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Environmental Initiatives — Recent Developments

By V&E partner Christopher B. Amandes

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By V&E partner *Christopher B. Amandes*¹

I. Introduction

The interval between the 7th Annual and 8th Annual Gas & Power Institutes has seen dramatic developments on the environmental front. Energy and the environment have always been inextricably linked, but the issue of climate change has highlighted that linkage as never before. It is difficult to imagine how a discussion about the United States' or the planet's energy future can go forward without a discussion of the environment and vice versa. A vivid illustration of this can be found in the American Clean Energy and Security Act of 2009 (ACESA)² that passed the United States House of Representatives on June 26, 2009. Much of the public discussion about the bill has concerned the “cap and trade” program to limit emissions of greenhouse gases (GHG), but ACESA maps the House's vision of the path to a “clean energy” economy, of which GHG reductions are only one part.

This paper describes the most recent developments in environmental regulation of the natural gas and power generation sectors. As indicated in the introductory paragraph, it is increasingly difficult to separate “environmental” issues from “energy” issues, but this paper focuses primarily on the environmental issues that affect emissions from the combustion of natural gas and other hydrocarbons, and also addresses carbon capture and sequestration, renewable portfolio standards, and similar issues. Thus, while smart grid, transmission siting, and related infrastructure issues could also easily come under the environmental rubric, they are not included in this paper because they are being addressed by other authors and speakers at the 8th Annual Gas & Power Institute.

II. Climate Change

A. Regulation of GHG under the Clean Air Act

1. *Massachusetts v. EPA and EPA's Endangerment Finding*

In April of 2007, the Supreme Court issued a landmark opinion in a case styled *Massachusetts v. EPA*, holding that carbon dioxide (CO₂), the most prominent GHG, is an “air pollutant” under the federal Clean Air Act (CAA).³ The opinion directed EPA to make one of three determinations required by the CAA as a result of this conclusion: (1) that CO₂ emissions from motor vehicles cause or contribute to air pollution that

¹ Grateful acknowledgement is extended to Chris Carr, Tres Cochran, John Decker, Larry Nettles, Casey Hopkins, Greg Staple, Kristie Tice, John So, Mary Conner, and Mansoor Bharmal of Vinson & Elkins for their fine work on many of the subjects discussed in this paper, which has been liberally borrowed.

² H.R. 2454, passed by the U.S. House of Representatives on June 26, 2009.

³ *Massachusetts v. EPA*, 549 U.S. 497 (2007).

endangers public health or welfare; (2) that CO₂ emissions from motor vehicles does not cause or contribute to air pollution that endangers public health or welfare; or (3) that the science concerning CO₂ emissions is too uncertain to make a determination.⁴

The effect of this decision was to force EPA to make a determination that it had sought to avoid for much of the Bush administration, and EPA did not immediately respond to the Supreme Court's mandate. The agency first contended that a new renewable fuels mandate adopted by Congress in the Energy Independence and Security Act of 2007 eliminated the need to make a determination. It later published an advanced notice of proposed rulemaking (ANPR) on July 11, 2008 that discussed possible approaches and issues related to regulating GHGs under the CAA, but it did not propose any particular regulatory program, nor did it propose any action on the endangerment mandate directed by the Supreme Court.⁵ The ANPR highlighted many of the practical problems and obstacles associated with using the CAA as the regulatory vehicle for GHG emissions, and it was widely perceived to be an invitation for Congress to enact GHG legislation to avoid the "parade of horrors" envisioned by EPA.

The Bush administration ended without EPA having made the endangerment determination required by the *Massachusetts* case. However, barely three months into the Obama administration, EPA issued a proposed finding that GHG emissions contribute to a series of climate change effects that endanger public health and welfare, and that GHG emissions from motor vehicles cause or contribute to these effects.⁶ The proposed finding states that "[i]n both magnitude and probability, climate change is an enormous problem. The greenhouse gases that are responsible for it endanger public health and welfare within the meaning of the Clean Air Act."⁷ The proposed finding did not include any proposed rules, but it implied that EPA would develop a rule to reduce mobile source GHG emissions.

The endangerment finding, if finalized as proposed, immediately implicates the regulation of motor vehicles, but because EPA's finding concluded that motor vehicles only caused or contributed to the endangerment posed by GHGs generally, EPA's finding is expected to lead inexorably — either by agency action or as the result of lawsuits brought by environmental interests — to the regulation of stationary sources of GHGs under the CAA. This possibility places additional pressure on Congress to pass climate change legislation and create a regulatory program if it wants to forestall the pervasive and inefficient program that many believe would result if GHGs were regulated under the mechanisms dictated by the CAA.

⁴ Slip op. at 30-32.

⁵ 73 Fed. Reg. 44,353 (July 30, 2008).

⁶ 74 Fed. Reg. 18,886 (Apr. 24, 2009). Among the effects noted by EPA are higher ground level ozone concentrations, increased drought, more heavy downpours and flooding, more frequent and intense heat waves and wildfires, greater sea level rise, more intense storms, harm to water resources, agriculture, wildlife and ecosystems, and national security challenges from increased resource scarcity. *Id.* at 18,898 – 903.

⁷ *Id.* at 18,904.

2. Permit Litigation Arising from *Massachusetts v. EPA*

Buoyed by the *Massachusetts v. EPA* decision, the Sierra Club challenged EPA's issuance of a prevention of significant deterioration (PSD) permit for a new waste-coal-fired power plant in Utah, because the permit did not require a best available control technology (BACT) emission limitation on CO₂ emissions.⁸ The main issue in the permit challenge was whether CO₂ is "subject to regulation" under the Clean Air Act, a prerequisite for imposing BACT limits in a PSD permit. EPA argued that it was bound by the agency's historical interpretation of that phrase, which did not impose BACT limitations on CO₂. The Environmental Appeals Board (EAB) disagreed, however, holding that EPA was not bound by any historical interpretation of the phrase, and that it had the continuing discretion to interpret what constitutes a pollutant "subject to regulation" under the CAA. The EAB then remanded the permit to EPA to reconsider whether or not to impose a CO₂ BACT limit. The EAB also suggested that EPA consider whether it would be more appropriate if EPA addressed the interpretation of the phrase "subject to regulation" in the context of an action of nationwide scope, such as a rulemaking, rather than through this specific permit proceeding.

In response, on December 18, 2008, then-EPA Administrator Stephen L. Johnson issued an agency memorandum (the "Johnson Memorandum") setting forth the Agency's historical position that, because CO₂ is not a "regulated NSR pollutant" under the intended meaning of that phrase, BACT would not be required for CO₂ emissions. Thus, for PSD permits for which EPA is the permitting authority, the memorandum announced that BACT would not be required for CO₂ emissions.

On February 17, 2009, Lisa Jackson, the new-EPA Administrator appointed by President Obama, granted a Sierra Club petition for reconsideration of the Johnson Memorandum. Jackson commented that the petition was being granted to allow the agency to "learn more about how [the Johnson Memorandum] affects all relevant stakeholders impacted by its provisions."⁹ To that end, Jackson announced that EPA would announce a notice of proposed rulemaking to respond to the petition for reconsideration, which will seek public comment on the issues raised in the Johnson Memorandum. In the meantime, however, Jackson denied the Sierra Club's request to stay the effectiveness of the Johnson Memorandum, but warned that "PSD permitting authorities should not assume that the [Johnson Memorandum] is the final word on the appropriate interpretation of Clean Air Act requirements."¹⁰

EPA is under no mandated schedule to reconsider the Johnson Memorandum, and other developments may make EPA's reconsideration unnecessary. On the other hand, EPA seems

⁸ *In re Desert Power Electric Cooperative*, PSD Appeal No. 07-03 (EAB Nov. 13, 2008).

