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Integrating the Clean Air Act With Cap-and-Trade

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In 2007, the U.S. Department of Energy estimated that more than 150 new coal-fired power plants could come online by 2030.¹ A “coal rush” had begun in 2001, when the Bush Administration made clear that U.S. energy policy would support the development of new coal power plants.² At the time, most energy experts expected electricity demand to increase by more than 30 percent,³ and coal-fired power plants seemed the most likely source to provide cheap and abundant electricity in the United States.⁴ With the prospect of large profits from building new and expensive power plants, the energy industry pushed hard for quick approval to construct and operate the facilities. The companies may also have been attempting to begin operations before passage of cap-and-trade legislation, because they likely believed they would be “grandfathered in” under the law and thus receive pollution allowances for free.⁵ With political and economic forces squarely behind the industry’s coal rush, it appeared likely that most of the proposed power plants would come online.

However, in July 2009, the Sierra Club announced that environmental organizations had defeated 100 new coal plants proposed during the coal rush.⁶ In many cases, these groups used the Clean Air Act⁷ and state public utility laws⁸ to delay or prevent construction of the plants.⁹ Their

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¹ Steve Mufson, *Midwest Has ‘Coal Rush,’ Seeing No Alternative Energy Demand Causes Boom in Plant Construction*, THE WASHINGTON POST, Mar. 10, 2007, available at <http://www.washingtonpost.com/wp-dyn/content/article/2007/03/09/AR2007030902302.html>.

² See Gary C. Bryner, *The National Energy Policy: Assessing Energy Policy Choices*, 73 U. COLO. L. REV. 341, 346-37 (2002) (summarizing the Bush Administration’s National Energy Plan and its recommendations for increased coal-based energy).

³ Energy Information Administration, Press Release, *Economic Growth Seen As Key Determinant for Future Energy Use*, Dec. 21, 2001, available at <http://www.eia.doe.gov/neic/press/press171.html>.

⁴ Mufson, *supra* note 1 (discussing state concerns about reliability and costs of electricity).

⁵ See Susan Moran, *Coal Rush!*, WORLD WATCH, Dec. 13, 2006, available at <http://www.worldwatch.org/node/4776>.

⁶ See Sierra Club, Press Release, *100 Coal Plants Prevented or Abandoned, Movement Sparks Shift to Cleaner Energy and Over 400 Million Fewer Tons of CO₂*, Jul. 9, 2009, available at http://action.sierraclub.org/site/MessageViewer?em_id=115741.0.

⁷ 42 U.S.C. §§ 7401-7671q (2006).

involvement prevented new emissions of approximately 400 million tons per year of greenhouse gases.¹⁰ The delayed construction also gave the Energy Information Administration (EIA) the opportunity to revise its energy forecasts. In March 2009, the EIA reported that the country would need only two new coal-fired power plants to serve forecasted energy needs, and this estimate did not account for new investments in energy efficiency and renewable energy sources.¹¹ Thus, the delays achieved by organizations using the Clean Air Act and other state laws both prevented new greenhouse gas emissions and protected U.S. electricity consumers from paying for unnecessary investments in hundreds of new, dirty energy sources.

Despite this, the House of Representatives passed a climate change bill – the American Clean Energy and Security Act¹² (ACES, also called the Waxman-Markey bill) – that would, if signed into law, preempt the Clean Air Act as it applies to emissions of greenhouse gases from stationary sources, such as coal plants.¹³ If the Senate follows suit, Congress will have eliminated one of the most successful tools available to concerned citizens, environmental organizations, and states to prevent imprudent construction of large emitting sources. Unlike the cap-and-trade program proposed by the House, the Clean Air Act imposes technology-based requirements on covered facilities.¹⁴ As applied to greenhouse gases, the Clean Air Act could establish a minimum technological floor for covered facilities and prevent large emitting sources from avoiding emissions controls entirely. Technology-based standards also create incentives for the development of pollution control technologies,¹⁵ and could spur investment in alternative forms of energy. Finally, the Clean Air Act provides interested parties the opportunity to participate in local decision-making regarding the development of energy sources that best serve the public interest.¹⁶ Preemption of the Clean Air Act through climate change legislation would remove these significant advantages and expose U.S. citizens to several flaws common in cap-and-trade.

This article argues that U.S. climate legislation should not preempt the Clean Air Act's two dominant technology-based programs¹⁷ as they apply to greenhouse gases. Part II of this article

⁸ See Robert L. Glicksman, *Coal-Fired Power Plants, Greenhouse Gases, and State Statutory Substantial Endangerment Provisions: Climate Change Comes to Kansas*, 56 U. KANS. L. REV. 517, 538-52 (2008) (discussing various state denials of proposed new coal plants).

⁹ Glicksman, *supra* note 8, at 538-52; see also *In re Desert Rock Energy Co., LLC*, 2009 WL 3126170 (E.A.B. Sept. 24, 2009) (remanding Clean Air Act permit to the Environmental Protection Agency to reconsider controls for carbon dioxide emissions from new proposed coal plant); *Longleaf Energy Associates, LLC v. Friends of Chattahoochee, Inc.*, 298 Ga. App. 753(2009) (overturning trial court decision that the Clean Air Act requires control of carbon dioxide emissions from new coal plant). Although the *Longleaf* decision rejected the argument that the Clean Air Act must regulate carbon dioxide emissions, the litigation has nonetheless delayed construction of the plant for almost five years. 298 Ga. App. at 755 (noting Longleaf applied for a permit in November 2004).

¹⁰ Sierra Club, *supra* note 6.

¹¹ Sierra Club, Press Release, *Government Report, New Wave of Coal Plants Not Needed*, Mar. 31, 2009, available at http://action.sierraclub.org/site/MessageViewer?em_id=99861.0.

