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Greenhouse Gas Permitting Advantages for Biomass Projects

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ABSTRACT

Ground breaking greenhouse gas regulation, know as the Tailoring Rule, has recently been implemented at the federal level. The Tailoring Rule will have far reaching impacts on industries that produce significant amounts of carbon dioxide emissions. While this may prove to be a heavy burden to established industries using fossil fuels, the Tailoring Rule contains a three year exclusion for projects utilizing a qualifying biomass feedstock. Accordingly, the Tailoring Rule's biomass exclusion may provide a window of opportunity for the biomass industry to compete on a more level playing field with fossil fuel based projects. This paper will provide background regarding the Tailoring Rule and explore its specific implications on the biomass industry.

Introduction

Pursuant to a mandate from the United States Supreme Court, the United States Environmental Protection Agency (EPA) has recently established a greenhouse gas regulatory framework, known as the "Tailoring Rule," that will have a profound impact on anthropogenic producers of carbon dioxide. While the Tailoring Rule may prove to be an immense regulatory burden on a broad range of industries, it should have a beneficial impact, at least in the short term, on projects using biomass based feedstock. This is because the Tailoring Rule provides a three year regulatory exclusion for those projects that utilize a biogenic fuel source, ranging from burning biomass to create electricity to ethanol fermentation. This three year exclusion period may provide the biomass industry with an opportunity to compete with the fossil fuel industry on more favorable terms.

Background

The history of federal permitting requirements for greenhouse gas (GHG) emissions began in 2003, when the International Center for Technology Assessment and a number of other organizations filed a petition asking the EPA to regulate GHG emissions from motor vehicles under Section 2-2(a)(1) of the Clean Air Act (CAA).¹ Section 202(a)(1) requires the

¹ Press Release, U.S. Environmental Protection Agency, EPA Denies Petition to Regulate Greenhouse Gas Emissions from Motor Vehicles (Aug. 28, 2003) at <http://yosemite.epa.gov/opa/admpress.nsf/fb36d84bf0a1390c8525701c005e4918/694c8f3b7c16ff6085256d900065fdad!OpenDocument>.

Administrator of the EPA to set emission standards for "any air pollutant" from motor vehicles or motor vehicle engines "which in his judgment cause[s], or contribute[s] to, air pollution which may reasonably be anticipated to endanger public health or welfare."²

On August 28, 2003, EPA denied the petition based upon the following two rationales:

- 1.) Congress has not granted EPA authority under § 202(a)(1) of the CAA to regulate CO₂ and other GHGs for climate change purposes; and
- 2.) EPA has determined that setting GHG emission standards for motor vehicles is not appropriate at this time.³

In response to the EPA's denial, a lawsuit was filed in the U.S. Court of Appeals for the District of Columbia Circuit by a group of twelve states, three cities, a U.S. territory and numerous organizations.⁴ In that case, *Massachusetts v. EPA*, the U.S. Court of Appeals ultimately upheld EPA's denial of the petition, finding that the EPA Administrator had properly exercised his discretion.⁵

On June 26, 2006, *Massachusetts v. EPA* was taken up by the U.S. Supreme Court,⁶ which on April 2, 2007 reversed the judgment of the Court of Appeals.⁷ In making its decision, the Court held that the CAA provides EPA the authority to regulate tailpipe emissions of GHGs.⁸ Additionally, the Court found that, under the CAA, EPA was required to determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare.⁹

In December 2009, EPA responded to the Court's mandate by formally finding that GHGs "are the primary driver of climate change, which can lead to hotter, longer heat waves that threaten the health of the sick, poor or elderly; increases in ground-level ozone pollution linked to asthma and other respiratory illnesses; as well as other threats to the health and welfare of Americans."¹⁰ On April 1, 2010, EPA followed this endangerment finding with a new rule setting forth the first-ever national GHG emissions standards for light-duty vehicles.¹¹ Notably, a few days prior to the light-duty vehicle rule, the EPA Administrator signed a notice stating that the GHG requirements of the vehicle rule would also trigger CAA permitting requirements for stationary sources beginning on January 2, 2011. However, this new rule left EPA with a substantial administrative problem, a staggering number of facilities would, for the first time, be required to obtain permits under the CAA programs. Specifically, EPA estimated that roughly six

² 42 U.S.C. § 7521(a)(1).