⁹ Press Release, Environmental Protection Agency, EPA Administrator Jackson Orders Review of Key Clean Air Document (Feb. 17, 2009), available at <http://yosemite.epa.gov/opa/admpress.nsf/8b770facf5edf6f185257359003fb69e/3274377ad2d9fc42852575600077efb5!OpenDocument> (last accessed on May 1, 2009).

¹⁰ Letter from Lisa P. Jackson, EPA Administrator, to David Bookbinder, Sierra Club Chief Climate Counsel (February 17, 2009), available at <http://epa.gov/air/nsr/documents/20090217LPJlettertosierraclub.pdf> (last accessed May 1, 2009).

to be avoiding any action that might limit its ability to regulate GHG emissions under the CAA if Congress fails to enact a separate GHG regulatory program. It is also possible that the continuing campaign of environmental litigation directed against coal-fired power plants could seek to nullify or otherwise avoid the effect of the Johnson Memorandum.

3. EPA's Proposed GHG Reporting Rule

On April 10, 2009, EPA published in the *Federal Register* a proposed rule to establish annual reporting obligations for large emitters of GHGs and many suppliers or importers of fossil fuels.¹¹ Work on the proposed rule was begun under the Bush administration as the result of an appropriations act passed by Congress in late 2007, which required “mandatory reporting of GHG emissions above appropriate thresholds in all sectors of the economy.”¹² The rule is intended to provide the data for a new, national GHG registry, which is expected to be necessary under any future regime to regulate GHG emissions (e.g., carbon tax, cap-and-trade, emissions limits). The reported data is also expected to be used to inform GHG policy development, improve EPA’s understanding of the factors that affect GHG emissions at the facility level, improve the quality of GHG emissions data for sources not currently well understood, track GHG emissions over time, and raise awareness of GHG emissions among the entities that will have to report their emissions.¹³

The proposed rule requires reporting by direct emitters of GHGs,¹⁴ generally at emission levels above 25,000 metric tons of CO₂ equivalent per year (tCO₂e/yr), and certain suppliers and importers of fossil fuels, producers of industrial gases, and vehicle manufacturers. The proposed rule requires direct emitters to report their GHG emissions at the “facility” level, whereas fuel suppliers and importers will generally report at the corporate level. EPA estimates that about 13,000 facilities or entities will ultimately be required to report under the rule, and the reported emissions will comprise about 85 to 90 percent of the country’s GHG emissions.¹⁵ Data collection under the proposed rule is scheduled to begin on January 1, 2010, with reporting for calendar year 2010 due by March 31, 2011.¹⁶ As proposed, the rule does not require third party verification of the reported GHG amounts. The proposal states that EPA anticipated finalizing the rule by late summer of this year, but by the time this paper was submitted, no final rule had yet appeared.

All electric generating units (EGUs) currently subject to the CAA’s Acid Rain Program are required to report their GHG emissions, regardless of whether they exceed the 25,000 tCO₂e reporting threshold, and other EGUs are required to report if they exceed the 25,000 tCO₂e reporting threshold.¹⁷ Also required to report are all active underground coal mines whose

¹¹ 74 Fed. Reg. 16,448 (Apr. 10, 2009).

¹² Consolidated Appropriations Act, 2008, Pub. L. No. 110-161, 121 Stat. 1844, 2128 (2008).

¹³ 74 Fed. Reg. 16,455-56 (Apr. 10, 2009).

¹⁴ The GHGs subject to the reporting requirement are CO₂, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons from a manufacturing process, perfluorocarbons, and nitrogen trifluoride. Each of these gases is assigned an equivalence factor that is a measure of its global warming potential relative to CO₂. The equivalence factors range from 21 for methane to 23,900 for sulfur hexafluoride.

¹⁵ 74 Fed. Reg. 16,467 (Apr. 10, 2009).

¹⁶ *Id.* at 16,613 (prop. 40 C.F.R. § 98.3(b)).

¹⁷ *Id.* at 16,612 (prop. 40 C.F.R. §§ 98.2(a)(1), (a)(2)(i)).

ventilation systems are subject to inspection by the Mine Safety and Health Administration, all coal suppliers, and all refiners and importers of petroleum products, and all gas processing plants that separate natural gas liquids (NGLs).¹⁸

Significantly, as proposed, the rule exempts onshore petroleum and natural gas production facilities, pipelines, and crude transportation facilities from the GHG reporting requirements, although certain offshore production facilities and adjunct production facilities (e.g., natural gas processing facilities, natural gas transmission compression facilities, underground natural gas storage facilities) whose GHG emissions exceed the 25,000 tCO₂e reporting threshold are required to report.¹⁹ EPA considered including onshore petroleum and natural gas facilities among the required reporters, but decided against it due to the “unique difficulty in defining a ‘facility’ in [that] sector.”²⁰ However, EPA has specifically requested public comment on whether such sources should be required to report their GHG emissions, and if so, how to define a “facility.” As one potential option, EPA has suggested reporting of emissions at the basin level to reduce the complexity of reporting at a wellhead-by-wellhead level.²¹ Because GHG reporting from onshore oil and gas production facilities appears to be limited by practical as opposed to substantive considerations, it is possible that EPA may amend its proposed rule to include such sources once it has received and evaluated public comments.

4. Other Recent Regulatory Initiatives

Thus far, the power and automotive industries have been the principal targets for climate change advocates, since these industries are believed to collectively contribute more than half of all anthropogenic (*i.e.*, human-induced) GHG emissions. State and local governments, non-governmental organizations, and even some financial institutions have placed increasing pressure on companies in these industries to stabilize their GHG emissions, principally CO₂. Nonetheless, the oil and gas industry is increasingly subject to climate change scrutiny, because activities such as the combustion of fossil fuels, the venting of natural gas (*i.e.*, methane) from production wells and equipment, and the venting of CO₂ stripped from raw natural gas at natural gas processing facilities can result in the emission of significant amounts of GHGs. Thus, oil and gas exploration and production companies in the United States could certainly see increased costs associated with federal and state regulations restricting GHG emissions. As an example, in June of 2008, the Wyoming Oil and Gas Conservation Commission ordered ExxonMobil to curb the emission of CO₂ from its Shute Creek natural gas processing facility and to redirect such emissions into pipelines for enhanced oil recovery. Although the order affected natural gas processing as opposed to production, it reflects an ever-increasing awareness of GHG emissions from the oil and gas sector. And beyond increased direct costs associated with operational or capital improvements to reduce GHG emissions, there could be indirect costs to the oil and gas sector, such as decreased demand for certain carbon-intensive petroleum products.

¹⁸ *Id.* at 16,612 (prop. 40 C.F.R. §§ 98.2(a)(1)(xviii), (a)(4)).

¹⁹ *Id.* at 16,612 (prop. 40 C.F.R. § 98.2(a)(2)(xii)).

²⁰ *Id.* at 16,531.

²¹ *Id.*

On June 30, 2009, EPA granted California's request for a waiver under the CAA that would allow the state to require GHG emission reductions from vehicles.²² EPA had previously denied this request in 2008 under the Bush Administration,²³ but only days after taking office, President Obama directed EPA to reconsider its denial. At least sixteen other states, representing approximately half of the nation's vehicular fleet, have considered following California's lead. It is widely believed that achieving lower GHG emissions will be achieved primarily by increasing fuel efficiency through reduced vehicle weight.