¹² American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009).

¹³ H.R. 2454, 111th Cong., Title III, Subtitle C, § 331.

¹⁴ See 42 U.S.C. § 7411 (2006) (establishing technology-based New Source Performance Standards); § 7475 (establishing technology-based standards under the Prevention of Significant Deterioration program).

¹⁵ See Margaret R. Taylor, *et al.*, *Regulation as the Mother of Innovation: The Case of SO₂ Control*, 27 L. & POL'Y 348 (2005).

¹⁶ See 42 U.S.C. § 7475 (2006) (requiring public notice and comment in permitting decisions); 7607(b) (authorizing judicial review of administrative decisions); § 7604 (authorizing citizen suits).

¹⁷ These are New Source Performance Standards, 42 U.S.C. § 7411 (2006), and Prevention of Significant Deterioration, 42 U.S.C. §§ 7470-79 (2006). Other technology-based programs, such as the hazardous air pollutant program, 42 U.S.C. § 7412, could also technically apply to greenhouse gas emissions. However, this article does not discuss those other

briefly describes the cap-and-trade program of the Waxman-Markey bill. Part III of this article explains how the Clean Air Act's programs can regulate greenhouse gas emissions and the role the statute has already played in preventing new sources from operating. Part IV explains how the Clean Air Act can complement a cap-and-trade law. Part V concludes that Congress should remove preemption language from any climate change law.

II. Waxman-Markey: Cap-and-Trade and Clean Air Act Preemption

The House of Representatives made history in June 2009 when it passed the first bill seeking to establish comprehensive climate change legislation. The American Clean Energy and Security Act¹⁸ (ACES, also called the Waxman-Markey bill) will, if it becomes law, establish national renewable energy standards, promote and fund energy efficiency and conservation, and, most importantly, establish a cap-and-trade program for greenhouse gases emitted from major industrial sources.¹⁹ While the bill contains several significant flaws, its passage represented a major step forward in U.S. policy to address climate change. If Congress ultimately passes climate change legislation (which President Obama presumably would sign), this would signal to the world that the United States takes responsibility for its historical and continued emissions of massive amounts of greenhouse gases. Passage of climate change legislation, even legislation with many of the flaws of Waxman-Markey, would also send critical market signals to investors in the energy and other carbon-intensive sectors that they need to begin planning for new market strategies in a carbon-free future. In the long term, even a weak climate change law like Waxman-Markey will achieve significant emissions reductions and promote clean energy and industry. However, the urgency of climate change requires immediate action to reduce existing emissions and prevent new emissions of greenhouse gases, and Waxman-Markey fails to address these immediate needs. Parts A and B summarize some of the key elements of the Waxman-Markey bill. Part C then provides a brief assessment of the proposed legislation.

A. The Cap-and-Trade Plan

The Waxman-Markey bill would establish an overall cap on greenhouse gas emissions from covered sources and lower the cap over time. The bill would apply to seven greenhouse gases: carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons (HFCs), perfluorocarbon, and nitrogen trifluoride.²⁰ Using 2005 emissions levels as a baseline, the bill would require a 3 percent reduction of greenhouse gas emissions²¹ from baseline levels by 2012, a 17 percent reduction by 2020, a 42 percent reduction by 2030, and an 83 percent reduction by 2050.²² It would apply to a wide range of "covered entities," including electricity sources, stationary sources that produce or import various fossil fuels, various industrial sources, and other participants in fossil

programs because it is much less likely that citizen groups, states, or the EPA would use other programs to regulate greenhouse gas emissions from stationary sources.

¹⁸ H.R. 2454, 111th Cong. (2009).

¹⁹ H.R. 2454, Title I, Title II, & Title III.

²⁰ H.R. 2454, Title III, Subtitle A – Reducing Global Warming Pollution, § 311 (quoting § 711(a)(1-7)).

²¹ The bill would regulate HFCs under a separate cap-and-trade program. H.R. 2454, Title III, Subtitle C – Additional Greenhouse Gas Standards, § 332. This article will not discuss the separate HFC program or distinguish HFC regulation under the Clean Air Act from other pollutant regulations.

²² H.R. 2454, § 703(a)(1-4).

fuel industries.²³ Most sources would need to emit at least 25,000 metric tons of carbon dioxide equivalent (mtCO₂e) per year to qualify as “covered entities.”²⁴ The bill would cover approximately 72 percent of U.S. greenhouse gas emissions in 2012 and about 86 percent in 2020.²⁵

The bill would establish the total quantity of emissions allowances for each year from 2012–2050. In 2012, 4,627 million allowances would be available for distribution.²⁶ The number would increase to 5,482 million in 2016 to account the inclusion of additional covered entities, and by 2050, available allowances will decline to 1,035 million.²⁷

The bill would establish very specific requirements for distribution of the allowances. In 2012, EPA would distribute more than 70 percent of all allowances for free.²⁸ The percentage of freely distributed allowances would increase to 82.5 percent in 2019.²⁹ In other words, covered entities would need to purchase less than 18 percent of all emissions allowances in 2019; they would receive all other allowances for free. After 2020, the percentage of auctioned offsets would increase so that, by 2031, 70 percent of all allowances would be auctioned.³⁰

The electricity industry would receive the greatest percentage of all allowances. During the first two years, the electricity industry would receive nearly 44 percent of all allowances,³¹ and at least 35 percent of all allowances through year 2025.³² After then, the electricity sector’s guaranteed distribution would decline rapidly, to only 7 percent in 2029.³³ As a consequence, the electricity sector would have about twelve or so years during which it would receive a significant portion of its emissions allowances for free. While the bill’s authors designed these provisions to reduce the burden on electricity consumers,³⁴ electricity generators and utilities will in fact receive the direct benefits of the free allowances.³⁵

The bill would establish other terms that give covered entities greater flexibility in complying with their emissions requirements. First, covered entities may engage in unlimited “banking.”³⁶ In other words, they may reduce their emissions more than required early on and use the banked emissions at any point in the future, when the overall cap is lower. They may also “borrow”

²³ CONGRESSIONAL BUDGET OFFICE, COST ESTIMATE, H.R. 2454, AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009, 4-5 (June 5, 2009), available at www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf.