³ *Id.*

⁴ *Massachusetts v. E.P.A.*, 415 F.3d 50 (C.A.D.C. 2005).

⁵ *Id.* at 58-59.

⁶ *Massachusetts v. E.P.A.*, 549 U.S. 497 (2007).

⁷ *Id.* at 535.

⁸ *Id.* at 532.

⁹ *Id.* at 534.

¹⁰ Press Release, U.S. Environmental Protection Agency, EPA: Greenhouse Gases Threaten Public Health and the Environment (Dec. 7, 2009) *at* <http://yosemite.epa.gov/opa/admpress.nsf/7ebdf4d0b217978b852573590040443a/08d11a451131bca585257685005bf252!OpenDocument>.

¹¹ Press Release, U.S. Environmental Protection Agency, DOT, EPA Set Aggressive National Standards for Fuel Economy and First Ever Greenhouse Gas Emission Levels For Passenger Cars and Light Trucks (April. 1, 2010) *at* <http://yosemite.epa.gov/opa/admpress.nsf/7ebdf4d0b217978b852573590040443a/562b44f2588b871a852576f800544e01!OpenDocument>.

million sources would be required to file for operating permits, at a potential cost of roughly \$21 billion annually for permitting authorities.¹²

On May 13, 2010, EPA attempted to address this problem at the same time that it established a final rule setting GHG emission thresholds for stationary sources under the CAA permitting programs.¹³ This new rule, known as the “Tailoring Rule,” specifically defined when new and existing facilities must obtain permits under two CAA permitting programs: the New Source Review Prevention of Significant Deterioration (PSD) Program and the Title V Operating Permit program.¹⁴ The EPA also specifically addressed biomass projects in its deliberations surrounding the Tailoring Rule, creating a three year delay in implementing GHG permitting requirements for new and modified industrial facilities that use wood, crop residues, grass, and other biomass for energy.

Tailoring Rule - Phased Implementation

The “Tailoring Rule” is so named because it tailors the scope of the requirements of the CAA permitting thresholds for sources of GHGs which exceed levels set forth in the CAA. In order to ease the compliance burden, the Tailoring Rule sets forth various “steps,” which become increasingly more encompassing over a period of years. Under this multi-stepped approach, initially only the largest GHG emitting facilities would be subject to the permitting requirements, while smaller emitters, such as farms, restaurants and ordinary commercial facilities would be exempt. In explaining why this tailoring was necessary, EPA noted that “[w]ithout this tailoring rule, the lower emissions thresholds would take effect automatically for GHGs on January 2, 2011. PSD and Title V requirements at these thresholds would lead to dramatic increases in the number of required permits – tens of thousands of PSD permits and millions of Title V permits.”¹⁵

Under Step 1 of the Tailoring Rule, which went into effect on January 2, 2011, the PSD and Title V requirements only apply to a facility’s GHG emissions if that facility was already subject to PSD or Title V due to its non-GHG conventional pollutants.¹⁶ Specifically, Step 1 of the Tailoring Rule requires that as of January 2, 2011, the applicable requirements of the PSD program (including Best Available Control Technology requirements) apply to projects that increase net GHG emissions by at least 75,000 tons per year (tpy) of carbon dioxide equivalent (CO₂e), but only if the project also significantly increases emissions of at least one non-GHG pollutant.¹⁷ Similarly, Step 1 of the Title V program requirements only applies to GHG emissions

¹² Report, U.S. Environmental Protection Agency, Summary of Clean Air Act Permitting Burdens With and Without the Tailoring Rule (May 13, 2010), *at* <http://www.epa.gov/NSR/documents/20100413piecharts.pdf>.

¹³ Press Release, U.S. Environmental Protection Agency, EPA Sets Thresholds for Greenhouse Gas Permitting Requirements/Small businesses and farms will be shielded (May 13, 2010) *at* <http://yosemite.epa.gov/opa/admpress.nsf/7ebdf4d0b217978b852573590040443a/ea1bf25579e541b1852577220055c20c!OpenDocument>.