B. Comprehensive Climate Change Regulation

1. ACESA Overview

Many developments are combining to encourage the adoption of federal legislation controlling GHG emissions, including public awareness and concern about the effects of global climate change; world-wide criticism of the United States for its abandonment of the international Kyoto Protocol approach to climate change and its failure to take meaningful other steps to address climate change during the Bush administration; the creation of regional GHG regulatory programs, such as the Regional Greenhouse Gas Initiative in the northeastern United States and eastern Canada, and the Western Climate Initiative that threaten a balkanized and inconsistent approach to regulation; President Obama's announced commitment to a national "cap-and-trade" climate change regulatory program; and the growing recognition of the "glorious mess" that a GHG regulatory program under the CAA could produce.

Various climate change bills have been introduced and marked up during previous Congressional sessions, but the first GHG regulatory bill to pass one house of Congress is ACESA. This bill is commonly referred to as the Waxman-Markey bill, because it was authored primarily by Representatives Henry Waxman (D-CA) and Edward Markey (D-MA) who are the chairs, respectively, of the House Energy and Commerce Committee and the Subcommittee on Energy and the Environment. As alluded to in the introduction, ACESA contains a "cap-and-trade" regulatory program for GHGs, but its reach is much broader.

ACESA has five titles, and Title I focuses on clean energy. It would establish a new combined energy efficiency and renewable electricity standard (RES) requiring major electric utilities to use an increasing amount of power from renewable sources beginning at 6 percent in 2012 and escalating to 20 percent in 2020. Up to one-quarter of this mandate can be met by energy efficiency or conservation measures, and states may also petition to have this portion increased to 40 percent. Title I also creates the framework for a new ratepayer-funded program to implement carbon capture and sequestration (CCS) technologies at fossil fuel power plants and industrial facilities; sets emission performance standards for new coal-fired power plants; authorizes new funding for the large scale introduction of electric and other advanced technology vehicles; promotes the

²² 74 Fed. Reg. 32,744 (July 8, 2009).

²³ 73 Fed. Reg. 12,156 (Mar. 6, 2008).



deployment of smart electricity grids; and creates a new “Green Bank” known as the “Clean Energy Investment Fund” within the Department of Energy.

Title II concentrates on energy efficiency across multiple sectors of the economy by advancing new efficiency standards and programs for buildings, appliances, industrial facilities, and vehicles. The title also creates various new federal grant programs to promote energy efficiency, including a new state block grant program and a state revolving loan fund to help manufacturers of clean energy and energy efficient products. In addition, the bill directs the Department of Housing and Urban Development (HUD) to integrate energy efficiency standards into the agency’s public housing programs; Fannie Mae and Freddie Mac are also directed to provide second mortgages to finance energy efficiency improvements.

Title III focuses on global warming, and it would establish an economy-wide cap-and-trade program to reduce U.S. emissions of CO₂ and other GHGs by 17 percent from 2005 levels by 2020, and just over 80 percent by 2050. Under this program, EPA would issue a capped and steadily declining number of tradable emissions allowances to achieve these goals — hence the popular reference to “cap-and-trade.” Large GHG emitters, suppliers of petroleum-based fuels, and certain other parties would be required to have a sufficient number of allowances or GHG offset credits each year to cover their activities. Offsets are issued for activities that reduce or sequester GHGs (e.g., by trapping methane from landfills) by parties not covered by ACESA’s emissions cap. This title is discussed in greater detail below.

Title IV of ACESA contains provisions to help energy intensive domestic manufacturers address unfair competition from importers that are not subject to similar GHG regulations. This title also contains provisions to promote green jobs; to increase the export of clean energy technologies; and to help communities and habitats adapt to the physical impacts of climate change. Climate change adaptation plans are also mandated for all federal agencies and a new foreign aid program is established to provide climate adaptation assistance to the most vulnerable developing countries.

Title V creates a new program within the Department of Agriculture for issuing offsets based on domestic agricultural and forestry practices (e.g., altered tillage practices and reforestation activities). This program is intended to complement EPA’s issuance of offsets related to other domestic activities as well as from non-U.S. offset projects.

2. The Title III “Cap-and-Trade” Program

i. Overview

Title III of ACESA would establish a new long term economy-wide program to reduce the nation’s emissions of CO₂ and six other GHGs²⁴ by requiring such emissions to be authorized by a steadily declining number of tradable emissions allowances. The goal of ACESA is to

²⁴ The other GHGs are the same ones covered by EPA’s proposed GHG reporting rule. See note 13 *supra*.



reduce total GHG emissions by 17 percent by 2020, 42 percent by 2030, and 83 percent by 2050, as compared to 2005 levels.

The program would be implemented by adding new Titles VII and VIII to the CAA, each of which would be primarily administered by EPA. Under these new titles, each year the owners of fossil fuel-fired electric power plants, major industrial emitters, natural gas utilities, producers and importers of petroleum-based fuels, and certain other parties (referred to in the bill as “covered entities”) would be obliged to hold EPA-issued emissions allowances or equivalent carbon rights.²⁵ The allowances and/or credits must equal or exceed the amount of CO₂e that was either (a) for covered stationary sources, emitted during the prior year, or (b) as to certain fuel suppliers or importers, would be emitted by the combustion of the fuel produced or imported during the prior year.

The new obligations would be phased in for different classes of covered entities between 2012 and 2016. Entities that emit less than 25,000 tCO₂e annually would not generally be required to hold GHG emissions allowances.²⁶

The point of regulation — that is, who actually needs to hold the allowances — would vary by industry. Emissions from coal and natural gas would be regulated downstream at or near the point of combustion. Emissions from petroleum-based fuels and NGLs would be regulated where the product is first supplied to the market, such as by refiners or by the natural gas processors that separate the NGLs.²⁷ Large stationary sources of GHG emissions that are already subject to the CAA’s permit requirements (e.g., because they emit sufficient quantities of other regulated pollutants) would also be required to have a new or amended Title V air permit that would incorporate the new GHG compliance mandates in the bill.

ii. Distribution of Free Allowances

To reduce the compliance costs for covered entities, the program would create a market for emissions allowances and offsets. Once issued, allowances and offsets generally could be freely traded, and EPA would be required to register and track all transfers. Entities with excess allowances would be able to sell them to entities whose annual emissions may exceed their own number of allowances. The total number of allowances generally would decrease by approximately 3 percent each year, and the program contemplates that emission reductions will be encouraged by the ever-increasing costs for the remaining allowances.

²⁵ As discussed below, a covered entity also may be able to meet its annual compliance obligation by holding domestic and international “offset credits,” domestic “term offset credits,” and international emissions allowances.

²⁶ Annual emissions of 25,000 tCO₂e is also the threshold for most entities to report under EPA’s proposed GHG reporting rule.

²⁷ The party holding title to the NGL when it is separated into merchantable products has the compliance obligation. Midstream entities are eligible for “compensatory” offsetting allowances, where an NGL is acquired for non-combustion purposes (e.g., because it is used as petrochemical or fertilizer feedstock).



From 2012 to 2020, allowance prices are expected to range between \$13 to \$26 per ton of CO₂.²⁸

The “cap-and-trade” program that would be created by ACESA would almost certainly increase the ultimately cost for carbon-based energy, as the various energy and fuel suppliers adjust their pricing to account for the cost of holding sufficient allowances or making capital investments to reduce GHG emissions, or both. To provide covered entities and consumers with a period to adjust to the increased costs associated with complying with the GHG caps, ACESA would distribute free allowances for an initial period to electric and gas utilities, merchant coal generators, energy intensive industries, small refiners, state governments, and a handful of other parties. These free allowances are typically phased out over time and disappear after 2025. Some allowances are also set aside to support CCS and other clean energy technologies. Other allowances would be auctioned to fund various domestic and international climate adaption programs. A chart showing the allocation of most allowances is included as an appendix at the end of this paper.