²⁴ CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 4-5.

²⁵ CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 5.

²⁶ *Id.*

²⁷ The EPA may adjust the distribution schedule of the allowances if actual U.S. GHG emissions were different from the 2005 baseline used by Congress (it assumed actual 2005 emissions were 7,206 million tons CO₂e) or if the covered entities are responsible for more or less of the emissions than Congress has assumed. H.R. 2454, Title III, Subtitle A, § 311 (§ 721(e)(2)). The EPA must also create a “strategic reserve” of additional allowances for distribution if market prices were to exceed expected levels. CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 6.

²⁸ CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 6, table 1.

²⁹ *Id.*

³⁰ CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 6.

³¹ H.R. 2454, Title III, Subtitle C, § 321 (§ 782(a)(1)(A)).

³² H.R. 2454, Title III, Subtitle C, § 321 (§ 782(a)(1)(A-C)).

³³ H.R. 2454, Title III, Subtitle C, § 321 (§ 782(a)(1)(D-G)).

³⁴ The bill states the EPA shall distribute the allowances “for the benefit of electricity consumers.” H.R. 2454, Title III, Subtitle C, § 321 (§ 782(a)(1)).

³⁵ Despite the language regarding “electricity consumers,” the bill later makes clear that electricity companies will receive the allowances. H.R. 2454, Title III, Subtitle C, § 321 (§ 783).

³⁶ H.R. 2454, Title III, Subtitle C, § 321 (§ 725(a)).

emissions allowances from future years.³⁷ They may borrow, without any penalty, from any year immediately following their compliance year.³⁸ Thus, if an entity exceeds its emissions allowance for 2012, it may borrow allowances from 2013 without penalty. An entity may also borrow emissions up to five years in the future, but only to meet 15 percent of its obligation, and it must pay interest on the borrowed emissions.³⁹

Covered entities may use offset credits to meet their obligations.⁴⁰ In total, offsets may account for 2 billion tons of CO₂e, half of which must come from domestic and half of which must come from international sources.⁴¹ The EPA must establish an initial list of eligible offset projects and to develop regulations to ensure the projects result in additional, verifiable, and permanent GHG reductions, avoidance, or sequestration.⁴²

B. Clean Air Act Preemption

The Waxman-Markey bill would broadly preempt the Clean Air Act. First, it would prohibit the EPA from establishing New Source Performance Standards for any source that qualifies as a “covered entity” under the bill.⁴³ It would also prohibit EPA from regulation of any GHGs as criteria pollutants under Clean Air Act Section 108⁴⁴ or as hazardous air pollutants under Section 112,⁴⁵ and it would prohibit EPA from regulating greenhouse gas emissions under New Source Review⁴⁶ and Title V of the Clean Air Act.⁴⁷ In short, other than allowing EPA to develop NSPS for smaller sources, the bill would bar EPA from regulating GHGs under any of the CAA’s existing stationary source programs.

C. Is the Waxman-Markey Bill Any Good?

Overall, the Waxman-Markey bill would establish a comprehensive program to control and, over time, reduce, greenhouse gas emissions from most large emitting sources in the United States. Its ambitious scope has necessitated several key concessions to make the bill more attractive to moderate and conservative Representatives and voters. As a matter of politics, the bill likely makes sense. However, as a tool for effectively mitigating climate change in the short term, the bill falls short.

Waxman-Markey would nominally require covered sources to reduce their emissions by 17 percent below 2005 emissions by 2020.⁴⁸ But climate scientists have called for much greater emissions reductions by 2020 to avoid the graver impacts of climate change.⁴⁹ Waxman-Markey

³⁷ H.R. 2454, Title III, Subtitle C, § 321 (§ 725(c)).

³⁸ H.R. 2454, Title III, Subtitle C, § 321 (§ 725(c)(1)).

³⁹ H.R. 2454, Title III, Subtitle C, § 321 (§ 725(c)(2)).

⁴⁰ H.R. 2454, Title III, Subtitle C, § 321 (§ 732).

⁴¹ CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 16.

⁴² H.R. 2454, Title III, Subtitle C, § 321 (§ 732).

⁴³ H.R. 2454, Title III, Subtitle C, § 331 (§ 811(c)).

⁴⁴ H.R. 2454, Title III, Subtitle C, § 331 (§ 831).

⁴⁵ H.R. 2454, Title III, Subtitle C, § 331 (§ 833).

⁴⁶ H.R. 2454, Title III, Subtitle C, § 331 (§ 834).

⁴⁷ H.R. 2454, Title III, Subtitle C, § 331 (§ 835).

⁴⁸ H.R. 2454, Title III, Subtitle A – Reducing Global Warming Pollution, § 311 (quoting § 703(a)(2)).

⁴⁹ The Intergovernmental Panel on Climate Change (IPCC) has called for a 25-40 percent reduction below 1990 baseline emissions by 2020 to stabilize greenhouse gas concentrations at 450 parts per million. IPCC, FOURTH ASSESSMENT

alone will not achieve the emissions reductions we need in the near term.