¹⁴ Fact Sheet, U.S. Environmental Protection Agency, Final Rule: Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule (May 13, 2010) *at* <http://www.epa.gov/nsr/documents/20100413fs.pdf>.

¹⁵ *Id.*

¹⁶ PREVENTION OF SIGNIFICANT DETERIORATION AND TITLE V GREENHOUSE GAS TAILORING RULE, 75 FED. REG. 31,514 (June 3, 2010) (to be codified at 40 C.F.R. pts. 51,52,70 and 71).

¹⁷ *Id.* at 31,516.

from facilities that already have Title V permits for non-GHG pollutants, or new facilities that would have to apply for a Title V permit for non-GHG pollutants.¹⁸

Under Step 2 of the Tailoring Rule, which went into effect on July 1, 2011, the scope of the PSD program is expanded to apply to new sources that emit, or have the potential to emit, 100,000 tons of CO₂e annually.¹⁹ In addition, sources that emit or have the potential to emit at least 100,000 tpy of CO₂e and that undertake a modification that increases net emissions of GHGs by at least 75,000 tpy of CO₂e will also be subject to PSD requirements.²⁰

In regard to other steps to be implemented in the future as part of the Tailoring Rule, EPA stated its intention to issue a supplemental notice of proposed rulemaking (SNPR) in 2011 regarding the scope of third step of the phase-in that would include more sources, beginning by July 1, 2013.²¹ The final rule implementing this Step 3 must be completed by July 1, 2012, thereby allowing for a one year notice period before Step 3 takes effect.²² Additionally, EPA created an enforceable commitment to complete a study by April 30, 2015 to evaluate the status of PSD and Title V permitting for GHG-emitting sources, including progress in developing streamlining techniques, as well as to complete further rulemaking based on that study by April 30, 2016, to address the permitting of smaller sources.²³

Finally, in an attempt to further limit the administrative burden of these additional permitting requirements, EPA stated that no source with emissions below 50,000 tpy of CO₂e, and no modification resulting in net GHG increases of less than 50,000 tpy of CO₂e, will be subject to PSD or Title V permitting before at least, April 30, 2016.²⁴

BACT Considerations

As part of the CAA requirements, facilities that are required to obtain a PSD permit and also emit or increase its emission of GHGs in amounts greater than 75,000 tpy must install air pollution control equipment that meets the “best available control technology” (BACT) standard.²⁵ Section 169(3) of the CAA defines BACT as:

an emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under the Clean Air Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant....

¹⁸ Id. at 31,516.

¹⁹ Id. at 31,516.

²⁰ Id. at 31,516.

²¹ 75 FED. REG. at 31,516.

²² Id.

²³ Id.

²⁴ Id.

²⁵ 75 Fed. Reg. at 31,606-07; 40 CFR 52.21(b)(49); 40 CFR 52.166(b)(48).

In undertaking this analysis, EPA has made clear that there is no one-size fits all definition of BACT. Instead, BACT analysis for a particular piece of equipment should be conducted on a case-by-case basis, and should take into account appropriate economic, environmental and other factors.²⁶

EPA has set forth the following five step process to determine whether a particular piece of equipment satisfied the BACT standard:

Step 1: Identify all available control technologies;

Step 2: Eliminate technically infeasible options;

Step 3: Rank remaining control technologies;

Step 4: Evaluate most effective controls and document results; and

Step 5: Select the BACT.

As part of this evaluation process, the applicant must identify all available control equipment options, which include any technologies or techniques that can potentially be practically applied to reduce the regulated pollutant. However, EPA has recognized that it is not necessary for this list of options to include technologies or techniques that would fundamentally redefine the nature of the source proposed by the permit applicant.²⁷

Typically, EPA divides potential BACT technologies or techniques into three categories:

- 1.) Inherently Lower-Emitting Processes/Practices/Designs;
- 2.) Add-on Controls; and
- 3.) Combinations of Inherently Lower Emitting Processes/Practices/ Designs and Add-on Controls.²⁸

Examples of processes that might be appropriate to include in this Step 1 analysis for an electric generating facility that utilizes biomass fuels could include co-generation, co-firing with biomass fuels, fuel switching, energy efficiency improvements, and carbon capture and sequestration.²⁹

²⁶ U.S. Environmental Protection Agency, PSD and Title V Permitting Guidance for Greenhouse Gases, p. 18, November 2010, *available at* <http://www.epa.gov/nsr/ghgdocs/epa-hq-oar-2010-0841-0001.pdf>.