The allocation to utilities is designed to cover approximately 90 percent of the emissions attributable to the fossil fuels they burn or distribute. However, the financial benefit of the allowances is required to be passed through to ratepayers, and the bill provides special protection for industrial ratepayers, authorizing a pro rata share of such benefits based on energy use.

During the transition period before free allowances are phased out, the government will auction approximately 15 percent of the annual pool of emissions allowances for the direct benefit of energy consumers. Revenues from these auctions will initially be used to provide tax credits to low income consumers. After 2030, however, the great majority of emissions allowances are to be auctioned with the proceeds used to provide tax refunds on a per capita basis to all individual U.S. taxpayers.

iii. Offset Credits

ACESA contains several other provisions that may substantially reduce the cost of emissions allowances for covered entities. Some of these provisions, however, may also reduce the financial incentive for covered entities to meet the bill’s putative reduction targets for their domestic GHG emitting activities.

Most importantly, for compliance purposes, a covered entity may substitute offset credits derived from reducing CO₂ emissions or sequestering CO₂ (or other GHGs) in sectors not directly subject to emissions caps, such as agriculture or forestry. The bill authorizes up to two billion tons of these CO₂e offset credits annually to meet the compliance requirements of covered entities. This provision effectively inflates the nominal GHG emissions caps for covered entities by up to 30 percent in the years

²⁸ For example, the Congressional Budget Office (CBO) has estimated allowance prices will rise from approximately \$16 to \$26 per ton of CO₂e in the 2012-2020 period. EPA has estimated a more modest price rise from \$13 to \$16 per ton of CO₂e in the 2015-2020 period.



before 2020, and by an even larger proportion in later years (e.g., 36 percent in 2030). One-half of the available offset tonnage may be satisfied by either domestically sourced offsets or international offsets. However, EPA can increase the proportion of emissions that may be offset by international credits by 50 percent (up to 1,500 million tons), if enough low-priced domestic offsets are unavailable.²⁹

Offset credits may be issued by both EPA and the Department of Agriculture (DOA), with DOA responsible for offsets sourced from domestic agricultural and forestry activities. EPA is charged with drawing up an initial list of appropriate domestic offsets and related validation procedures within one year and adopting final regulations for issuing offsets within two years. Among other rewards for early action, EPA must also issue domestic offset credits to entities that reduce or sequester GHGs after 2009 under certain voluntary “early action” programs. Eligible projects can only generate early action credits for emissions reductions during the first three years following the enactment of ACESA. These early offset credits also may be exchanged later for emissions allowances.

In consultation with the State Department, EPA would also issue U.S. offset credits derived from projects in developing countries. Credits may be issued in exchange for pre-existing foreign credits granted pursuant to the existing Clean Development Mechanism (CDM) or a successor treaty established by the 1992 United Nations Framework Convention on Climate Change (UNFCCC). The integrity of CDM offsets must be assured by safeguards that are at least as strict as those specified in the bill, and all offsets generally must be verified by accredited third parties.

To facilitate the issuance of offset credits from DOA-sanctioned projects with a crediting period of less than five years, ACESA would authorize the DOA to issue a new category of time-limited or “term offset credits.” DOA may require a project developer seeking such credits to provide insurance or other security to cover the cost of obtaining non-term credits or allowances if the agricultural sequestration or other activity covered by a term offset credit is abandoned or reversed during the five-year crediting period. Term offsets issued by DOA have the potential to play an important role during the early years of ACESA because they may be issued more quickly than some regular offset credits, even though they may need to be replaced (or renewed) after a few years.

iv. Other Cost Containment and Flexibility Measures

ACESA also directs EPA to create an annual “strategic” reserve of allowances equal to approximately 2.5 billion tCO₂e. This amount is roughly 2 percent of the total allowance pool for the 2012 to 2050 period. A portion of this reserve is to be auctioned quarterly during each year, beginning in March 2012, at a minimum auction price of \$28 (in 2009 dollars), and this price is subject to a 5 percent annual escalator in 2013 and 2014. Thereafter, prices are set at 60 percent above the rolling three-year average of allowance prices reported by registered carbon trading entities. Only covered entities are eligible to bid in these auctions, and eligible

²⁹ After 2017, however, a covered entity must hold 1.25 international offsets for each emission allowance.



bidders may not buy more than 20 percent of their most recent annual compliance obligations. EPA is authorized to outsource strategic reserve auctions to third parties.

In addition, ACESA would permit unlimited banking of allowances for use in future compliance years. Allowances with a future “vintage” may also be “borrowed” without interest to satisfy an obligation for the immediately preceding year, thereby effectively creating a rolling two year compliance period.³⁰ A covered entity also may meet up to 15 percent of its annual obligation by holding allowances with vintages up to five years later than the compliance year, subject to an 8 percent annual in-kind interest payment.

Finally, ACESA permits a covered entity to hold an unlimited number of qualified international emissions allowances for compliance purposes. The use of foreign allowances is to be authorized by EPA, in consultation with the Secretary of State, if the allowances are issued under a GHG control program that imposes an absolute tonnage limit and is at least as strict as ACESA. This provision, along with the role accorded international offset credits, would make the U.S. an integral part of the global market for carbon rights. This market developed after the 1997 Kyoto Protocol was adopted and is likely to be expanded by any follow-on treaty to curb GHG emissions worldwide that emerges from the upcoming December 2009 meeting of the UNFCCC’s signatories in Copenhagen.

v. Supplemental Emissions Reductions

ACESA reserves a set of allowances for curbing deforestation outside the U.S. Deforestation and other land use changes are thought to be responsible for about 20 percent of annual global GHG emissions, and the sponsors of the bill believe that reducing deforestation outside the U.S. may be more cost effective on a ton-for-ton basis than many domestic GHG reduction measures. The set aside is equal to 5 percent of the total U.S. allowance pool from 2012 to 2025 and between 2 and 3 percent of the pool thereafter. These allowances may be distributed by EPA as funding in-kind to eligible developing countries, international organizations, and private or public groups to slow or halt deforestation. The goal is to achieve cumulative supplemental GHG reductions of 720 million tCO₂e by 2020 and 6 billion tCO₂e by 2025.

The bill also grants EPA broad authority under the CAA for drawing up emissions standards for stationary sources whose GHG emissions fall below the proposed 25,000 tCO₂e annual threshold but exceed 10,000 tCO₂e, and, in the aggregate, are responsible for at least 20 percent of the uncapped GHG emissions.³¹ The bill would amend the CAA to require EPA to develop emission standards for these uncapped sources over a 10-year period. EPA’s task is

³⁰ The bill contemplates the issuance of a capped number of annual allowances that will have a designated vintage reflecting the year from which the allowance is issued.