In fact, Waxman-Markey appears likely to suffer from a flaw common in most cap-and-trade programs: overallocation of emissions allowances.⁵⁰ Many existing cap-and-trade programs established initial emissions caps that exceeded actual emissions levels.⁵¹ While actual emissions decreased under some of these programs despite the overallocation,⁵² initial overallocation resulted in depressed credit prices, reduced emissions trading, and stifled investment.⁵³ If enacted in its current form, Waxman-Markey will likely have the same overallocation flaws as other cap-and-trade programs, because it allows new emissions credits, in the form of “offsets,” to enter the emissions trading market and effectively increase the emissions cap.⁵⁴ Due to the offsets, actual emissions from covered sources may increase until 2030 under the Waxman-Markey bill.⁵⁵ If this estimate is accurate, emissions trading under Waxman-Markey could languish for decades.⁵⁶ As a result, covered facilities will have little incentive to reduce their near-term emissions, and technological innovation will stagnate. The Waxman-Markey bill’s impact will likely be more profound in the future, once the emissions cap declines significantly and emissions allowances become more expensive. However, the United States cannot wait until 2030 for market-based incentives to spur development in emissions reductions technology and, more importantly, renewable energy to replace coal. That is why Clean Air Act preemption is such a bad idea.

III. The Clean Air Act Potential Regulation of Greenhouse Gases

Since the Supreme Court ruled in 2007 that carbon dioxide is an air pollutant subject to Clean Air Act regulation,⁵⁷ the statute has played an increasingly important role in regulatory decisions.⁵⁸ In fact, even before the Supreme Court’s decision, environmental advocates had successfully used the Clean Air Act to delay or prevent construction of new major emitting sources of greenhouse gases. These delays proved critically important to thwart the coal and electricity

REPORT, WORKING GROUP III FULL REPORT, 776, Box 13.7 (2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter13.pdf>. The United States increased its greenhouse gas emissions by 16.3 percent between 1990 and 2005. ENVIRONMENTAL PROTECTION AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2005, ES-3 (Apr. 15, 2007), available at <http://www.epa.gov/climatechange/emissions/downloads06/07CR.pdf> (last visited Oct. 28, 2009). Thus, the Waxman-Markey bill, which would require emissions reductions of less than one percent by 2020, falls 24-39 percent below the IPCC’s goals.

⁵⁰ See Leslie K. McAllister, *The Overallocation Problem in Cap-and-Trade: Moving Toward Stringency*, 34 COLUM. J. ENVTL. L. 395 (2009).

⁵¹ *Id.* at 411-13.

⁵² *Id.* at 402-03 (discussing the Acid Rain Program), 402 (discussing the Los Angeles Clean Air Incentive Market).

⁵³ *Id.* at 413-23; see also Margaret R. Taylor et al., *Regulation as the Mother of Innovation: The Case of SO₂ Control*, 27 LAW & POLY 348, 349-50 (2005).

⁵⁴ See *supra* notes 40 to 41 and accompanying text.

⁵⁵ ENERGY INFORMATION ADMIN., ENERGY MARKET AND ECONOMIC IMPACTS OF H.R. 2454, THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009, 4 (Aug. 2009), available at [http://www.eia.doe.gov/oiaf/servicerpt/hr2454/pdf/sroiaf\(2009\)05.pdf](http://www.eia.doe.gov/oiaf/servicerpt/hr2454/pdf/sroiaf(2009)05.pdf) (noting that the 2 billion metric ton limit is equivalent to six times the projected growth in energy-related emissions through 2030); *id.* at 10 fig.3 (showing significant increases in greenhouse gas emissions between 2012 and 2030 if facilities use banking and offsets to meet their allocations).

⁵⁶ *Id.* at 12 (discussing variability in the allowance prices, depending on how facilities use banking and offsets).

⁵⁷ *Massachusetts v. EPA*, 549 U.S. 497 (2007).

⁵⁸ See, e.g., *In re Desert Rock Energy Co., LLC*, 2009 WL 3126170 (E.A.B. Sept. 24, 2009) (remanding Clean Air Act permit to the Environmental Protection Agency to reconsider controls for carbon dioxide emissions from new proposed coal plant).

industries' rush to build more than 100 coal plants and prevented emissions of millions of tons of carbon dioxide and other greenhouse gases.⁵⁹ They also prevented utilities and their regulators from overbuilding new power plants based on incorrect forecasts of rising energy demands. Although the Clean Air Act was not the only tool employed in the fight against the coal rush, it has played a key role in preventing construction and operation of many plants.

Two programs under the Clean Air Act – New Source Performance Standards and New Source Review – have the greatest potential to affect the construction and operation of coal-fired power plants. This Section briefly describes these programs and explains how they incentivize technological development. It also highlights the role that citizens and interested parties can play under the Clean Air Act to influence permitting decisions and prevent construction of unnecessary facilities. As Part IV of this article later explains, cap-and-trade and the Clean Air Act can complement each other to minimize the flaws of each system.

A. New Source Performance Standards

New Source Performance Standards establish uniform emissions limitations that potentially apply nationwide to all covered sources.⁶⁰ EPA may establish NSPS for any sources that, in the EPA's judgment, cause or contribute to endangerment of the public health or welfare.⁶¹ In establishing NSPS, EPA must establish a limitation based on the best system of emissions reductions that has been adequately demonstrated.⁶² For each category of pollution source, EPA canvasses available technologies, assesses the amount of pollution reduction the technologies can achieve, and considers costs, energy requirements, and non-air-quality health and environmental impacts involved in reducing the pollution.⁶³ EPA ultimately establishes a performance standard, or emission limitation, that sets the allowable rate of pollution that covered sources may emit.⁶⁴ In establishing NSPS, EPA does not mandate the use of any particular technology; rather each facility has discretion to determine how it will meet the mandatory performance standard.⁶⁵

NSPS most commonly apply to sources newly constructed or modified after the date that EPA has finalized NSPS for that source category.⁶⁶ EPA must revise NSPS for categories of sources every eight years, if data suggest the existing standards require updating.⁶⁷ Whenever EPA

⁵⁹ See *supra* note 6 and accompanying text.

