy standards for medium and heavy-duty vehicles. EPA could follow the path it used for light-duty vehicles, and partner with the DOT to develop these standards.

1. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.
2. 549 U.S. 497, 37 ELR 20075 (2007).

that GHGs are not pollutants under the CAA. The Supreme Court, in *Massachusetts*, disagreed. Since that decision, EPA has issued an endangerment finding under §202 of the CAA, a notice of the joint rulemaking, and a final rule.

II. Stationary Sources

EPA is required to begin regulation of stationary sources under the PSD preconstruction permitting program upon regulation of GHGs from motor vehicles. In addition to PSD permitting, EPA and the states may regulate new and existing stationary sources of GHGs under one of three CAA pathways.[3] The first and most likely path is the establishment of new source performance standards (NSPS) for categories of emissions sources under §111 of the Act. EPA could establish national ambient air quality standards (NAAQS) and require broad state implementation plans (SIPs) as an alternative to NSPS. As a second alternative, EPA could designate GHGs as hazardous air pollutants (HAPs) under §112.[4] Each approach is discussed briefly below.

III. PSD Preconstruction Permitting Program

As soon as EPA begins to regulate GHGs from new motor vehicles under Title II of the CAA, EPA and the states must also regulate those same pollutants under the PSD program for major stationary sources.[5] Section 165 of the Act requires new and modified sources that emit more than 100 tons per year of any one regulated pollutant, or 250 tons of any combination of regulated pollutants to meet a best available control technology (BACT) requirement on the new or modified facility.[6] Because this would require permitting of very small sources, EPA has proposed to "tailor" the PSD applicability requirements and increase the annual emissions threshold to at least 25,000 tons of CO_2 equivalent.[7] EPA has also signaled that it may adopt initial thresholds that are even higher than 25,000 tons, with a plan to phase in lower thresholds over time.[8]

Proposed new sources or modifications to existing sources that exceed the applicable threshold will apply for a preconstruction PSD permit. The permitting authority—typically the state environmental agency—will impose a BACT requirement on the new or modified facility. The permitting authorities, with guidance from EPA, will need to determine what constitutes BACT for the various types of facilities. EPA describes BACT as

> an emissions limitation which is based on the maximum degree of control that can be achieve[d]. It is a case-by-case decision that considers energy, environmental, and economic impact. BACT can be add-on control equipment or modification of the production processes or methods. This includes fuel cleaning or treatment and innovative fuel combustion techniques. BACT may be a design, equipment, work practice, or operational standard if imposition of an emissions standard is infeasible.[9]

In the draft tailoring rule, EPA suggests that it may attempt to guide these case-by-case BACT determinations by establishing "presumptive BACT" determinations at the national level.[10] Presumptive BACT would make permitting decisions at the state level easier. Permitting authorities would then have to justify any departure from the presumptive BACT based on unique factual circumstances.

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3. The Act clearly differentiates between these approaches. A pollutant cannot be both a criteria pollutant for which a national ambient air quality standard (NAAQS) is established and be a hazardous air pollutant (HAP). 42 U.S.C. §7412(b)(2) (2007), ELR Stat. CAA §112(b)(2). Section 111 of the Act allows for the establishment of NSPS requirements for new and modified existing sources of criteria pollutants, but §111(d) only permits imposition of NSPS requirements on existing stationary sources for pollutants that are neither criteria pollutants nor HAPs. 42 U.S.C. §7411, ELR Stat. CAA §111. Thus, the three paths are distinct.
4. 42 U.S.C. §7412(b)(2) (2007), ELR Stat. CAA §112(b)(2).
5. 42 U.S.C. §7475 (2007), ELR Stat. CAA §165. In a recent Decision on Reconsideration, EPA Administrator Lisa Jackson decided that EPA intends to consider the effective start of the vehicle regulations January 1, 2011, meaning PSD permitting requirements would be triggered on the same day, http://www.epa.gov/nsr/documents/psd_memo_recon_032910.pdf, March 29, 2010.
6. Section 169(3) states:
   > [t]he term "best available control technology" means 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, determines is achievable for such facility through application of production processes and available methods*, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant. 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. Emissions from any source utilizing clean fuels, or any other means, to comply with this paragraph shall not be allowed to increase above levels that would have been required under this paragraph as it existed prior to November 15, 1990.