³¹ If EPA’s estimate that a 25,000 tCO₂e per source threshold will capture 85 to 90 percent of the nation’s GHG emissions, then the sources targeted by this provision should account for about an additional 2 to 3 percent. EPA is also directed to develop emissions standards for stationary sources whose methane emissions exceed 10,000 tCO₂e, and, in the aggregate, are responsible for at least 10 percent of the uncapped methane emissions.



complicated by a provision specifying that the costs incurred to comply with these new standards cannot exceed the costs that the regulated entity would incur if it had to obtain emissions allowances under the cap and trade program.

vi. Greenhouse Gas Reporting

ACESA would also amend the CAA to establish a new federal GHG registry, based on the emissions reported by large stationary sources of GHGs and suppliers and importers of carbon-based fuels. The GHG reporting contemplated by ACESA is similar but not identical to EPA's proposed GHG reporting rule discussed previously. It is similar in that it generally applies to the same type of sources and suppliers, emissions data is to be self-certified rather than verified by third parties, and reports will be made electronically. EPA is directed to publish all GHG emissions data on the internet subject to the protection of certain confidential business information. However, under ACESA, emissions reports are required to be submitted quarterly instead of annually, with the first reports due in March 2011. In addition, the reporting rule mandated by ACESA would apply to entities that would be covered by ACESA if they exceeded the annual 25,000 tCO₂e threshold, so long as they emit at least 10,000 tCO₂e in any year.³²

Because the GHG reporting provisions in ACESA are similar but not identical to EPA's proposed GHG registry rules, it is possible that Congress will defer to the agency's rule and delete any GHG registry provisions from any final bill. On the other hand, EPA's proposed rule had been published two months before ACESA passed the House, so some in Congress may believe that EPA's rule does not go far enough. At this time, it seems likely that EPA will finalize its GHG reporting rule well before any climate change legislation is passed by both houses of Congress, which may be sufficient incentive not to create any conflicts that would require a new rulemaking by EPA.

vii. Black Carbon

ACESA would further amend the CAA to require EPA to undertake a study of "black carbon" emissions, their potential impact on climate change, and cost-effective abatement options. Black carbon is a short name for the light absorbing component of carbonaceous aerosols, or soot, and is the product of incomplete combustion of fossil fuels or biomass. It can affect the climate by absorbing heat in the atmosphere or, when deposited on snow and ice, accelerating melting and increasing the absorption of sunlight. The latter effect has reportedly contributed to warming in the Arctic.

EPA is also directed to promulgate new regulations to reduce emissions of black carbon if existing CAA regulations are found to be inadequate. In addition, EPA, in coordination with the State Department, is to review U.S. assistance for reducing black carbon emissions in

³² The CO₂ equivalence factors under ACESA also differ from those in EPA's proposed GHG reporting rule. For example, methane is assigned an equivalence factor of 25 under ACESA but 21 under EPA's rule, and nitrous oxide is assigned an equivalence factor of 298 under ACESA but 310 under EPA's rule. ACESA allows EPA to adjust the assigned equivalence factors in ACESA, however.

foreign countries and to recommend further measures to achieve significant black carbon emissions reductions.³³

viii. Exemption from Other Regulation Under the CAA

Because the *Massachusetts v. EPA* decision and subsequent developments arguably placed GHG emissions on an inexorable path to regulation under the CAA absent legislative intervention, ACESA addresses this concern by largely removing GHGs from regulation under other titles of the CAA. Specifically, the bill provides that: (1) no GHG may be listed as an “air pollutant” under Section 108 of the CAA on the basis of its effect on climate change;³⁴ (2) no GHG may be added to the list of hazardous air pollutants under Section 112 of the CAA unless there is a reason for so doing independent of its effects on climate change;³⁵ and (3) for facilities permitted or modified after January 1, 2009, the “new source review” provisions of the CAA (Title I, Part C) shall not apply to GHG emissions. By limiting this exemption to new construction or modification after January 1, 2009, ACESA preserves whatever new source review claims EPA or a citizen may wish to make in cases such as the *Deseret Power* case discussed above. For all practical purposes, however, if ACESA is passed, it should end any further efforts to regulate GHGs under the existing titles of the CAA.

In addition, ACESA would bar EPA from taking into account GHG emissions in determining whether a stationary source is required to obtain an air operating permit under Title V of the CAA. This is significant, because the threshold for having to obtain such permits is only 100 tons per year of a covered pollutant, and there are undoubtedly hundreds of thousands of such sources in the U.S. Notwithstanding this exemption, however, another provision of ACESA requires a source otherwise required to have a Title V permit that is subject to the emission caps in ACESA include the ACESA compliance provisions, such as an emissions cap, in the permit. State Title V air permit programs must conform with this new requirement within two years.

ix. State Preemption

The existence of regional GHG regulatory programs, such as the Regional Greenhouse Gas Initiative’s (RGGI’s) cap and trade program, would subject major GHG sources in areas affected by those programs to overlapping and potentially inconsistent regulatory programs upon the enactment of any federal legislation. ACESA addresses this issue with a partial preemption of other cap and trade programs. ACESA would amend the CAA to place a six-year moratorium (from 2012 to 2017) on the implementation or enforcement

³³ The bill focuses on the potential for more technical assistance to developing countries that rely on solid fuels (wood, dung, charcoal) for home cooking and heating.

³⁴ This provision of the CAA requires EPA to draw up lists of air pollutants that may endanger public health or welfare and to establish national ambient air quality standards (NAAQS) for such pollutants which, in turn, provide the basis for mandated pollution controls. These so-called “criteria pollutants” currently include ozone, nitrogen dioxide, sulfur dioxide, particulate matter, carbon monoxide, and lead.

³⁵ Pollutants listed under Section 112 are subject to emissions standards which typically require the maximum degree of reduction achievable, defined with reference to the most stringent set of controls currently in use.



of analogous GHG emission caps. The moratorium only applies to state GHG controls that are based on an absolute tonnage limit, and ACESA preserves the right of the states to maintain alternative GHG control measures, such as emission performance standards, or to adopt programs addressing entities that are not capped under the federal program. There is also no attempt to preempt state GHG reporting rules.

To assist entities facing significant compliance costs under three existing state or regional HG caps — RGGI, the Western Climate Initiative, and California Assembly Bill 32 — ACESA directs EPA to adopt allowance exchange rules. Under the rules, state GHG allowances issued prior to January 1, 2012, when the federal program would generally become effective, can be exchanged for federal emissions allowances in an amount sufficient to compensate a party for the cost of obtaining and holding the state allowances. Federal allowances so exchanged are to be subtracted from the allowance pool that would otherwise be auctioned.

x. *Oversight of Carbon Markets*

ACESA's cap-and-trade program is anticipated to create a market for U.S. emissions allowances and offset credits of more than \$50 billion a year in 2012, and this amount would presumably increase over time as the number of available allowances is reduced and their value increases. Most observers expect an equally vibrant market for related derivatives, such as futures contracts and swaps. ACESA specifies that these markets for carbon rights and derivative instruments will be overseen by the Federal Energy Regulatory Commission (FERC) and the Commodities Future Exchange Commission (CFTC). FERC is given jurisdiction over trading in government-issued allowances and offsets.³⁶ The CFTC would regulate any related derivatives unless an interagency working group to be convened by the President recommends otherwise; in that event, additional legislation might be required.

These regulators are directed to adopt strict measures to prohibit fraud, market manipulation, and excess speculation. Rules to foster market transparency and to limit or eliminate counterparty risk, market power concentration risks, and other risks associated with over-the-counter trading are also mandated.³⁷ FERC and any other federal agency with jurisdiction over the trading of any regulated emissions right or contract is granted the same enforcement powers as the CFTC. Market manipulation, fraud, and false or misleading statements regarding a regulated instrument would be a felony punishable by up to 20 years in prison and a fine of up to \$25 million.

Pending the adoption of comprehensive legislation to reform the regulation of derivatives generally, ACESA also expands the power of the CFTC to regulate derivative transactions related to energy commodities, including coal, crude oil, gasoline, diesel and jet fuel, propane, electricity and natural gas. The CFTC is granted authority to set position limits

³⁶ Under Title I of ACESA, FERC also will oversee the market for the new federal renewable energy certificates issued by that agency.

³⁷ As discussed above, the transfer of all emissions allowances and offsets must be recorded by EPA in a public registry which is designed to track the ownership of allowances.

regarding such contracts, to require detailed reporting of market data, and to mandate clearance of contracts through registered derivatives clearing organizations. Exemptions may be granted for bona fide hedging operations.