⁶⁰ 42 U.S.C. § 7411 (2006). EPA is required to establish NSPS for any category of sources that, in the EPA's judgment, "causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare." *Id.* § 7411(b)(1)(A). To date, EPA has established NSPS for sixty-nine source categories. 40 C.F.R. § 60, Subpart C.

⁶¹ 42 U.S.C. § 7411(b)(1)(A) (2006).

⁶² *Id.* § 7411. This is often referred to as the "best adequately demonstrated technology," BADT, or BDT.

⁶³ *Id.* § 7411(a)(1).

⁶⁴ A familiar critique of technology-based programs is that they usually do not set absolute caps on the aggregate amount of pollution that facilities may emit. Since emissions rates theoretically allow facilities to emit unlimited amounts of pollutants, critics view performance standards as inadequate to reduce ambient air pollution. See Joseph Goffman, *Title IV of the Clean Air Act: Lessons for Success of the Acid Rain Emissions Trading Program*, 14 PENN ST. ENVTL. L. REV. 177, 182 (2006).

⁶⁵ 42 U.S.C. § 7411(a)(1), (b) (2006). See also David M. Driesen, *Is Emissions Trading an Economic Incentive Program?: Replacing the Command and Control/Economic Incentive Dichotomy*, 55 WASH. & LEE L. REV. 289, 297-300 (1998) [hereinafter Driesen, *Emissions Trading*] (explaining that most pollution control statutes give facilities discretion to determine which technologies they will employ to meet technology-based performance standards).

⁶⁶ 42 U.S.C. § 7411(a)(2) (2006).

⁶⁷ *Id.* § 7411(b)(1)(B).

issues revised NSPS, existing facilities are “grandfathered in” under the older NSPS, while new and modified sources must comply with the revised NSPS.⁶⁸ As a result, various facilities within the same industrial category may be subject to variable NSPS requirements.⁶⁹

EPA also has authority to promulgate NSPS for existing sources.⁷⁰ The statute requires EPA to develop regulations requiring states to promulgate NSPS for any existing source that is not otherwise covered under Sections 108 of the Act⁷¹ or regulated as a hazardous air pollutant.⁷² If states do not comply with their duty to promulgate NSPS, then EPA may step in to establish national standards.⁷³

Thus far, NSPS have not played a role in preventing emissions of greenhouse gases from power plants and other stationary sources, because EPA has yet to promulgate any NSPS for these pollutants. However, environmental organizations and states have submitted several petitions to EPA asking it to develop NSPS for several types of stationary sources, including fossil fuel-fired power plants, cement kilns, oil refineries, and landfills.⁷⁴ Moreover, EPA recently issued a final rule finding that greenhouse gases emitted from motor vehicles cause or contribute to the endangerment of public health and welfare.⁷⁵ It could be only a matter of time before EPA issues endangerment findings for stationary sources of greenhouse gases. Once this happens, NSPS could set a baseline level of emissions control for greenhouse gases.

B. New Source Review/Prevention of Significant Deterioration

The New Source Review/Prevention of Significant Deterioration⁷⁶ (PSD) program requires new or modified major sources to obtain permits and meet emissions standards based on the “best available” technology.⁷⁷ Any new or modified major source must comply with the PSD requirements prior to constructing or modifying a facility.⁷⁸

⁶⁸ *Id.* § 7411(a)(2).

⁶⁹ See Brian H. Potts, *Trading Grandfathered Air - A New, Simpler Approach*, 31 HARV. ENVTL. L. REV. 115, 121 (2007) (identifying three separate sets of NSPS applicable to coal-fired electric utilities, based on their date of construction or modification).

⁷⁰ 42 U.S.C. § 7411(d) (2006).

⁷¹ *Id.* § 7408. This section requires EPA to establish a list of “criteria” pollutants for which states must then establish National Ambient Air Quality Standards. *Id.* § 7409.

⁷² *Id.* § 7411(d). Hazardous air pollutants are subject to stringent technology-based standards under Section 112 of the Clean Air Act. *Id.* § 7412.

⁷³ *Id.* § 7411(d)(2).

⁷⁴ See *New York v. EPA*, No. 06-1322 (D.C. Cir. 2006) (challenging EPA’s refusal to establish NSPS for power plants); *New York v. EPA*, No. 08-1279 (D.C. Cir. 2008) (challenging EPA’s refusal to set NSPS for oil refineries).

⁷⁵ EPA, *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*, 74 Fed. Reg. 66,496 (Dec. 15, 2009).

⁷⁶ 42 U.S.C. § 7475 (2006). This article focuses on the PSD program, which applies in areas that meet the applicable National Ambient Air Quality Standards (NAAQS), *id.* § 7409(b), or for which no NAAQS exist. *Id.* § 7475. EPA has not established NAAQS for greenhouse gases.

⁷⁷ 42 U.S.C. § 7475(a)(4) (2006).

⁷⁸ The New Source Review requirements apply only to “major emitting facilities” and “major sources.” See 42 U.S.C. § 7479(1) (2006). A “major emitting facility” under the PSD program is either 1) a facility with the potential to emit at least 100 tons per year of any air pollutant from one of 28 listed categories of sources; or 2) a facility with the potential to emit at least 250 tons per year of any air pollutant. *Id.* § 7479(1).