   (Emphasis added.)
7. EPA issued its proposed tailoring rule to effect these threshold changes. Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 74 Fed. Reg. 55292 (Oct. 27, 2009).This 25,000-ton threshold is significantly higher than the thresholds established in §169(1) of the CAA. 42 U.S.C. §7479(1). EPA is arguing that it is reasonable to begin PSD permitting for sources emitting 25,000 tons or more, and review this proposed threshold later.
8. *See* Letter from Administrator Jackson, Feb. 22, 2010, http://epa.gov/oar/pdfs/LPJletter.pdf.
9. U.S. EPA, Prevention of Significant Deterioration (PSD) Basic Information: What Is BACT?, http://www.epa.gov/nsr/psd.html#best.
10. Work on what might be proposed for these presumptive BACT guidance documents or rules is underway. *See* 74 Fed. Reg. at 55321. Draft guidance or rules is expected in 2010, with permitting to commence in the first half of 2011. Letter from Administrator Jackson, Feb. 22, 2010, http://epa.gov/oar/pdfs/LPJ letter.pdf.

IV. NSPS

EPA and the states can also regulate new and existing sources under the NSPS provisions in §111. At the federal level, EPA issues NSPS requirements for each category of sources it deems "contributes significantly" to air pollution that may "reasonably be anticipated to endanger public health or welfare."[11] Under §111(d), states are required to submit a plan to impose NSPS requirements on all existing sources in the state. Section 111(d) only applies to pollutants—like GHGs—for which there is no NAAQS and that are not listed as HAPs under §112 of the Act.

A. The NSPS for New and Modified Sources Within Regulated Categories

Under §111(b), EPA imposes emissions limitations on new and modified sources within each category of sources established by EPA. The emissions limitations are based on the best-demonstrated technology, after taking into account the cost and environmental and energy impacts.[12] The NSPS requirements must be reviewed and revised at least every eight years.[13] A number of source categories are coming up for review and revision, including cement kilns and electric generating units in the first half of 2010. It bears noting that EPA could revise the categories to expand them. For example, instead of regulating industrial boilers and electric generating units separately, they could conceivably be regulated under a broader combustion sources category.

B. The NSPS for Existing Sources Within Regulated Categories

Under §111(d), EPA issues "guidelines" to the states regarding the submission of state plans to cover existing sources within established categories. States must evaluate their existing sources and submit plans to cover them with NSPS requirements. The state-level requirements may "take into consideration, among other factors, the remaining useful life of the existing source to which such standard applies."[14]

NSPS for existing sources could take any number of forms. An emissions limitation based on the best-demonstrated technology for the category of sources is possible, for example, similar to the approach EPA will take for new and modified existing sources. The statutory definition of "standard of performance" refers to "the degree of emission limitation achievable through the application of the best system of emission reduction." The definition would seem to allow a broad range of potential approaches to reducing emissions.

To better understand how EPA may approach regulation under §111, it is helpful to consider the recent attempt by EPA to regulate mercury from coal-fired power plants. Through its proposed Clean Air Mercury Rule (CAMR), EPA sought to remove mercury from the list of HAPs under §112 of the Act. Once mercury was no longer a HAP, EPA could both regulate mercury through national NSPS requirements for new and modified sources and require states to cover existing sources under §111(d). In the proposed CAMR rule, EPA established an emissions limitation for mercury from new and modified coal-fired power plants under §111(b) and served up a cap-and-trade program covering existing sources for states to implement under §111(d).[15] A similar approach is possible for GHGs.