These new CFTC market oversight provisions have raised widespread concern in the energy industry. Among other things, this concern led to a last minute amendment to ACESA that would repeal the CFTC's expanded authority over energy derivatives upon adoption of general "legislation that includes derivative regulatory reform."

xi. Enforcement

ACESA includes various provisions to ensure that covered entities meet their annual compliance obligations. If a covered entity fails to hold the required number of emissions allowances, it would be liable for a penalty equal to twice the fair market value of the allowance deficit. The violator must also make up the deficit in the next year or any longer period specified by EPA.

Violation of the new CAA provisions added by ACESA, or EPA rules adopted to implement them, may subject the covered entity to the full range of existing administrative, civil, and criminal sanctions available under the CAA.³⁸ The bill passed by the House eliminates provisions in earlier versions that created liberal standing provisions for citizens to bring suit to enforce ACESA, but citizens who can meet standing requirements under existing law could bring citizen suits to enforce the act.

III. Coal

Coal currently supplies about 50 percent of the U.S.'s electrical generating capacity,³⁹ and it is estimated that the country has between 100 and 200 years of remaining coal supplies,⁴⁰ based on the current rate of domestic consumption. However, coal also emits about twice as much CO₂ on a per BTU basis as other fossil fuels, and coal mining — particularly the so-called "mountaintop mining" commonly used in Appalachia — has come under increasing criticism for its environmental effects. The coal industry, and particularly new coal-fired electric generating plants, are the target of a concerted litigation campaign by a range of environmental groups.

It seems clear that coal will continue to play an important role in the U.S.'s near-term energy future, but it also seems clear that the cost of coal-based energy is going to increase

³⁸ Currently under the CAA, violators are subject to administrative and civil penalties of up to \$37,500 per day per violation. This amount is periodically adjusted to account for inflation, most recently in January of this year.

³⁹ DOE, Carbon Dioxide Emissions from the Generation of Electric Power in the United States at 3, available at http://eia.doe.gov/cneaf/electricity/page/co2_report/co2emiss.pdf.

⁴⁰ The American Coalition for Clean Coal Electricity (ACCCE) estimates 200 or more years of supplies. See <http://cleancoalusa.org/docs/abundant>. In a 2007 report, the National Academy of the Sciences stated that there is enough coal to meet U.S. needs for at least 100 years but that it is difficult to confirm whether there is sufficient coal for more than 200 years. New York Times, *Science Panel Finds Fault with Estimates of Coal Supply* (June 21, 2007).



significantly. Whether coal will have a role to play in the nation's longer-term energy future is likely to depend on whether sufficient technology can be deployed to mitigate coal's environmental impacts, particularly its GHG emissions.

A. New MOU on Appalachian Coal Mining Permitting and Regulation

On June 11, 2009, the White House Council on Environmental Quality (CEQ) announced a Memorandum of Understanding (MOU) among EPA, the Department of Interior (DOI), and the U.S. Army Corps of Engineers (Corps) concerning the permitting and regulation of coal mines in Appalachia. While CEQ described this MOU as an "unprecedented step to reduce environmental impacts of mountaintop coal mining," the MOU broadly applies to all forms of coal mining in Appalachia. The MOU contemplates both short-term and long-term processes for permitting coal mines in Appalachia. These new processes will be effective in the States of Kentucky, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. These States are regulated by EPA Regions 3 (Philadelphia), 4 (Atlanta), and 5 (Chicago) and Corps Districts in Pittsburg, Huntington, Louisville, Nashville, and Norfolk. The short-term actions are scheduled for implementation in 2009 and involve modifications to existing policy and guidance. The MOU also describes a longer term process for the assessment of policy with the potential for new regulatory actions. The all-encompassing nature of the changes suggests that implementation of the MOU will generate continued uncertainty regarding the permitting of coal mines in Appalachia for some time.

The MOU starts from the premise that the existing permitting requirements for coal mining are inadequate. Indeed, the MOU begins by noting short-term steps that the Corps, EPA, and DOI will take to "reduce the harmful environmental consequences of Appalachian surface mining." The list of issues targeted by the MOU tracks closely the allegations directed against Appalachian mining by environmental groups for more than a decade. The MOU identified eight short-term actions to be taken by the end of 2009; five of these are to be undertaken by EPA and the Corps, and three by DOI.

First, the Corps' Nationwide Permit (NWP) 21 is to be revised so that it may no longer be used for coal mining in Appalachia if fill is to be deposited in streams. The practical effect of this decision on Appalachian coal mining is uncertain, as many companies have already decided to pursue individual Section 404⁴¹ permits rather than accept the risk of litigation associated with general permits under NWP 21. Still, this limitation on NWP 21 is a significant decision, because the Fourth Circuit Court of Appeals had previously rejected a categorical challenge to the use of an NWP for coal mining in Appalachia.⁴² Thus, the MOU arguably delivered to the environmental groups a victory that had eluded them at the appellate court level.

Short-term actions two through five address a number of other regulatory aspects of coal mining that have been the target of challenges by environmental groups. Until the agencies

⁴¹ All section references are to the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*

⁴² *Ohio Valley Env'tl. Coalition v. Bulen*, 429 F.3d 493 (4th Cir. 2005).



complete their work on the remaining aspects of the MOU, it will be hard to evaluate what the changes mean from a practical standpoint. The MOU's objectives, however, are clear:

- to “strengthen” the Section 404(b)(1) environmental review;
- to “improve and strengthen” oversight and review of the issuance of Section 402 permits and Section 401 water quality certifications;
- to “issue guidance clarifying how impacts to streams should be evaluated and ... to improve the ecological performance of such mitigation. ...”; and
- to “clarify” the applicability of the waste treatment exception for treatment facilities constructed in waters of the U.S.

The restrictions that ultimately emerge from this effort cannot now be predicted with any precision. The decision to withdraw the NWP as a permitting option for coal mining in Appalachia, however, signals the likely direction of other aspects of the MOU. The MOU also appears to reopen issues that had been recently decided in industry's favor, such as the “clarification” it proposes regarding the “waste treatment exception.” In a January 2009 ruling, the Fourth Circuit Court of Appeals “clarified” that when a coal mine's waste treatment system consists of an impoundment and a waste treatment pond, only a permit for the discharge from the waste treatment system is required; a separate permit for the discharge from the impoundment is not required.⁴³ EPA issued a letter on June 11 of this year, describing its implementation of the MOU, which explains that, as a part of its evaluation of permit applications, EPA will assess the impacts of discharges from the “toe” of the impoundment to the waste treatment pond.⁴⁴

The short-term actions to be taken by DOI also may have significant effects. First, DOI will issue guidance concerning the Stream Buffer Zone (SBZ) rule if — as DOI has petitioned — the District of Columbia district court vacates the current version of the rule without judicial review.⁴⁵ In his press comments regarding the MOU, David Hayes, Deputy Secretary of the DOI, indicated that DOI intended to revert to the 1983 SBZ rule if the court ruled in the Administration's favor and vacated the existing rule. A reversion to the previous rule could be significant, because the 1983 version prohibited the filling of buffer zones adjacent to streams for which the Army Corps had already issued a permit under Section 404 that allowed the stream itself to be filled. In contrast, the current version of the rule, which was adopted during the waning days of the Bush Administration, exempts permanent spoil fills and coal-waste disposal facilities and allow mining that changes water flow, as long as the mining company agrees to repair any damage later.⁴⁶ The remaining two short-term DOI

⁴³ *Ohio Valley Env'tl. Coalition. v. Aracoma Coal Co.*, 556 F.3d 177 (4th Cir. 2009).