A facility that triggers the PSD program must obtain a permit prior to construction and operation of the new or modified source.⁷⁹ Through the permitting process, the facility must be subject to technology-controls based on the Best Available Control Technology (BACT) applicable to the source.⁸⁰ Finally, the permitting agency must perform an air quality analysis to assess the environmental impacts that the new or modified facility will cause.⁸¹ If, based on this analysis, the permitting agency determines that the environmental and societal costs of the facility outweigh the benefits of the facility, the permitting agency may deny the facility's request to construct.⁸² Thus, the permitting agency retains significant discretion to preclude the construction of polluting facilities that may cause net harm to the environment or society at large.

BACT differs from the NSPS technology-based controls in that each BACT determination is made on a case-by-case basis.⁸³ Accordingly, for each new facility construction or facility modification, the permitting agency assesses what types of technology qualify, at that precise moment, as the "best available" technology controls.⁸⁴ Permitting agencies make this determination by surveying the technology currently employed by similarly situated facilities, calculating the costs of installing these technologies, and, ultimately, establishing emissions limitations reflecting the "best" technology that is available (i.e., affordable) for the facility to use.⁸⁵

EPA guidance documents explain that BACT determinations must proceed through a "top-down" approach.⁸⁶ This approach requires permitting agencies to first identify the best technologies, in terms of pollution control performance, and to favor the most effective of the technologies.⁸⁷ The permitting agency must then mandate emissions limitations based on the best-performing technology unless other mitigating factors, such as the cost of the technology and the economic status of the facility, justify a downward departure from the best technology.⁸⁸ The underlying presumption of EPA's top-down approach is that most facilities will install the latest and most effective pollution control technology.⁸⁹

C. Technological Development under the Clean Air Act

Both NSPS and the PSD program promote technological development, albeit in different ways. Under NSPS, Congress directed EPA to establish categorical technology-based emissions standards for various types of facilities. Once EPA sets the standards, covered facilities must meet them.⁹⁰ The standards themselves change only when EPA engages in rulemaking proceedings to revise them. As a result, NSPS standards tend to be somewhat static. That does not mean,

⁷⁹ 42 U.S.C. § 7475(a)(1) (2006).

⁸⁰ *Id.* § 7475(a)(4).

⁸¹ *Id.* § 7475(a)(6).

⁸² *Id.*

⁸³ *Id.* § 7479(3).

⁸⁴ *Id.*

⁸⁵ *Alaska Dept. of Env'tl. Conservation v. EPA*, 540 U.S. 461, 475-76 (2004) (discussing the EPA's use of a "top-down" approach to setting BACT).

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.*

⁸⁹ *Id.*

⁹⁰ As noted above, the standards apply to new, modified, and, if EPA deems it appropriate, existing sources.

however, that the technologies necessarily remain static as well.⁹¹ Regulated facilities may employ any available technologies to meet the applicable emissions standards and therefore have incentive under the Clean Air Act to invest in effective, cheap technologies to meet the standards. NSPS thus establishes a technological “floor” for covered facilities, but by no means limits the range of technologies facilities may employ to meet these baseline standards.⁹²

The PSD program requires permitting agencies (the EPA or the relevant state agency) to set technology-based standards on a case-by-case basis.⁹³ This system provides a mechanism for the development of new technologies and enhanced standards. Specifically, since the best available control technology is based on the “maximum degree of reduction of each pollutant” that is achievable at the time of permitting, it creates an incentive for companies that sell commercial pollutant control technology to invest in research and development to create new technologies.⁹⁴ The more the companies develop new technologies, the more likely it is that regulators will mandate more rigorous technology-based standards through the BACT-setting process. While certain limitations apply to this assumption,⁹⁵ BACT may be fairly described as a technology-enhancing regulatory regime.

⁹¹ See Driesen, *Emissions Trading*, *supra* note 65, at 297-300 (explaining that facilities have discretion to determine how they will meet emissions standards).

⁹² *Id.*

⁹³ 42 U.S.C. § 7479(3) (2006).

⁹⁴ *Id.*; see Wendy E. Wagner, *The Triumph of Technology-Based Standards*, 2000 U. ILL. L. REV. 83, 108 (2000) (noting the independent incentives of pollution control companies); Richard B. Stewart, *Economics, Environment, and the Limits of Legal Control*, 9 HARV. ENVTL. L. REV. 1, 9 n.24 (1985) (“[t]o the extent there is an independent pollution control supply industry, it will have a strong incentive to develop new control technologies”).

⁹⁵ Most significantly, the EPA has interpreted BACT to exclude technological innovations would require the facility to “redesign” or “redefine” the source. *In re Pennsauken County, New Jersey Resource Recovery Facility*, 2 E.A.D. 667 (1988). See also Gregory B. Foote, *Considering Alternatives: The Case for Limiting CO2 Emissions From Power Plants Through New Source Review*, 34 ENVTL. L. REPORTER 10642, 10651-10654 (2004) [hereinafter, Foote, *Considering Alternatives*]. The Seventh Circuit upheld the EPA’s conclusion that the BACT standard could not require a proposed “mine mouth” coal plant (i.e., a power plant located at the mouth of a coal mine) to redesign its facility to receive and burn cleaner coal from a source other than the mine. *Sierra Club v. EPA*, 499 F.3d 653, 654-55 (7th Cir. 2007). In that case, the court held that the cleaner fuels would require a “fundamental redesign” of the plant that EPA could consider beyond the scope of BACT’s requirement. *Id.* at 655. The court noted, however, that EPA’s prohibition against redesigning the source might be impermissible if it unreasonably excluded cleaner fuels and production processes. *Id.*