While EPA pursued a cap-and-trade approach in the CAMR context for coal-fired power plants, it is worth noting that §111(d) would likely impose a number of limitations on the cap-and-trade approach for GHGs. It may not be possible, for example, to allow trading of emissions allowances between categories of sources regulated under §111. EPA could, perhaps, expand the scope of categories to permit broader trading. It also is unclear whether offsets—reduction credits obtained through projects or activities outside the sources covered—would ever be allowable, because these reductions by definition come from outside the regulated category of sources. Thus, two features of the cap-and-trade programs being considered in Congress may be unavailable to EPA and the states under §111(d).

C. Reductions Achievable Under an NSPS Approach

In its Advanced Notice of Proposed Rulemaking for Greenhouse Gases, EPA offered initial estimates of emissions reductions achievable using NSPS. The following table summarizes those estimates.

Table II: Reductions Achievable Using NSPS

	Reductions Achievable	
Source Category	**New**	**Existing**
Cement	40%	1-10%
Refineries	"at least" 20%	10-20%
Industrial Boilers	10-33%	1-10%
Coal Power Plants		5%
if supercritical	10-15%	
if ultra-supercritical	20-25%	
if carbon capture and storage	80-90%	

It is worth noting that EPA has the ability to establish multiphased standards for a particular source category under §111. Phased standards send a clear signal about what technologies EPA believes will be available in the future in order

11. 42 U.S.C. §7411(b)(1)(A).
12. Section 111(a)(1) states:
    > [t]he term "standard of performance" means a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.

    42 U.S.C. §7411(a)(1).
13. 42 U.S.C. §7411(b)(1)(B).
14. 42 U.S.C. §7411(d)(1)(B), ELR Stat. CAA §111(d)(1)(B).
15. The CAMR rule was invalidated by the Federal Court of Appeals because it found that EPA improperly sought to treat mercury as nonhazardous. New Jersey v. EPA, No. 05-1097 (D.C. Cir. 2007).

to promote its development. Such an approach may be particularly useful for carbon capture and sequestration. BACT for new units should be more stringent than NSPS.

D. NSPS Implementation Timelines

It typically takes EPA 18 months to two years to establish NSPS emissions guidelines. States then develop their program based on the guidelines. State implementation can take another one to two years before state-adopted standards are established. While compliance time frames may vary considerably from state to state, on average, existing units have been given roughly three years to comply with new standards.

V. Two Other Possible, but Unlikely Approaches

EPA could seek to regulate GHGs under §§108 through 110 of the CAA by establishing NAAQS for GHGs. This would require designating the entire country as in attainment or not in attainment, and requiring states to submit SIPs containing measures to reduce GHG emissions from a variety of sources. In the preamble to its recent tailoring rule, EPA states that it does not intend to establish NAAQS for GHGs.[16] Thus, the NAAQS approach appears an unlikely regulatory path.

An alternative and equally unlikely approach is the possible regulation of GHGs as HAPs under §112 of the Act. Under §112, EPA must list pollutants that present, through inhalation or other routes of exposure, a threat of adverse human health effects (including, but not limited to, substances which are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic) or adverse environmental effects whether through ambient concentrations, bioaccumulation, deposition, or otherwise. . . .[17]

HAPs face the most stringent technological restrictions available under the CAA, the maximum achievable control technology (MACT) standards. MACT for new and modified facilities is the most stringent control demonstrated on an existing facility, and MACT for existing facilities is the average emissions limitation achieved by the top 12% of existing facilities. In setting MACT standards, EPA does not take cost into account.

VI. Conclusion

EPA is proceeding with regulation of both mobile and stationary sources of GHG pollution under the existing CAA. This approach will entail vehicle emissions standards for mobile sources and PSD and NSPS requirements for stationary sources. It is very unlikely that EPA will establish GHG ambient air quality standards or list GHGs as hazardous under the CAA. States will have a very significant role in regulating stationary sources, given their role as permit administrator under the PSD program and primary regulator of existing sources through the NSPS program.

16. 74 Fed. Reg. 55292, 55297 (Oct. 27, 2009).
17. 42 U.S.C. §7412(b)(2).