⁴⁴ See note 37 *infra*.

⁴⁵ *Coal River Mountain Watch v. Salazar*, No. 1:08-cv-02212-HHK C (D.D.C.). As this paper was submitted, the court declined to vacate the rule, holding that DOI must follow the procedures set out in the Administrative Procedure Act if it wants to repeal the SBZ rule.

⁴⁶ 30 C.F.R. § 816.57 (2009).

actions relate to OSM oversight of state SMCRA permits. OSM will “remove impediments to its ability to require correction of [state] permit defects.”

Short-term implementation of the Clean Water Act aspects of the MOU is governed by the joint EPA/Corps document entitled “Enhanced Surface Coal Mining Pending Permit Coordination Procedures.”⁴⁷ The cooperative inter-agency effort described by that document is somewhat belied by a terse June 11, 2009 memorandum from EPA Administrator Jackson to the Corps.⁴⁸ In this letter, EPA informed the Corps of the criteria that EPA will apply in its review of affected mining permit applications. The letter expresses “hope” that the agencies will be able to reach agreement but notes that, in the absence of agreement, EPA will use its authority under Section 404(c) to veto any disputed permits issued by the Corps.

While the MOU calls for these changes to be implemented by the end of 2009, it seems likely that these steps will take longer to implement, and an even longer period will be required to assess their effects on obtaining permits for coal mining in Appalachia. Some who hoped that the MOU would clarify the permitting requirements and procedures for coal mining in Appalachia are likely to be unsatisfied. Some environmental groups have expressed disappointment that the Obama Administration did not use the MOU to outright ban certain mining practices. However, because the MOU puts into play a number of regulatory challenges that the Fourth Circuit Court of Appeals had already rejected, environmental groups ultimately may become more satisfied with the MOU as applied in practice.

B. Carbon Sequestration and EPA’s Proposed Sequestration Rule

Carbon sequestration is the storage of anthropogenic CO₂ in underground geologic formations. Carbon sequestration is only one part of a larger process often referred to as carbon capture and storage (CCS), which also involves the capture of CO₂ from a point source (such as a coal or gas-fired power plant), the compression of the captured CO₂ into a fluid state for transportation, and the transportation of liquid phase CO₂, typically through pipelines. The feasibility of commercial-scale CCS, and particularly carbon sequestration, may ultimately determine the long-term viability of the coal industry, because while coal supplies about half of the nation’s electric generating capacity, it accounts for about 80 percent of the CO₂ emissions from that sector. However, while coal may have the most at stake with respect to the feasibility of sequestration, other fossil fuels are also at risk. There are myriad technological, feasibility, regulatory, and economic issues associated with the initial capture of CO₂ and the transportation of the captured CO₂ to locations where it can be injected into the ground, but this paper focuses on sequestration, which is the subject of the greatest current level of regulatory interest.

On July 25, 2008, EPA published a proposed rule to regulate the injection and geologic sequestration of CO₂.⁴⁹ The proposed regulation was developed under the Underground

⁴⁷ http://epa.gov/owow/wetlands/pdf/Final_MTM_Permit_Coordination_Procedures_6-11-09.pdf.

⁴⁸ *Id.*

⁴⁹ 73 Fed. Reg. 43,491 (July 25, 2008).



Injection Control (UIC) Program pursuant to the Safe Drinking Water Act. The rule creates a new category of underground injection wells, Class VI wells, for the injection and long-term storage of CO₂. The rule identifies deep saline formations, depleted oil and gas reservoirs, and unmineable coal seams as the formations with the most viable CO₂ storage capacity.

The proposed rule identifies geologic sequestration as the “long-term containment of a gaseous, liquid or supercritical carbon dioxide stream in subsurface geologic formations.”⁵⁰ The rule also requires that the CO₂ be injected beneath the lowermost formation containing an underground source of drinking water (USDW). Additionally, Class VI wells must satisfy certain enhanced construction techniques different from those that apply to other UIC wells. Continuous internal mechanical integrity testing is required, and an operator must make annual demonstrations of external mechanical integrity. Operators also must prepare and implement a testing and monitoring plan to ensure the injection is not endangering USDWs.

A critical issue in the rulemaking discussion has been the length of time that the well operator must care for the injection site. EPA proposes a combination of a 50-year fixed period and a performance standard (that post-injection site care will continue until the plume is stabilized and cannot endanger USDWs). The rule proposes that the 50-year post-injection period may be shortened or lengthened depending upon the performance of the site. EPA proposes that owners or operators of Class VI wells be required to demonstrate and maintain financial responsibility and have the resources for activities related to closing and remediating their sequestration sites, including emergency and remedial response. The proposed rule requires periodic updates of the cost estimate for well plugging, post-injection site care, and site closure to account for any amendments to the plugging and abandonment plan, the post-injection site care, or the site closure plan.

Consistent with the current UIC program, EPA proposes to allow delegation of the Class VI well program to states (or tribes) that adopt rules that are at least as stringent as, and may be more stringent than, the proposed federal requirements. Delegation of the program facilitates flexibility for states to enforce customized policies that address local concerns. The proposed rule grants discretion to the permitting authority to “grandfather” construction requirements for existing Class I, Class II, or Class V wells⁵¹ that may be converted to Class VI wells, provided the applicant is able to make a demonstration that the wells would not endanger USDWs.

EPA specifically sought comments on a number of issues implicated by the rulemaking. For instance, under the rule, the Class VI wells are required to be drilled below the lowermost

⁵⁰ 73 Fed. Reg. 43,535.

⁵¹ Class I wells are used to inject industrial non-hazardous liquids, municipal wastewater, or hazardous wastes beneath the lowermost USDW. Class II wells are used to inject fluids in connection with conventional oil or natural gas production, enhanced oil and gas production, and the storage of hydrocarbons that are liquid at standard temperature and pressure. Notably, under the proposed rulemaking, the injection of CO₂ for the purposes of enhanced oil and gas recovery will continue to be permitted under the Class II program, and those wells will retain this regulatory designation as long as production is occurring. Class V wells include all injection wells that are not included in Classes I-IV, and include experimental technology wells, such as those being used for pilot carbon sequestration projects.

formation containing an USDW, but this requirement may preclude the use of many coal bed seams as injection sites. Also, EPA solicited comment on whether CO₂ injection well for enhanced oil recovery purposes should continue to be regulated as a Class II well, and whether hazardous waste should be permitted to be injected into Class VI wells. Financial responsibility requirements were also identified as an issue for which comment was requested. The 50-year post-closure care period is also likely to be an area of significant comment, because it is substantially longer than the 10-year period proposed by the Interstate Oil and Gas Compact Commission (IOGCC). The comment period for the rulemaking has closed, and barring a re-proposal, a final rule is expected in 2010 or 2011.