²⁷ U.S. Environmental Protection Agency, Guidance for Determining Best Available Control Technology for Reducing Carbon Dioxide Emissions from Bioenergy Production, p. 12, March 2011, *available at* <http://www.epa.gov/nsr/ghgdocs/bioenergyguidance.pdf> (*citing In re Prairie State Generating Company*, 13 E.A.D. 1, 23 (EAB 2006)).

²⁸ *Supra* n. 26 at 26-27.

²⁹ *See supra* n. 27 at 15-16.

Biomass Exclusion

Based on the assumption that biomass based generation is “carbon neutral,” many in the biomass industry expected that biomass fueled producers would be exempt from GHG permitting requirements. However, these hopes would soon be dashed when the EPA initially determined that it lacked sufficient evidence to exclude CO₂ emissions from biogenic sources.³⁰ Without such an exclusion, biomass generation would likely not be considered an attractive alternative to fossil fuels.

However, on March 14, 2011 the EPA proposed delaying for three years GHG permitting requirements for new and modified industrial facilities that use wood, crop residues, grass, and other biomass for energy.³¹ The EPA will use this delay period for further scientific analysis of biomass emissions.³² This proposed rule was formally enacted on July 20, 2011.³³

The biomass exclusion covers a broad spectrum of producers of biogenic CO₂, including both those that generate electricity and those that create other biomass based products. Essentially, any emission from a stationary source directly resulting from the combustion or decomposition of biologically-based materials such as: biological decomposition in landfills; wastewater treatment; manure management; landfill gas/methane capture; forest residue; agricultural material; wood waste; and CO₂ from fermentation during ethanol production, qualify for the exclusion, among others.³⁴ Further, the combustion of the biological fraction of municipal solid waste or bio-solids and the combustion of the biological fraction of tire-derived fuel also qualify.³⁵ Finally, as noted in the prior section, permitting authorities may consider for BACT purposes with respect to GHG emissions the environmental, energy, and economic benefits that may accrue from the use of certain biomass and biogenic sources.³⁶ Thus, the biomass component of a facilities fuel stream might alone qualify as BACT for GHG emissions from a stationary source. Accordingly, the biomass exclusion is very broad and should create a significant advantage for the industry vs. fossil fuel users.

³⁰ 75 Fed. Reg. at 31,536.

³¹ Press Release, U.S. Environmental Protection Agency, EPA Proposes to Defer GHG Permitting Requirements for Industries that Use Biomass/Agency aims for science-based, reasonable approach to biomass (March 14, 2011) *at* <http://yosemite.epa.gov/opa/admpress.nsf/1e5ab1124055f3b28525781f0042ed40/8a075999ffaf58e285257853005acb83!OpenDocument>.

³² Id.

³³ DEFERRAL FOR CO₂ EMISSIONS FROM BIOENERGY AND OTHER BIOGENIC SOURCES UNDER THE PREVENTION OF SIGNIFICANT DETERIORATION (PSD) AND TITLE V PROGRAMS, 76 FED. REG. 43,490 (July 20, 2011) (to be codified at 40 C.F.R. pts. 51, 52, 70 and 71).

³⁴ Fact Sheet, U.S. Environmental Protection Agency, Final Rule - Deferral for CO₂ emissions from Bioenergy and Other Biogenic Sources under the Prevention of Significant Deterioration (PSD) and Title V Programs (June 2011) *at* http://www.epa.gov/nsr/documents/Biogenic_Fact_Sheet_June_2011.pdf.

³⁵ 76 Fed Reg. at 43,493.

³⁶ Id. at 43,495.

Conclusion

The three year biomass exclusion from the Tailoring Rule's GHG regulatory burdens should create an opportunity for biomass project to compete with fossil fuel projects on somewhat more favorable terms. It has yet to be seen whether this will prove to be a reality. If biomass based generation and other projects fail to utilize this advantage, or if the advantage does not prove to be as significant as it may seem, this could amount to a setback for the biomass industry and its supporters.