The court’s warning has interesting implications for coal-fired power plants, since the EPA has changed its views of what constitutes an impermissible redesign. In a 2005 memorandum, the EPA stated that permitting agencies could not compel electric utilities seeking to construct coal-fired power plants using pulverized coal to consider the use of integrated gassification, combined coal (IGCC) technology as BACT without running afoul of the presumption against redesigning the source. Memorandum from Stephen D. Page, Director of EPA’s Office of Air Quality Planning and Standards, *Best Available Control Technology Requirements for Proposed Coal-Fired Power Plants* (Dec. 13, 2005) [hereinafter Page Memo]. IGCC plants operate 10 to 20 percent more efficiently than pulverized coal plants, emit far fewer pollutants, and have the greatest potential to be retrofitted with carbon capture technologies. Foote, *Considering Alternatives*, at 10660. The Page Memo would have prohibited regulators from requiring facilities to install efficient coal-fired power plants. More recently, however, the Environmental Appeals Board reversed an EPA decision because it failed to consider IGCC as BACT for a new proposed coal plant. *In re Desert Rock Energy Co., LLC*, 2009 WL 3126170 (E.A.B. Sept. 24, 2009). As a result of this decision, it appears that regulators must now consider advanced coal combustion technology when establishing emissions controls based on BACT. The decision also appears to limit the prohibition against “redesigning” the source to those situations in which the technology controls will fundamentally change the purpose of the plant.

D. The Role of the Public

The Clean Air Act also provides the public with significant opportunities to participate in agency decision-making processes and private enforcement actions that ensure accountability and accurate assessments of the need for proposed facilities and the technologies available to reduce pollutants. In the context of NSPS, for example, citizens may petition the EPA to establish NSPS for previously unregulated pollutants, like greenhouse gases, or to strengthen emissions standards for regulated pollutants.⁹⁶ Interested parties may also participate in notice-and-comment processes regarding any proposed emissions standards and challenge in court the adequacy of any promulgated NSPS.⁹⁷ Through these processes, citizens and states have already advanced regulation of sources under the Clean Air Act by petitioning EPA to regulate greenhouse gases and initiating the regulatory process.⁹⁸

Citizens have an even greater role to play under the PSD program, where state or federal regulators have authority to decide, on a case-by-case basis, whether facilities require PSD permits and, if so, what levels of emissions controls qualify as BACT. Citizens may participate in the public notice and comment proceedings related to proposed PSD permits,⁹⁹ and they may also directly sue new or modified major sources that construct without following the PSD permitting requirements.¹⁰⁰ These measures have already enabled citizens to prevent or delay construction of facilities that would emit significant quantities of greenhouse gases. For example, in one of the first cases finding that plaintiffs had Constitutional standing to sue for climate change-related injuries, environmental organizations used the citizen suit provision of the Clean Air Act to sue a facility for commencing construction of a major source of greenhouse gases without first obtaining a PSD permit as required under the Clean Air Act.¹⁰¹ The state regulator had sanctioned the illegal construction, so citizen intervention provided the only means to enjoin the project until it complied with the PSD requirements.¹⁰² Environmental organizations have also challenged regulators' decisions regarding what constitutes BACT.¹⁰³ In a recent case, the Environmental Appeals Board concluded that BACT requires regulators to consider more efficient coal-combustion technology and overruled an EPA permitting decision that reached the opposite result.¹⁰⁴ Without citizen participation, a pulverized coal plant using older technology would likely already be in operation; as a result of citizen efforts, the energy company must now consider using advanced integrated gasification combined cycle (IGCC) technology, which will significantly reduce overall emissions from the

⁹⁶ See Docket ID Number EPA-HQ-OAR-2005-0031, Attorneys General of the States of California and Oregon, and the Commonwealth of Massachusetts, and the Corporation Counsel for the City of New York, *Comments on Proposed Rule* (July 28, 2008), available at http://ag.ca.gov/globalwarming/pdf/steam_generating_units.pdf (arguing that EPA must establish NSPS for greenhouse gas emissions); Press Release, *Environmental Integrity Project and Sierra Club Sue EPA for Failing to Properly Regulate Air Pollution from Nitric Acid Plants*, Feb. 5, 2009, available at <http://www.environmentalintegrity.org/pdf/newsreports/2009-02-05-NSPS-final20.pdf>.

⁹⁷ 42 U.S.C. § 7607(b) &(d) (2006) (establishing rulemaking procedures and authorizing judicial review of rules).

⁹⁸ See *supra* note 74.

⁹⁹ 42 U.S.C. § 7475(a)(2) (2006) (requiring public hearing on proposed permits).

¹⁰⁰ *Id.* § 7604(a)(3).

¹⁰¹ *Nw. Env'tl. Def. Ctr. v. Owens Corning Corp.*, 434 F.Supp.2d 957, 962 (D. Or. 2006).

¹⁰² *Id.*; see also Press Release, *Citizens Notify Owens-Corning Facility Of Intent to Pursue Additional Claims Against Unlawful Construction Near Gresham and Secure Injunction Against Ongoing Construction*, Dec. 4, 2004, available at <http://legacy.lclark.edu/org/nedc/objects/OwensPressFinal.pdf>.

¹⁰³ *Desert Rock Energy*, 2009 WL 3126170.

¹⁰⁴ *Id.*

plant.¹⁰⁵ Public participation through the Clean Air Act has thus proven essential to improving permitting decisions and preventing unnecessary sources of greenhouse gas emissions from coming online.

The Waxman-Markey bill would largely eliminate the role the citizens and some states have played in preventing unnecessary and outdated facilities from coming online.¹⁰⁶ Although the Clean Air Act would continue to regulate emissions of pollutants other than greenhouse gases, and therefore allow public participation regarding emissions standards and permits for traditional pollutants, citizens could no longer exercise the same influence over the local decision-making processes regarding climate change. Excluding citizens from the process could enable facilities to over-build if energy forecasts predict higher energy needs in the future. Excluding citizens will also stifle technological innovation, since the regulatory mandates that force and incentivize technological improvements will no longer exist. As the next section explains, this outcome is neither advisable nor necessary, since the Clean Air Act's technology programs can easily work within a cap-and-trade program like that proposed in the Waxman-Markey bill.