IV. Renewable Portfolio Standards

Twenty-nine states have adopted programs intended to drive renewable power growth, consisting of either a standard, a standard and a goal, or a voluntary goal.⁵² These laws generally require utility companies to build or purchase a specified amount of power from renewable sources, typically wind, hydroelectric, or solar. The standards differ by state, with some written in terms of a percentage of the overall amount of power that is provided by the utility,⁵³ some by a specific measure of power,⁵⁴ and others in terms of load growth over a specified period.⁵⁵ In many states, these targets are ambitious, led perhaps by Maine's standard that 40 percent of that state's power be provided by renewable sources by 2017,⁵⁶ California's standard of 33 percent by 2020,⁵⁷ and New York's standard that its 2004 renewable energy use increase 24 percent by 2013.⁵⁸

Experience suggests that it is easier to specify a standard than achieve it. The development of renewable energy projects also has been slowed by the overall economic slump and a corresponding lack of financing for new projects. A recent study by the financial firm SNL Energy, as reported in the press,⁵⁹ indicates that only five of the 28 states are on track to meet their renewable energy portfolio standards over the 2010 to 2012 period. Notably, Texas is one of the five states reported to be on target. Overall, the utilities in these 28 states are generating on average 5.3 percent renewable power, which is below the 7.3 percent average target during the 2010 to 2012 period. Of this amount, 67 percent comes from wind power, 17 percent is hydroelectric, and biomass and solar account for 15 percent. The study further noted that only 4.2 percent of the announced new renewable power projects is actually under construction, with the remainder in various stages of development or just announced. The renewable power projects under construction, when finished and brought on line, would

⁵² http://ucsusa.org/clean_energy/res/overviewstates.html.

⁵³ For example, Connecticut specifies that 10 percent of that state's power must be supplied by renewable sources by 2019.

⁵⁴ For example, Texas requires that 5,880 MW of renewable power be on line by 2015, and Minnesota requires 1,250 MW by 2013.

⁵⁵ For example, Vermont specifies that the amount of renewable power supplied by 2012 be equal to the load growth that occurs over the 2005-2012 period.

⁵⁶ http://ucsusa.org/assets/documents/clean_energy/maine.pdf.

⁵⁷ http://ucsusa.org/assets/documents/clean_energy/california.pdf.

⁵⁸ http://ucsusa.org/assets/documents/clean_energy/new-york.pdf.

⁵⁹ *Greenwire*, July 17, 2009.



increase the current 5.3 percent average to only about 6 percent, still well below the 7.3 percent target specified in the standards.

V. Conclusion

By all appearances, even if ACESA is not ultimately enacted, climate change regulation in the U.S. looms on the horizon. That regulation is likely to have more profound consequences on the natural gas and electrical power industries than any previous environmental initiative. With only a tiny fraction of the country's current energy being supplied by renewable sources, coal, petroleum, and natural gas will play prominent roles in the U.S.'s and the world's energy future for decades to come. However, those industries will be challenged as never before to find ways to mitigate their environmental impacts, and their long-term future will likely depend on technological advances not yet proven or perhaps not yet even invented.

For further information on this topic, please contact V&E lawyer [Christopher B. Amandes](#). Visit our website to learn more about Vinson & Elkins' [Environmental practice](#).

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APPENDIX: Allocation of GHG Emission Allowances Under ACESA

Beneficiary	Percentage	Phase Implementation
Electric local distribution companies for the benefit of retail ratepayers	7.0 to 43.75%	2012-2013: 43.75% 2014-2015: 38.89% 2016-2025: 35.0% 2026: 28.0% 2027: 21.0% 2028: 4.0% 2029: 7.0%
EPA auction for the benefit of low income consumers	15.0%	2012-2050
States/tribes to invest in energy efficiency and renewable energy	4.5 to 9.5%	2012-2015: 9.5% 2016-2017: 6.5% 2018-2021: 5.5% 2022-2025: 1.0%, plus 3.55% of the emission allowances for the vintage year four years after 2026-2050: 4.5%
Natural gas local distribution companies for the benefit of natural gas consumers	1.8 to 9.0%	2016-2025: 9.0% 2026: 7.2% 2027: 5.4% 2028: 3.6% 2029: 1.8%
States to support the development, implementation, and enforcement of programs to retrofit existing buildings to achieve energy efficiency improvements	2.0 to 5.0%	2012-2025: 5.0% 2026-2030: 3.0% 2030-2050: 2.0%
EPA distribution countries, private or public groups, or to an international fund to support programs to reduce GHG emissions from deforestation in developing countries	2.0 to 5.0%	2012-2025: 5.0% 2026-2030: 3.0% 2031-2050: 2.0%
EPA distribution to owners or operators of a project supporting the deployment of carbon capture and sequestration technology	1.75 to 5.0%	2014-2017: 1.75% 2018-2019: 4.75% 2020-2050: 5.0%
International adaptation (<i>e.g.</i> , development of national or regional climate change adaptation plans for vulnerable communities/populations)	1.0 to 4.0%	2012-2021: 1.0% 2022-2026: 2.0% 2027-2050: 4.0%

Beneficiary	Percentage	Phase Implementation
International clean technology deployment and distribution	1.0 to 4.0%	2012-2021: 1.0% 2022-2026: 2.0% 2027-2050: 4.0%
EPA Strategic Reserve Auction (used to purchase international offset credits)	1.0 to 3.0%	2012-2019: 1.0% 2020-2029: 2.0% 2030-2050: 3.0%
States/Indian tribes for domestic adaptation (<i>i.e.</i> , implementation of projects, programs, or measures to build resilience to the impacts of climate change)	0.9 to 3.9%	2012-2021: 0.9% 2022-2026: 1.9% 2027-2050: 3.9%
Automobile manufacturers for the development and deployment of clean vehicles	1.0 to 3.0%	2012-2017: 3% 2018-2025: 1%
Natural Resources Climate Change Adaptation Fund	0.615 to 2.46%	2012-2021: 0.615% 2022-2026: 1.23% 2027-2050: 2.46%
Domestic petroleum refineries	2.25% (0.25% for small business refiners)	2014-2026
States for the benefit of home heating oil and propane consumers	0.3 to 1.875%	2012-2013: 1.875% 2014-2015: 1.67% 2016-2025: 1.5% 2026: 1.2% 2027: 0.9% 2028: 0.6% 2029: 0.3%
Energy-intensive, trade-exposed entities	1.5% to varies	2012 to 2013: Up to 2% 2014: Up to 15% 2015-2050: Varies based on use of formula
State agencies for wildlife and natural resource adaptation	0.385 to 1.54%	2012-2021: 0.385% 2022-2026: 0.77% 2027-2050: 1.54%
Distributed by the Director of the Advanced Research Projects Agency-Energy, to support universities, companies, trade groups, etc. engaged in advanced energy research projects	1.05%	2012-2050: 1.05%

Beneficiary	Percentage	Phase Implementation
Early actors	1.0%	2012: 1.0%
Climate Change Worker Adjustment Assistance Fund	0.5 to 1.0%	2012-2021: 0.5% 2022-2050: 1.0%
Energy Efficiency and Renewable Energy Worker Training Fund	0.75%	2012-2013
Small electricity local distribution companies (less than four million megawatt hours delivered) for energy efficiency, renewable electricity, and low income ratepayer assistance programs	0.1 to 0.5%	2012-2025: 0.5% 2026: 0.4% 2027: 0.3% 2028: 0.2% 2029: 0.1%
State and local governments to support the development, implementation, and enforcement of local energy efficiency building codes	0.5%	2012-2050: 0.5%
Energy Innovation Hubs (<i>i.e.</i> , universities, state or federal institutions, NGOs specializing in the development of renewable energy technologies)	0.45%	2012-2050: 0.45%
Owners or operators of certain eligible cogeneration facilities to avoid disincentives to the continued use of existing energy-efficient cogeneration facilities	0.35%	2012
Secretary of Agriculture and Secretary of Energy to support supplemental agriculture and renewable energy programs to reduce GHG emission or sequester carbon	0.28%	2012-2016
Climate Change Health Protection and Promotion Fund	0.1%	2012-2050
Domestic adaptation (<i>e.g.</i> , climate change research)	0.03 to 0.05%	2012-2017: 0.05% 2018-2050: 0.03%
EPA auction for deficit reduction	Any unallocated allowances	2012-2025
Climate Change Consumer Refund Account	Any unallocated allowances	2026-2050