IV. Complementing Cap-and-Trade with the Clean Air Act

One of the major assumptions behind cap-and-trade programs is that they will incentivize technological innovation by creating economic incentives for facilities to lower their pollution emissions and thereby generate emissions credits available for sale through the trading scheme. However, this assumption fails to account for three offsetting factors. First, as Professor Driesen has explained, cap-and-trade really only incentivizes the development of "cheap" solutions and therefore likely stifles necessary innovation in more advanced technologies.¹⁰⁷ Second, as Professor McAllister has shown, most cap-and-trade programs over-allocate pollution allowances, and consequently depress allowance values.¹⁰⁸ This, in turn, ensures that Professor Driesen's concerns about "cheap" solutions are realized. Third, the assumption fails to consider that most technological innovation results from regulatory mandates, rather than economic incentives.¹⁰⁹ The only way to truly incentivize innovation is to impose minimum regulatory standards on covered facilities. Integrating the Clean Air Act into a cap-and-trade program provides the best way to incentivize technological development while ensuring an overall reduction in pollution over time.

Integrating the Clean Air Act's technological programs into a cap-and-trade law would not be particularly difficult. Rather than preempting the Clean Air Act for any sources covered under a cap-and-trade bill, Congress could instead direct EPA to set NSPS for new, modified, and existing sources that will be covered under the cap-and-trade law and establish new threshold levels that trigger both NSPS and PSD for these sources. EPA has, in fact, begun the process of harmonizing the threshold emissions levels under the Waxman-Markey bill with the PSD program, having issued a proposed rule that would apply to any facility that emits the equivalent of 25,000 tons of carbon dioxide or more of any greenhouse gas.¹¹⁰ Congress could codify and expand that proposal and

¹⁰⁵ *Id.*

¹⁰⁶ H.R. 2454, Title III, Subtitle C, § 331 (§§ 811(c), 834).

¹⁰⁷ See David M. Driesen, *Free Lunch or Cheap Fix?: The Emissions Trading Idea and the Climate Change Convention*, 26 B.C. ENVTL. AFF. L. REV. 1 (1998).

¹⁰⁸ McAllister, *supra* note 50, at 413-23.

¹⁰⁹ Taylor, *supra* note 15.

¹¹⁰ EPA, Proposed Rule, Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (Sept. 30, 2009), available at <http://www.epa.gov/NSR/documents/GHGTailoringProposal.pdf>.

thereby establish that all large greenhouse gas emitters must conform to the Clean Air Act's technology programs.

Covered entities would likely argue that this proposal would stifle emissions trading. To a certain extent, this is true. If all facilities must meet minimum emissions standards, then overall emissions may decline below the caps set by Congress. In other words, if technology requirements will reduce emissions by 20 percent anyway, and Congress' initial cap requires a 17 percent reduction below 2005 levels by 2020, there will be no need to trade emissions until the cap falls below that 20 percent. While this is a fair critique on one level, it ignores the fact that Waxman-Markey creates this dynamic anyway, by allowing offsets to eclipse the required emissions reductions until 2030.¹¹¹ Emissions trading under Waxman-Markey may be flaccid and allowance prices may be deflated until at least 2030 due to the role of offsets.¹¹² Integrating the Clean Air Act into the program will at least ensure that some emissions reductions occur domestically, from the largest emitting sources. Waxman-Markey contains no such guarantee.

Integrating the Clean Air Act into a cap-and-trade program would also preserve the role of citizens and states in permitting decisions and enforcement. Waxman-Markey would effectively prohibit regulators from considering citizens' concerns about greenhouse gas emissions and foreclose citizens from using permitting and enforcement processes to prevent construction of new facilities that will use outdated technology. Past experience has demonstrated that citizens can play a critical role in ensuring that facilities install required technology and comply with other permitting requirements. There is no reason for Waxman-Markey to cut effective advocates out of the process.

V. Congress Must Not Preempt the Clean Air Act

Climate change demands immediate action by the United States to reduce greenhouse gas emissions and develop new technologies to enable a transition to a "carbon free" economy. While the Waxman-Markey bill represents a positive step forward in U.S. policy regarding climate change, it will have little immediate impact on reducing emissions or changing the status quo. The IPCC has stated that greenhouse gas emissions must decline 25 to 40 percent below 1990 levels by 2020¹¹³; Waxman-Markey will reduce emissions by less than 1 percent.¹¹⁴ Moreover, the overallocation problem created by the offsets will likely keep allowance prices low and remove incentives for technological innovation.¹¹⁵

¹¹¹ H.R. 2454, Title III, Subtitle C, § 321; *see also* CONGRESSIONAL BUDGET OFFICE, *supra* note 23, at 16.

¹¹² ENERGY INFORMATION ADMINISTRATION, *supra* note 55, at 16.

¹¹³ IPCC, *supra* note 49, at 776, Box 13.7.

¹¹⁴ *See supra* note 49 and accompanying text.

¹¹⁵ *See* McAllister, *supra* note 50.

The Clean Air Act could correct some of the flaws of Waxman-Markey by establishing a minimum technological floor for sources covered under the bill. It would also enable citizens to continue participating in decisions that may further drive, or stifle, technological development. While the Clean Air Act will, of course, impose costs on regulated entities, it may prevent consumers from paying long-term costs associated with expensive allowances in the future. While this may distort the market dynamics under Waxman-Markey, that is an acceptable result. Indeed, advocates of a pure cap-and-trade law seem to forget that the goal of cap-and-trade is emissions reductions, not creation of an emissions market. If the Clean Air Act can achieve the reductions, even at the expense of a “perfectly functioning” market – to the extent such a thing exists – then it should remain a part of U.S. climate law.